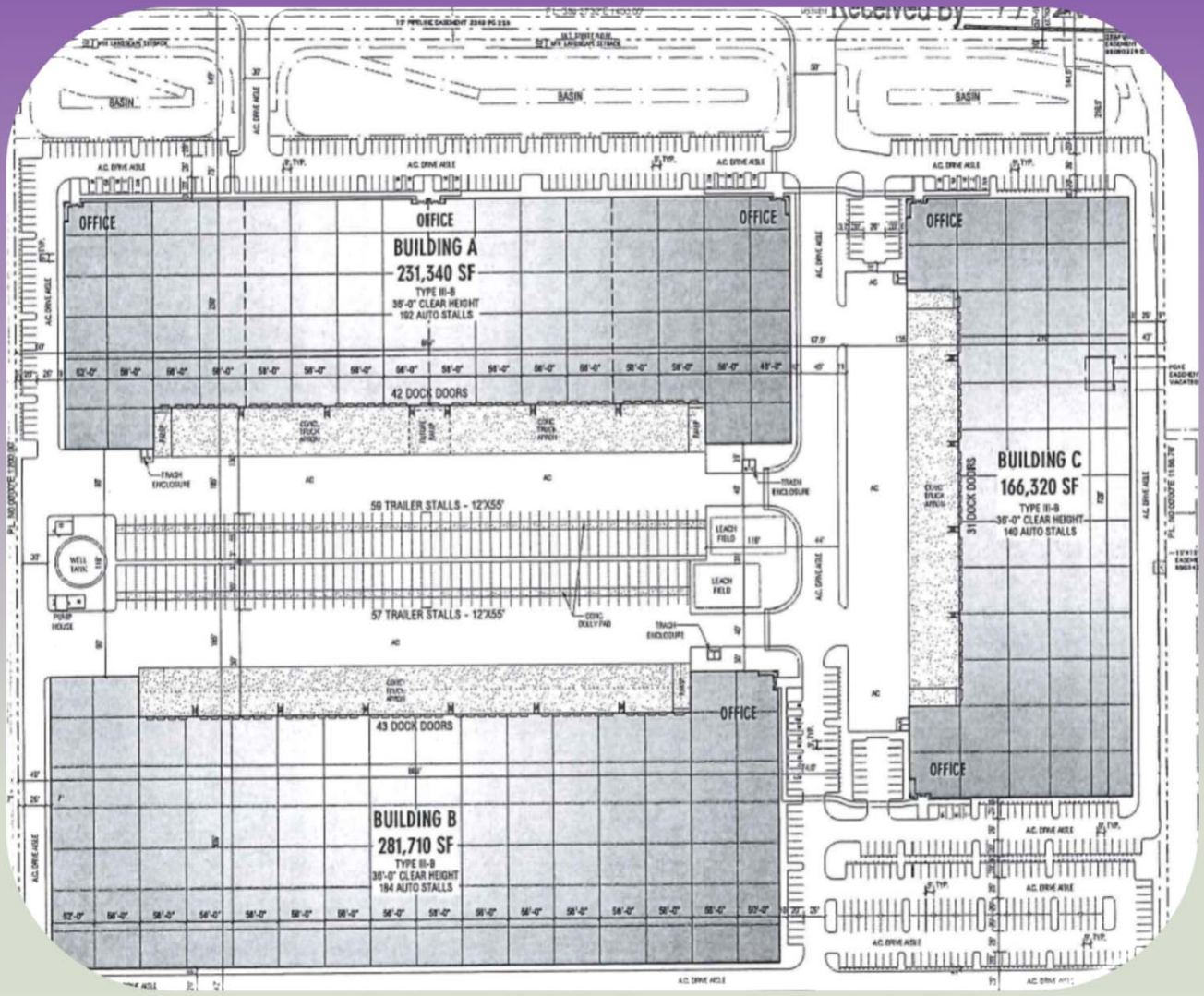
Appendix F

Transportation

Traffic Impact Analysis for Warehouse Development at 14800 W. Schulte Road

for San Joaquin County, CA

December 16, 2020



Traffic Impact Analysis for Warehouse Development at 14800 W. Schulte Road, San Joaquin County, California

Final Report

Prepared for:
San Joaquin County

Prepared by:
Advanced Mobility Group

AMG ADVANCED MOBILITY GROUP

December 16, 2020

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1.0 INTRODUCTION AND EXECUTIVE SUMMARY

INTRODUCTION

The purpose of this report is to document results of a traffic impact study for the proposed warehouse project located at 14800 W. Schulte Road adjacent to the City limits of southern Tracy within the City of Tracy Sphere of Influence. The proposed project site is approximately 38.35 acres with project size of 679,370 sf. The Site Vicinity Map is shown in **Figure 1**.

SUMMARY

Based on the results of the analysis, the following is a summary of our findings:

Existing Traffic Conditions

All the intersections operate at acceptable Level of Service (LOS) D or better indicating acceptable conditions except two unsignalized intersections of Schulte Road and Lammers Road and Valpico Road and Corral Hollow Road.

Proposed Project Trip Generation

It is estimated that the project will generate approximately 170 Passenger Car Equivalent (PCE) trips during the AM peak hour and 174 PCE trips during the PM peak hour.

Existing Plus Approved Projects (EPAP) Traffic Condition

A list of approved projects was provided by the City of Tracy staff and used for analysis under this scenario. Additional intersection improvements would be required. Based on a review of what was recommended in previously approved projects, AMG used the following mitigation measures (to be constructed by others) for the two intersections that are expected to deteriorate to LOS F:

- Schulte Road/International Parkway (#1) – improvements in the I- 580/International Parkway/Patterson Pass Road Traffic Operations Analysis Report (FTOAR). The intersection is estimated to improve significantly but will operate at LOS E during the PM peak hour which is considered acceptable.
- Hansen Road/Schulte Road (#2) – add westbound through lane and northbound right-turn lane. Intersection will operate at LOS C or better.

Existing Plus Approved Plus Project Traffic Condition

Similar to the EPAP scenario, all intersections operate at unacceptable LOS F except intersections at Valpico Road/Lammers Road and Lammers Road/11th Street which will operate at LOS C or better. Additional intersection improvements would be required. Based on a review of what was recommended in previously approved projects, AMG added the following mitigation measures (to be constructed by others) for the two intersections:

- Schulte Road/International Parkway (#1) – improvements in the I- 580/International Parkway/ Patterson Pass Road FTOAR as indicated previously. The intersection is estimated to improve significantly but will operate at LOS E during the PM peak hour which is considered acceptable.
- Hansen Road/Schulte Road (#2) – add westbound through lane and northbound right-turn lane.

The intersection of Schulte Road and International Parkway will improve to operate acceptably at LOS D during the AM peak hour and operate at acceptable LOS E during the PM peak hour. The resulting LOS due to the project's traffic impacts is similar when compared to the EPAP no project LOS.

Cumulative (No Project) Conditions

Cumulative project trips for five projects (Cordes Ranch Specific Plan, Tracy Hills Specific Plan, Tracy Village Specific Plan, Ellis Specific Plan, and Stringer/Rocking House Specific Plan) were provided by the City of Tracy staff to be considered for the base cumulative no project scenario.

All intersections operate at unacceptable LOS F, except the intersections of Schulte Road/International Parkway and Schulte Road/Lammers Road which will operate at LOS D or better. Based on a review of the City of Tracy Transportation Master Plan and review of previously approved roadway improvements under cumulative scenarios, AMG included these mitigation measures for the following intersections:

- Hansen Road/Schulte Road (#2) – add eastbound and westbound through lane and northbound and southbound through lanes. Intersection is estimated to operate at LOS D or better.
- Schulte Road & Lammers Road (#3) – add two through lanes in the northbound and southbound approaches as well as provide left and right turn lanes. Add right-turn lane in the eastbound and add new westbound approach. Intersection is estimated to operate at LOS D or better.
- Valpico Road/Lammers Road (#4) – add two additional through lanes on Lammers Road making it a six-lane roadway. Add two right-turn lanes on the westbound approach and one through lane on the eastbound. It is estimated that traffic would operate at LOS F during the PM peak hour with signal control.
- Valpico Road/Corral Hollow Road (#5) – add one additional through lane on Valpico Road making it a four-lane roadway. Add one through lane on the north-south approach making Corral Hollow Road a four-lane roadway. It is estimated that traffic would operate at LOS D during the AM peak hour and LOS F during the PM peak hour with signal control.
- Lammers Road/11th Street (#6) – the intersection is assumed to be build out. It is estimated that traffic would operate at LOS E during the AM peak hour and LOS F during the PM peak hour.

Cumulative plus Project Conditions

All intersections operate at unacceptable LOS F, except the intersections of Schulte Road/International Parkway and Schulte Road/Lammers Road which will operate at LOS D or better.

As indicated under the Cumulative No Project scenario, based on a review of the City of Tracy Transportation Master Plan and review of previously approved roadway improvements under cumulative scenarios, AMG included these mitigation measures for the following intersections:

- Hansen Road/Schulte Road (#2) – add eastbound and westbound through lane and northbound and southbound through lanes. Intersection is estimated to operate at LOS D or better.
- Schulte Road & Lammers Road (#3) – add two through lanes in the northbound and southbound approaches as well as provide left and right turn lanes. Add right-turn lane in the eastbound and add new westbound approach. Intersection is estimated to operate at LOS D or better.
- Valpico Road/Lammers Road (#4) – add two additional through lanes on Lammers Road making it a six-lane roadway. Add two right-turn lanes on the westbound approach and one through lane on the eastbound. It is estimated that traffic would operate at LOS F during the PM peak hour with signal control.
- Valpico Road/Corral Hollow Road (#5) – add one additional through lane on Valpico Road making it a four-lane roadway. Add one through lane on the north-south approach making Corral Hollow Road a four-lane roadway. It is estimated that traffic would operate at LOS D during the AM peak hour and LOS F during the PM peak hour with signal control.
- Lammers Road/11th Street (#6) – the intersection is assumed to be build out. It is estimated that traffic would operate at LOS E during the AM peak hour and LOS F during the PM peak hour.

Therefore, it could be concluded that with the added project traffic, the resulting LOS is similar to Cumulative No Project conditions. Three intersections would continue to operate at LOS E/F conditions.

Intersection delay increases due to the project is expected to be minimal (increases ranges from one to seven seconds).

Project Fair Share Cost

The estimated total project fair share cost is approximately $58,100.

2.0 EXISTING SETTING

This section describes the existing transportation conditions in the vicinity of the study area, including descriptions of the existing street system and intersection operating conditions. The study area is shown in **Figure 1**.

EXISTING STREET SYSTEM

Important roadways adjacent to the project site are discussed below:

Interstate 580 provides the most direct regional access to the Project site via full access interchanges at International Parkway, also provides access west to the Bay Area (via the Altamont Pass), and connects to I-5 south of the City of Tracy. Within Tracy it is a four-lane freeway with 70 mph posted speed limit.

International Parkway is a north-south arterial that runs from I-580 in the south and connects to I-205 in the north. It is generally a four-lane roadway from Schulte Road as it crosses the Delta Mendota Canal and connects to the I-580 Ramps. Based on City's ordinance, the speed limit from Berkeley Road to I-205 is 45 mph[1]. Based on field review all signage has been removed due to construction and the posted speed limit from Schulte Road to Berkeley Road is signed 40 mph.[2]

Schulte Road is a discontinuous roadway extending from Mountain House Parkway to Chrisman Road. For a short segment of the roadway (east of Mountain House Parkway and adjacent to the Safeway Warehouse Terminal), Schulte Road is a five-lane truck route. East of this segment, Schulte Road narrows to two travel lanes. Schulte Road terminates at the intersection with Lammers Road. The roadway starts again at Corral Hollow Road, approximately ¼ mile south of its westerly segment. From Lammers Road to Corral Hollow Road, it is a two-lane undivided roadway. Based on City's ordinance, the speed limit on Schulte Road is 40 mph near International Parkway and 50 mph east of Hansen Road to City of Tracy limit.[3]

Lammers Road is a major roadway originating one mile south of Valpico Road on the western boundary of the existing developed area of the City of Tracy. Based on City's ordinance, the speed limit from Schulte Road to Eleventh Street is 50 mph.[4]

Valpico Road is a continuous roadway extending from Lammers Road on the west side of the City of Tracy to Chrisman Road on the east side of the City. The roadway is a two-lane undivided roadway from Lammers Road to Cagney Way, where it becomes a four-lane divided arterial up to Tracy Boulevard. Based on City's ordinance, the speed limit from West City limits to Tracy Boulevard is 40 mph. [5]

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[1] *City of Tracy Ordinance, 3.08.580 - Special speed zones.*

[2] *Based on 12/14/2020 field review by County staff*

[3] *Based on 12/14/20 field review, this area is a mix of 40 mph, 45 mph, 50 mph, and unsigned.*

[4] *Based on 12/14/20 field review, Lammers south of Kimball High School is almost completely unsigned. 4-6 lane sections from Eleventh Street south are all signed 45 mph, with a random 35 mph NB sign and a 50 mph SB sign as the 4 lanes transitions back to a 2-lane road.*

[5] *It is noted the City of Tracy recently annexed the 2-lane section of Valpico from Corral Hollow to approximately 1/2 mile east - so the "West City limits" definition has changed to become the same as Corral Hollow Road. Based on 12/14/20 field review, the segment between Lammers and Corral Hollow is unsigned, the 2-lane section from Corral Hollow to 1/2-mile east is 35 mph, and the 4-lane section from there to Tracy Blvd is signed 40 mph.*

Hansen Road is a north-south divided four-lane road that connects from Schulte Road in the project vicinity and extends to beyond I-205 to the north. Based on City's ordinance, the speed limit from Schulte Road to I-205 is 50 mph. It is noted that the divided four-lane portion of Hansen Road north of Schulte Road was recently renamed Iron Horse Parkway, and south of Schulte Road is still a two-lane undivided road.[6]

Corral Hollow Road is a north-south roadway that extends from the intersection of Corral Hollow and Lammers Road which is approximately two miles north of the northern Tracy limits in a rural area, to past the I-580 ramps in the south. Based on City's ordinance, the speed limit from Schulte Road to Eleventh Street is 45 mph.[7]

Corral Hollow Road continues west past the I-580 ramps to the City of Livermore, eventually becoming Tesla Road. It is a two-lane, undivided roadway from Lammers Road to Naglee Road; a four-lane, divided roadway from Naglee Road to West Schulte Road; and a two-lane, undivided roadway from Schulte Road to the I-580 ramps.

A copy of the speed limit based on the field review conducted on December 14, 2020 is contained in **Appendix A**.

EXISTING PEDESTRIAN FACILITIES

Pedestrian facilities consist of crosswalks, sidewalks, pedestrian signals, and off-street paths, which provide safe and convenient routes for pedestrians to access the destinations such as institutions, businesses, public transportation, and recreation facilities.

In the project vicinity, due to the rural nature of the area, Schulte Road lacks sidewalks, crosswalks, and street lighting. There are no bus stops in the immediate vicinity of the project site.

EXISTING BICYCLE FACILITIES

Bicycle paths, lanes and routes are typical examples of bicycle transportation facilities, which are defined by Caltrans as being in one of the following four classes:

1. Class I – Provides a completely separated facility designed for the exclusive use of bicyclists and pedestrians with crossing points minimized.
2. Class II – Provides a designated lane for the exclusive or semi-exclusive use of bicycles with through travel by motor vehicles or pedestrians prohibited, but with vehicle parking and cross- flows by pedestrians and motorists permitted.
3. Class III – Provides a route designated by signs or pavement markings and shared with motorists.
4. Class IV – A separated bikeway, often referred to as a cycle track or protected bike lane, is for the exclusive use of bicycles, physically separated from motor traffic with a vertical feature.

[6] *Based on 12/14/20 field review, the entirety of Hansen Rd/Iron Horse Pkwy is now signed 45 mph from I-205 south to the end of County Maintained Road.*

[7] *Based on 12/14/20 field review, the signage has been changed to 45 mph between Schulte & Eleventh St as stated. Schulte south to Valpico is signed as 40 mph.*

In the project vicinity, per the adopted 2010 County Bicycle Master Plan, Schulte Road is an existing Class III Bike Route between Hansen Road and Lammers Road. In addition, both Hansen and Lammers Roads were shown as proposed Class III routes south of Schulte Road, and Schulte Road was proposed as a Class II Bike Lane from Hansen Road west to the old Mountain House Parkway County designation.

Note however that due to City's annexations since the 2010 Plan's adoption, some of the County's proposed routes may have been superseded by planned bike facilities in the Cordes Ranch Specific Plan.

EXISTING TRANSIT FACILITIES

There is no transit service within the project vicinity. It is noted that Tracer Bus Service provides service in the City of Tracy and the nearest stops/routes is at 11th Street and Lammers Road, approximately 2 miles northeast of the Project. Note that these transit facilities are too far away from the project location to be relevant.

EXISTING PEAK HOUR VOLUMES

Intersection turning movement counts were collected for the six intersections on February 11, 2020. AMG evaluated existing traffic conditions at the selected study intersections during the AM (7-9) and PM (4-6) peak hour on a typical weekday.

In addition, AMG collected 24-hour classification counts on Schulte Road near the project site. The hourly volumes of the Average Daily Traffic (ADT) data indicated that peak hourly volumes of approximately seven to eight percent per hour of the total ADT volumes during the AM peak hour started around 5 AM before tailing off after 8 AM. The intersection turning movement counts conducted is within one of the peak hours.

The ADT count on Schulte Road showed approximately 8,400 vehicles per day (vpd) near the project site. The ADT count is contained in **Appendix A.**

The classification information collected would be used as heavy vehicle input for intersection analysis. Peak hour factors and truck percentages used in the analysis were based on the counts.

The study intersections and associated traffic controls are as follows:

1. Schulte Road and International Parkway (Signal),
2. Hansen Road and Schulte Road (Signal),
3. Schulte Road and Lammers Road (All Way Stop),
4. Valpico Road and Lammers Road (One Way Stop),
5. Valpico Road and Corral Hollow Road (All Way Stop), and
6. Lammers Road and 11th Street (Signal)

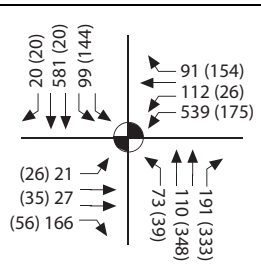
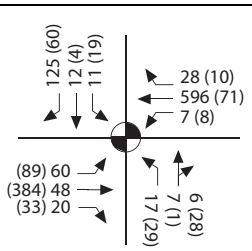
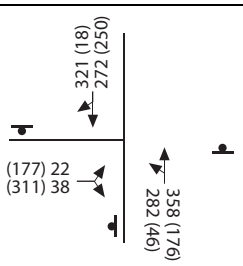
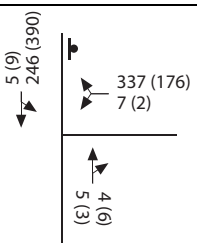
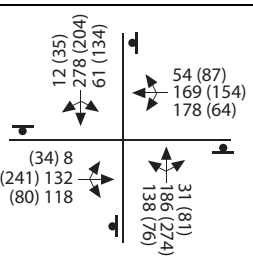
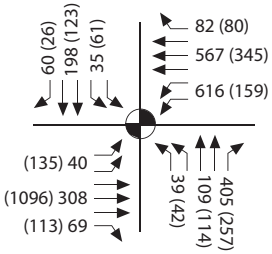
Appendix A includes all the data sheets for the collected intersection vehicle, bicycle and pedestrian counts. **Figure 1** shows the existing conditions peak hour traffic volumes and lane geometry and traffic control at the study intersections.

Based on input from City and agency staff, the weekday AM and PM peak hour traffic conditions for the following five scenarios were analyzed:

i. Existing
ii. Existing plus Approved Projects
iii. Existing plus Approved Projects plus the Proposed Project
iv. Cumulative No Project
v. Cumulative plus the Proposed Project

Traffic Impact Analysis for 14800 W. Schulte Road, San Joaquin County, CA
Project Vicinity & Existing Traffic Volumes & Lane Configurations

Figure 1

Intersection #1 International Pkwy / Schulte Rd	Intersection #2 Hansen Rd / Schulte Rd	Intersection #3 Lammers Rd / Schulte Rd	Intersection #4 Lammers Rd / Valpico Rd	Intersection #5 Corral Hollow Rd / Valpico Rd
				
Intersection #6 Lammers Rd / 11th St				
				

LEGEND

- Study Intersection
- Stop Sign
- Traffic Signal
- (XX) PM Peak Hour Volume
- XX AM Peak Hour Volume
- Proposed Project Site
- ADT Volumes

AMG ADVANCED MOBILITY GROUP

NORTH
Not to Scale

P1808145 - 10/09/2020 - CT

LEVEL OF SERVICE METHODOLOGY

Level of Service is a qualitative index of the performance of an element of the transportation system. Level of Service (LOS) is a rating scale running from A to F, with A indicating no congestion of any kind, and F indicating intolerable congestion and delays.

The 2010 Highway Capacity Manual (HCM) is the standard reference published by the Transportation Research Board and contains the specific criteria and methods to be used in assessing LOS. There are several software packages that have been developed to implement HCM. In this study, the Synchro software was used to calculate the LOS at the study intersections.

Table 1: Signalized Intersection LOS Criteria

LOS	Driver's Perception and Traffic Operation Description	Delay in Seconds
A	Operations with very low delay occurring with favorable progression and/or short cycle length.	< 10
B	Operations with low delay occurring with good progression and/or short cycle lengths.	> 10 – 20
C	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	> 20 - 35
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high volume-to-capacity (V/C) ratios. Many vehicles stop, and individual cycle failures are noticeable.	> 35 – 55
E	Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	> 55 - 80
F	Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths.	> 80

Signalized Intersections

The relationship between average control delay, driver's perception of traffic, and LOS for signalized intersections is summarized in **Table 1**.

Unsignalized Intersections

The method of unsignalized intersection capacity analysis used in this study is from Chapter 19, "Two-Way Stop-Controlled Intersections" of the Highway Capacity Manual. This method applies to two-way STOP sign or YIELD sign-controlled intersections (or one-way STOP sign or YIELD sign controlled intersections at three-way intersections). At such intersections, drivers on the minor street are forced to use judgment when selecting gaps in the major flow through which to execute crossings or turning maneuvers. Thus, the capacity of the controlled legs of an intersection is based on three factors:

1. The distribution of gaps in the major street traffic stream.
2. Driver judgment in selecting gaps through which to execute their desired maneuvers.
3. Follow-up time required to move into the front-of-queue position.

The level of service criterion for two-way STOP controlled intersections is somewhat different from the criterion used for signalized intersections. The primary reason for this is the difference that drivers expect a signalized intersection to carry higher traffic volumes than unsignalized intersections. Additionally, several driver behavior conditions combine to make delays at signalized intersections less onerous than at unsignalized intersections.

The HCM provides procedures for calculating LOS on the minor street approaches and individual movements. It does not specify how a local agency must utilize that information. Depending on the availability of gaps, the minor approach might be operating at LOS D, E, or F while the overall intersection operates at LOS C or better. A minor approach that operates at LOS D, E, or F does not automatically translate into a need for a traffic signal. A signal warrant would still need to be met. There are many instances where only a few vehicles are experiencing LOS D, E, or F on the minor approach while the whole intersection operates at an acceptable LOS. A signal is usually not warranted under such conditions.

Table 2 summarizes the relationship between delay and LOS for unsignalized intersections. At side-street stop-controlled intersections, the delay is calculated for each stop-controlled movement, the left-turn movement from the major street, as well as the intersection average. The intersection average delay and highest movement/approach delay are reported for side street stop-controlled intersections.

Table 2: Unsignalized Intersection LOS Criteria

LOS	Driver's Perception and Traffic Operation Description	Delay in Seconds
A	Little or no delays	< 10
B	Short traffic delays	> 10 – 15
C	Average traffic delays	> 15 - 25
D	Long traffic delays	> 25 - 35
E	Very long traffic delays	> 35 – 50
F	Extreme traffic delays with intersection capacity exceeded	> 50

SIGNIFICANCE CRITERIA

San Joaquin County

As per the San Joaquin County 2035, General Plan Draft Environmental Report dated October 2014, CMP Level of Service - The County is to maintain and enforce Level of Service (LOS) standards consistent with the San Joaquin Council of Governments (SJCOG) Congestion Management Program (CMP) for State highways and designated County roadways and intersections of regional significance. Per the CMP, all designated CMP roadways and intersections shall operate at LOS D or better except for roadways with "grandfathered" LOS. LOS for State highways shall be maintained in cooperation with Caltrans. The County LOS standards for intersections is LOS "D" or better on Minor Arterials and roadways of higher classification and LOS "C" or better on all other roads. The County shall maintain the following:

1. On State highways, LOS D or Caltrans standards whichever is stricter.
2. Within a city's sphere of influence, LOS D, or the city planned standards for that level of service.
3. On Mountain House Gateways, as defined in the Master Plan, LOS D, on all other roads, LOS C.

For State highways that are designated as part of SJCOG's CMP, both the Caltrans and CMP LOS standards shall apply. Where roadways are designated as part of SJCOG's CMP, both the County and CMP LOS standards shall apply. (Source: Existing GP, Transportation, Roadways, Policy 8, modified)
For CMP intersections or roadways currently operating or expected to operate at LOS E or F under No Project conditions, the project would result in a significant impact if it would increase:

1. Average delay by 4 seconds or more (intersections); or
2. The volume-to-capacity (v/c) ratio by 1.0 or more.

City of Tracy

The City has established LOS D, where feasible, as the minimum acceptable LOS for roadways and overall intersection operations (for roadways a v/c ratio of .80-.89 = LOS D). The following provides a list and description of exceptions to the LOS D standard:

- LOS E or lower shall be allowed on streets and at intersections within ¼ mile of any freeway, to discourage inter-regional traffic from using City streets.
- In the Downtown and Bowtie area of the City of Tracy, LOS E shall be allowed in order to create a pedestrian-friendly urban design character and densities necessary to support transit, bicycling, and walking.
- The City may allow individual locations to fall below the City's LOS D standard at intersections where construction of improvements is not feasible, prohibitively expensive, significantly impact adjacent properties or the environment, or have a significant adverse impact on the character of the community, including pedestrian mobility, crossing times, and comfort/convenience.
- Intersections may be permitted to fall below their adopted LOS standard on a temporary basis when the improvements necessary to preserve the LOS standard are in the process of construction or have been designed and funded but not yet constructed.

Significant Impact Criteria - Signalized Intersections

- Signalized intersections operating at an acceptable level (LOS D or better if located more than ¼ mile from a freeway) degrade to an unacceptable LOS E or F.
- Addition of project trips causes a delay increase of more than four seconds to an intersection already operating at an unacceptable level.

Significant Impact Criteria - Unsignalized Intersections

- Unsignalized intersections operating at LOS D or better degrade to an unacceptable LOS E or under (outside ¼ mile of a freeway), and LOS E or better degrade to an unacceptable LOS F (within ¼ mile of a freeway), and a traffic signal warrant is met.
- Addition of Project trips causes a volume increase of more than 10 percent at an intersection operating at an unacceptable level and meeting a signal warrant.

3.0 EXISTING TRAFFIC CONDITION

This section presents the assessment of traffic conditions without the proposed project.

INTERSECTION LEVEL OF SERVICE

To accurately model the traffic condition, AMG created a Synchro traffic analysis model to determine the intersection LOS. The Existing Conditions traffic operations were evaluated based on levels of service criteria using Synchro. Several intersection attributes (such as lane geometries, truck percentage, signal phasing and traffic control) were coded into the Synchro software model to evaluate the study intersections.

The results of the LOS analysis for the existing intersections are shown in **Table 3**. All the intersections operate at acceptable LOS D or better indicating acceptable conditions except two unsignalized intersections of Schulte Road/Lammers Road and Valpico Road/Corral Hollow Road. It is noted that the intersection of Valpico Road/Corral Hollow Road is currently in the signal design stage.[8]

[8] *It is noted that the signal at the intersection of Schulte Road/ and Lammers Road which was "in design" at the time of the City of Tracy's comments was completed and fully functional as of 12/14/2020.*

Table 3: Existing LOS of Study Intersections

ID	*Intersection*	Existing				
		Existing Control	*A.M.*		*P.M.*	
			Delay	*LOS*	*Delay*	*LOS*
1	Schulte Road & International Prkwy	Signal	27.5	C	23.1	C
2	Hansen Road & Schulte Road	Signal	28.1	C	18.7	B
3	Schulte Road & Lammers Road	AWS	40.4	**E**	25.1	D
4	Valpico Road & Lammers Road	OWS	10.7	B	9.5	A
5	Valpico Road & Corral Hollow Road	AWS	89.8	**F**	106.0	**F**
6	Lammers Road & 11th Street	Signal	18.9	B	18.2	B

Note:
OWS - One Way Stop control
AWS - All Way Stop control

PEAK HOUR SIGNAL WARRANT

AMG completed a peak hour traffic signal warrant analysis for the two stop control intersections at Schulte Road/Lammers Road and Valpico Road/Corral Hollow Road. Existing Peak Hour Warrant Results indicated that peak hour signal warrant is met for both intersections. The City should conduct additional traffic monitoring and additional signal warrants evaluation (four-hour and eight-hour) in the future and install a signal or roundabout as appropriate.

Detailed level of service worksheets is provided in **Appendix B**.

4.0 EXISTING PLUS APPROVED (NO PROJECT) TRAFFIC CONDITION

The Existing Plus Approved (No Project) Traffic Condition (EPAP) AM/PM condition is a near-term future background condition. This condition is referred to in this traffic impact study as EPAP No Project conditions. Development of land uses, and roadway improvements associated with previously approved projects are assumed in this condition. This scenario does not include development of the proposed Warehouse Project. The EPAP No Project condition, therefore, serves as the baseline condition used to assess the significance of near-term project-related traffic impacts during peak hours.

Based on the Final Traffic Operations Analysis Report (FTOAR) for the I- 580/International Parkway/Patterson Pass Road[9], the near term lane configuration (2022), the following changes were made to the existing lane configuration at International/Schulte for the EPAP scenarios:

1. Existing approach was converted from eastbound left-turn, through and a shared through and right-turn lane to eastbound left-turn, through and exclusive right-turn lane.
2. An additional right-turn lane was added to the northbound approach.
3. Westbound right-turn will overlap with southbound left-turn.

[9] *FTOAR for the I- 580 / International Parkway / Patterson Pass Road Interchange in Tracy, CA, July 26, 2019*

These assumptions would be carried to all future scenarios.

Based on information provided by the City of Tracy staff[10], the assumed Approved developments include the following:

- Cordes Ranch Specific Plan
- Tracy Hills Specific Plan
- Tracy Village Specific Plan
- Ellis Specific Plan
- Stringer/Rocking House Specific Plan

Additional information was provided on the status of approved projects including the percentage of build and occupied buildings[11]. Based on the information provided, it was estimated that approximately 30 percent of Phase 1 of Cordes Ranch has been built and occupied.

INTERSECTION LEVEL OF SERVICE

Based on the estimated information generated from above, final Approved project trips were added to the Existing Traffic counts to arrive at EPAP. **Figure 2** illustrates the EPAP peak hour traffic volumes and lane geometry and traffic control at the study intersections.

Traffic volumes under EPAP No Project conditions would be generally higher than under Existing conditions and, as a result, vehicle delay at study intersections under EPAP No Project conditions would be higher than under Existing conditions. **Table 4** presents the AM and PM Hours LOS at the six study intersection under EPAP No Project conditions.

Detailed level of service worksheets is provided in **Appendix C**.

Table 4: EPAP No Project LOS of Study Intersections

		Existing					Existing + Approved Projects					Existing + Approved Projects (Mitigated)				
ID	Intersection	Existing Control	A.M.		P.M.		Existing Control	A.M.		P.M.		Mitigated	A.M.		P.M.	
			Delay	LOS	Delay	LOS		Delay	LOS	Delay	LOS		Delay	LOS	Delay	LOS
1	Schulte Road & International Prkwy	Signal	27.5	C	23.1	C	Signal	135.7	**F**	239.4	**F**	Signal	42.8	D	71.4	**E**
2	Hansen Road & Schulte Road	Signal	28.1	C	18.7	B	Signal	151.1	**F**	72.6	**E**	Signal	50.4	D	25.7	C
3	Schulte Road & Lammers Road	AWS	40.4	**E**	25.1	D	AWS	345.2	**F**	550.4	**F**	**Signal**	41.4	D	34.0	C
4	Valpico Road & Lammers Road	OWS	10.7	B	9.5	A	OWS	20.5	C	13.9	B	OWS	20.5	C	13.9	B
5	Valpico Road & Corral Hollow Road	AWS	89.8	**F**	106.0	**F**	AWS	89.8	**F**	106.0	**F**	**Signal**	28.0	C	25.9	C
6	Lammers Road & 11th Street	Signal	18.9	B	18.2	B	Signal	21.9	C	20.6	C	Signal	21.0	C	21.4	C

Note:
OWS - One Way Stop control
AWS - All Way Stop co
***Signal - Bold font** designate Mitigated conntrol*

Under EPAP No Project conditions, two more intersections at Schulte Road/International Parkway and Hansen Road/Schulte Road would deteriorate to LOS F. Additional intersection improvements would be required. Based on a review of what was recommended in previously approved projects, AMG added the following mitigation measures for the two intersections:

[10] *May 15, 2020 email from Colin Ogilvie to Anju Pillai, City of Tracy*
[11] *July 1, 2020 email from Mike O'Connor, City of Tracy*

- Schulte Road/International Parkway (#1) – improvements in the I- 580/International Parkway/ Patterson Pass Road FTOAR as indicated previously. The intersection is estimated to improve significantly but will operate at LOS E during the PM peak hour which is considered acceptable.
- Hansen Road/Schulte Road (#2)– add westbound through lane and northbound right-turn lane. It is noted that recent recommended improvements to this intersection include the addition of second through lanes in the eastbound and westbound directions.[12]

PEAK HOUR SIGNAL WARRANT

AMG completed a peak hour traffic signal warrant analysis for the two stop control intersections at Schulte Road/Lammers Road and Valpico Road/Corral Hollow Road. Using the EPAP peak hour turning movement volumes, the CAMUTCD criteria were evaluated for Warrant 3, Peak Hour.

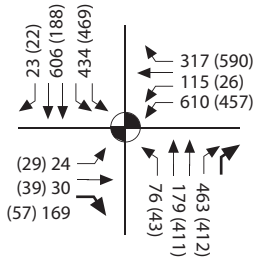
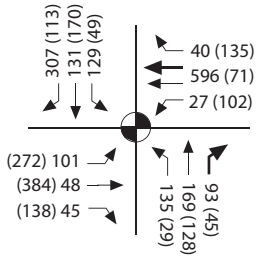
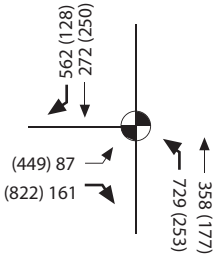
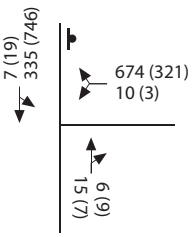
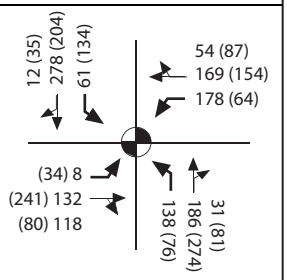
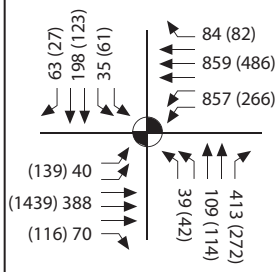
EPAP Peak Hour Warrant Results indicated that peak hour signal warrant is met for both intersections. See **Appendix C** for peak hour signal warrant analysis summary. The City should conduct additional traffic monitoring and additional signal warrants evaluation (four-hour and eight-hour) in the future and install a signal or roundabout as appropriate. The LOS results of installing a signal at both intersections are shown in **Table 4.** The intersections will operate at acceptable LOS C or better with traffic signal.

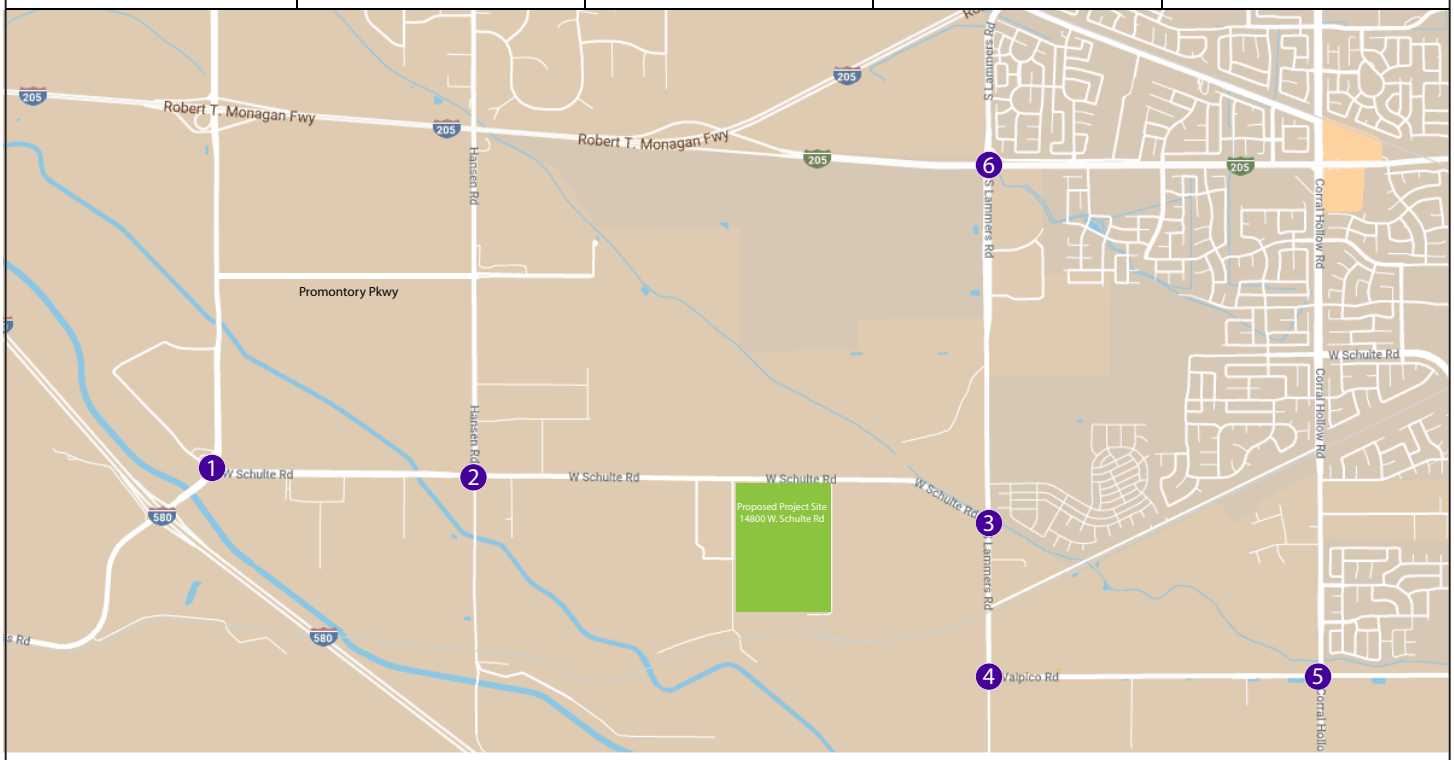
It is noted that the intersections of Schulte Road/Lammers Road and Valpico Road/Corral Hollow Road are currently in the signal design stage.

[12] *Comments by City consultant, KHA, September 4, 2020*

Traffic Impact Analysis for 14800 W. Schulte Road, San Joaquin County, CA
Existing Plus Approved (EPAP) No Project Peak Hour Volumes and Lane Configurations

Figure 2

Intersection #1 International Pkwy / Schulte Rd	Intersection #2 Hansen Rd / Schulte Rd	Intersection #3 Lammers Rd / Schulte Rd	Intersection #4 Lammers Rd / Valpico Rd	Intersection #5 Corral Hollow Rd / Valpico Rd
				
Intersection #6 Lammers Rd / 11th St				
				



LEGEND

- Study Intersection
- Stop Sign
- Traffic Signal
- (XX) PM Peak Hour Volume
- XX AM Peak Hour Volume
- Proposed Project Site
- Recommended Mitigated Lane

AMG ADVANCED MOBILITY GROUP

NORTH
Not to Scale

P1808145 - 10/30/20020 - CT

5.0 EXISTING PLUS APPROVED PLUS PROJECT TRAFFIC CONDITION

The proposed warehouse project located at 14800 W. Schulte Road adjacent to the City limits of southern Tracy within the City of Tracy Sphere of Influence. The proposed project site is approximately 38.35 acres with project size of 679,370 sf. **Figure 3** shows the proposed project site plan.

TRIP GENERATION

Trip generation is defined as the number of "vehicle trips" produced by a particular land use or project. A trip is defined as a one-direction vehicle movement. The total number of trips generated by each land use includes the inbound and outbound trips.

Based on the 2008 Traffic Study Guidelines, the peak hour trip generation for a project should be estimated based on the *Trip Generation, 10th Edition (most current)*, published by the Institute of Transportation Engineers (ITE). ITE rates for two land use scenarios was considered: warehouse and high cube. Based on the size of the buildings and current development trends, any of the three buildings could be used as high cube. To be conservative, the high warehouse rates which is approximately 50 or 60 percent higher than high cube was used. In addition, we have used the higher 2.5 Passenger Car Equivalent (PCE) for trucks. This is much higher than a typical PCE of 2.0. By using a much higher warehouse rate and higher PCE, together the trip generation rate used could be considered very conservative. Estimate of the truck percentage of the proposed warehouse is based on a 2016 ITE high cube warehouse study[13].

It is estimated that the project will generate approximately 170 PCE trips during the AM peak hour and 174 PCE trips during the PM peak hour as shown in **Table 5**.

Table 5: Proposed Project Trip Generation

Land Use	ITE Code	Size		A.M. Peak				P.M. Peak			
				Rate	In	Out	Total	Rate	In	Out	Total
Building A											
Warehouse	ITE 150	231.34	ksf	0.17	30	10	40	0.19	12	32	44
Sub-Total		***231.34***			***30***	***10***	***40***		***12***	***32***	***44***
Building B											
Warehouse	ITE 150	281.71	ksf	0.17	36	12	48	0.19	15	39	54
Sub-Total		***281.71***			***36***	***12***	***48***		***15***	***39***	***54***
Building C											
Warehouse	ITE 150	166.32	ksf	0.17	22	7	29	0.19	9	23	32
Sub-Total		***166.32***			***22***	***7***	***29***		***9***	***23***	***32***
		679.37	***All Trp Total***		***88***	***29***	***117***		***36***	***94***	***130***
Total Autos Only Trips [A]					***62***	***20***	***82***		***28***	***73***	***101***
Truck Trips Only					26	9	35		8	21	29
Convert to autos equivalent PCE = 2.5 [B]					***65***	***23***	***88***		***20***	***53***	***73***
Total PCE trips					***127***	***43***	***170***		***48***	***126***	***174***

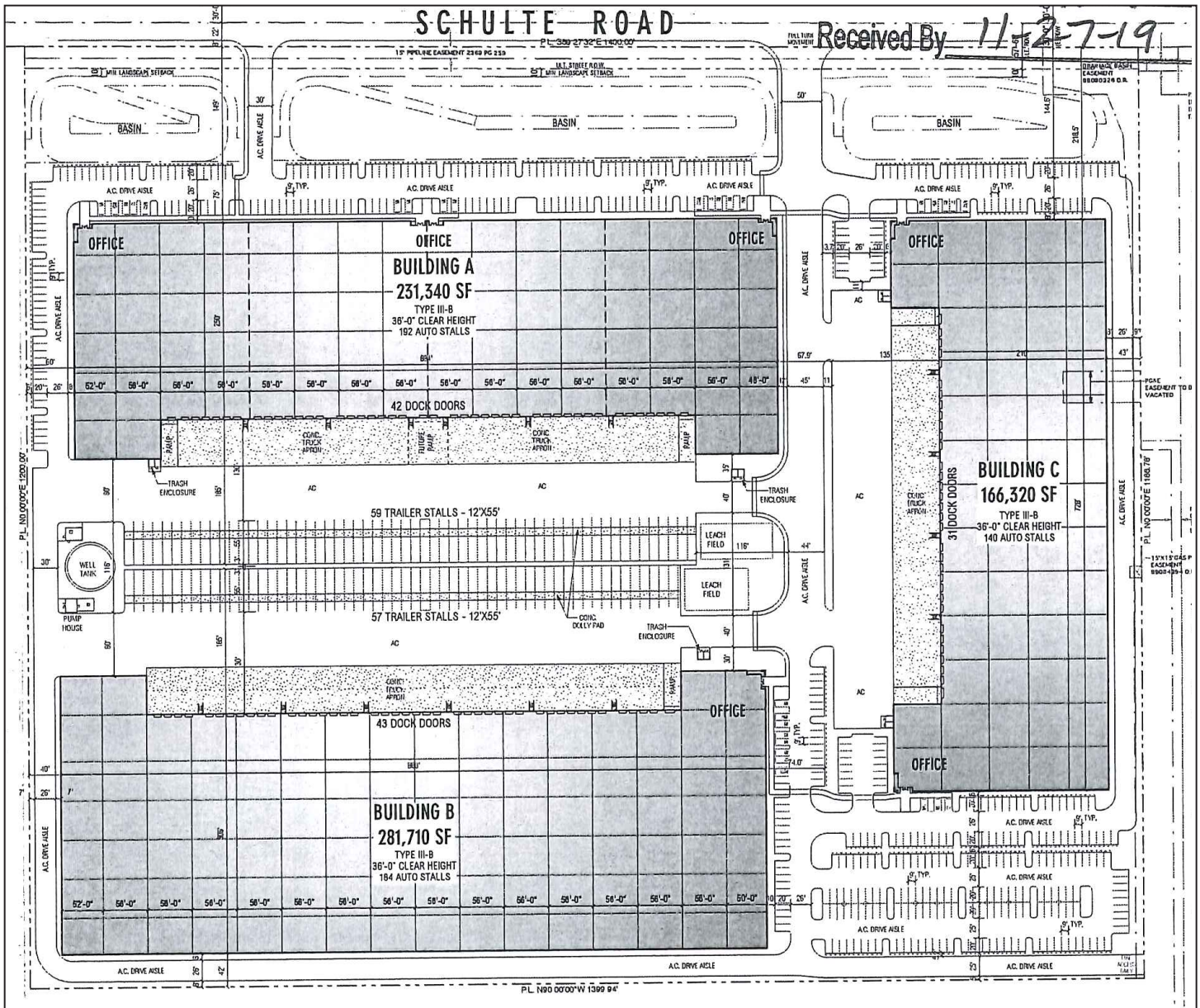
Note:

ITE Source: ITE Trip Generation Manual 10th Edition, 2017

A *High-Cube Warehouse Vehicle Trip Generation Analysis, Table 4 - Weighted Averages for Percentage of Total Daily Vehicles that are Cars, by Type of HCW , AM = 30% trucks & PM = 22%, ITE, 2016*

B *PCE = Passenger Car Equivalent; PCE of 2.5 used to convert trucks to autos*

[13] *High-Cube Warehouse Vehicle Trip Generation Analysis, October 2016*



NORTH
Not to Scale

TRIP DISTRIBUTION

Trip distribution is a process that approximates the "proportion of vehicles" between a project site and various destinations outside the project study area. The trip assignment process determines the various routes that vehicles would take from the project site to each destination using the estimated trip distribution.

The project is expected to "generate" and "attract" trips throughout the City and from other locations throughout the area. Directional trip distribution for project generated trips was estimated based on existing traffic flow patterns, geographic location of the project site, and location of other similar destinations.

Since it is a warehouse development, it is estimated that truck traffic accessing the project site would primarily be coming from the I-580 and I-205 freeway. It is assumed that exiting trucks would not be travelling eastbound on Schulte Road from this development. Only westbound truck movements would be allowed at the exit from the driveways and would be enforced through use of appropriate striping and signage. As mentioned, truck traffic is more freeway oriented while non-truck traffic is distributed more widely on surface streets. It is assumed that trucks are not allowed on Hansen Road north of I-205. The estimated autos and truck trip distribution patterns are shown on **Figure 4** and project only (PCE) trips are shown on **Figure 5**.

INTERSECTION LEVEL OF SERVICE ANALYSIS

This section presents the assessment of potential transportation impacts of the proposed project. **Figure 6** shows the Existing plus Approved plus Project (EPAPP) Conditions peak hour turning movement volumes and lane geometry.

Table 6 shows the LOS under EPAPP Conditions during the Peak Hour. Similar to the EPAP scenario, all intersections operate at unacceptable LOS F except intersections at Valpico Road/Lammers Road and Lammers Road/11th Street which will operate at LOS C or better. Additional intersection improvements would be required. Based on a review of what was recommended in previously approved projects, AMG added the following mitigation measures for the two intersections:

- Schulte Road/International Parkway (#1) – improvements in the I- 580/International Parkway/ Patterson Pass Road FTOAR as indicated previously. The intersection is estimated to improve significantly but will operate at LOS E during the PM peak hour which is considered acceptable.

- Hansen Road/Schulte Road (#2) – add westbound through lane and northbound right-turn lane.

It is expected that the intersection of Schulte Road and International Parkway will improve to operate acceptably at LOS D during the AM peak hour and operate at acceptable LOS E during the PM peak hour. Detailed level of service worksheets is provided in **Appendix D**.

LEGEND

- Study Intersection
- Proposed Project Site
- ADT Volumes
- Trip Distributions (100%)
- 20% Primary Autos Distribution
- 25% Trucks Distribution
- 10% Secondary Autos Distribution

N O R T H
Not to Scale

Table 6: EPAP plus Project (EPAPP) Peak Hour LOS

ID	Intersection	Existing + Approved + Project					Existing + Approved + Project (Mitigated)				
		Existing Control	A.M.		P.M.		Mitigated	A.M.		P.M.	
			Delay	LOS	Delay	LOS		Delay	LOS	Delay	LOS
1	Schulte Road & International Prkwy	Signal	164.0	F	261.2	F	Signal	35.3	D	67.0	E
2	Hansen Road & Schulte Road	Signal	159.4	F	78.4	E	Signal	54.5	D	27.1	C
3	Schulte Road & Lammers Road	AWS	350.7	F	562.7	F	**Signal**	43.7	D	34.1	C
4	Valpico Road & Lammers Road	OWS	20.9	C	14.1	B	**Signal**	20.9	C	14.1	B
5	Valpico Road & Corral Hollow Road	AWS	92.9	F	109.2	F	**Signal**	28.4	C	27.1	C
6	Lammers Road & 11th Street	Signal	22.0	C	20.6	C	Signal	21.0	C	21.5	C

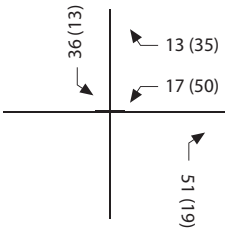
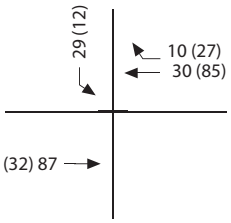
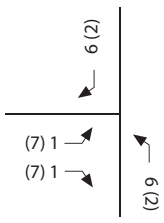
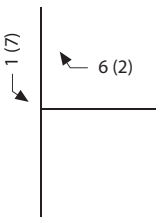
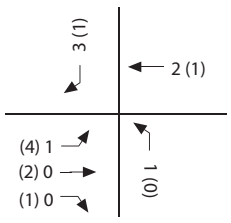
Note:
OWS - One Way Stop control
AWS - All Way Stop co
***Signal - Bold font** designate Mitigated*

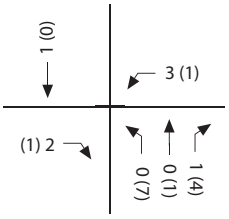
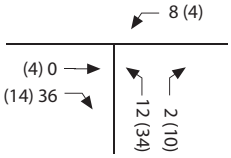
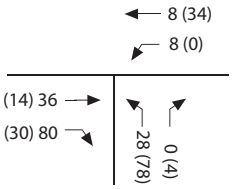
PEAK HOUR SIGNAL WARRANT

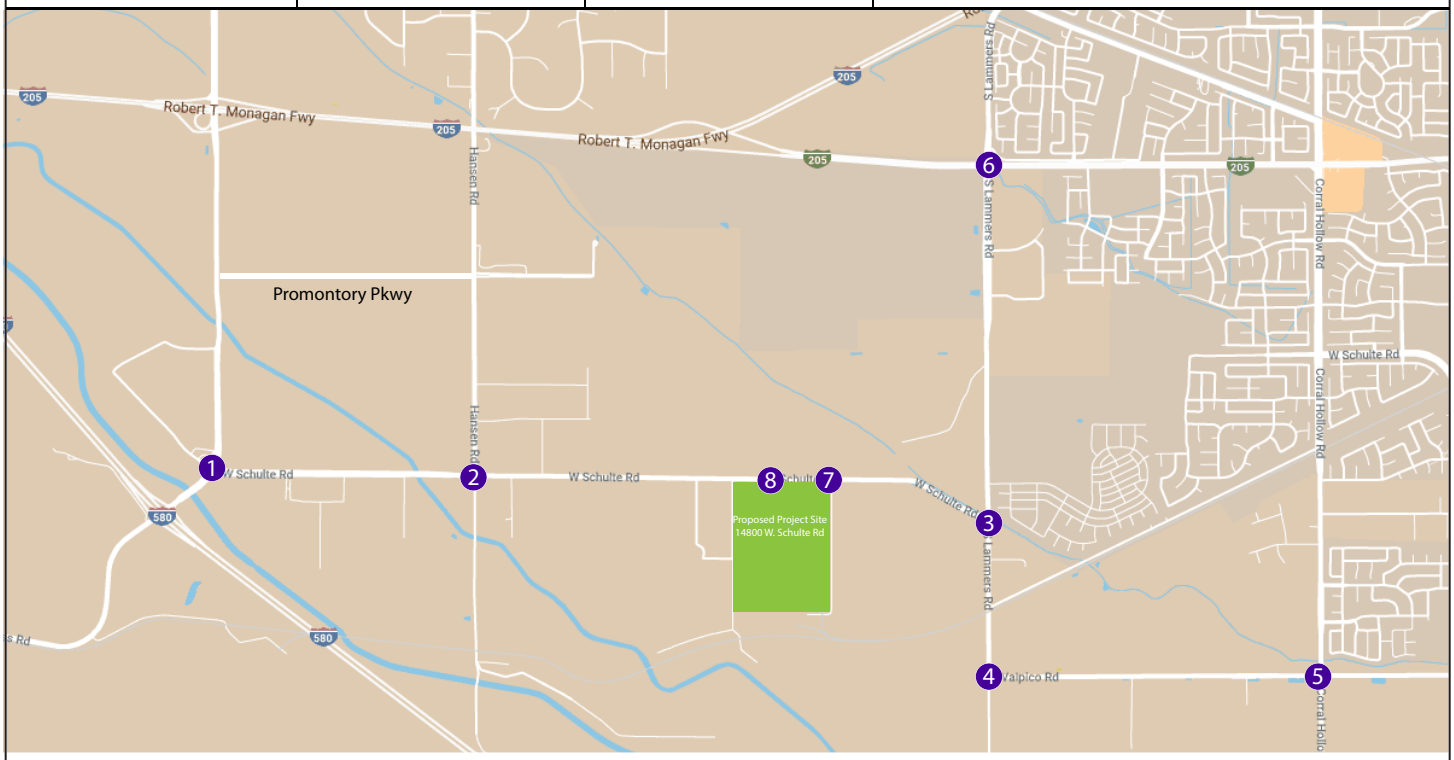
AMG completed a peak hour traffic signal warrant analysis for the two stop control intersections at Schulte Road/Lammers Road and Valpico Road/Corral Hollow Road. Using the EPAPP peak hour turning movement volumes, the Manual on Uniform Traffic Control Devices (CAMUTCD) criteria were evaluated for Warrant 3, Peak Hour.

The City should conduct additional traffic monitoring and additional signal warrants evaluation (four-hour and eight-hour) in the future and install a signal or roundabout as appropriate. The Project should pay its fair share (more details to be provided in Table 9 and 10). The LOS results with the installation of a signal at is shown in **Table 6**. The intersection will operate at acceptable LOS C or better.

See **Appendix D** for peak hour signal warrant analysis worksheet.

Intersection #1 International Pkwy / Schulte Rd	Intersection #2 Hansen Rd / Schulte Rd	Intersection #3 Lammers Rd / Schulte Rd	Intersection #4 Lammers Rd / Valpico Rd	Intersection #5 Corral Hollow Rd / Valpico Rd
				

Intersection #6 Lammers Rd / 11th St	Intersection #7 Schulte Rd/Project Dwy 1	Intersection #8 Schulte Rd/Project Dwy 2
		



LEGEND

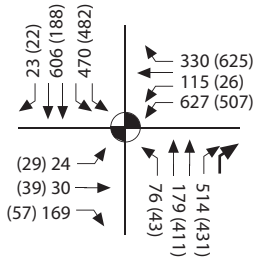
- Study Intersection
- Stop Sign
- Traffic Signal
- (XX) PM Peak Hour Volume
- XX AM Peak Hour Volume
- Proposed Project Site
- ADT Volumes

Note: All trips based on the Total PCE trips from Table 5.

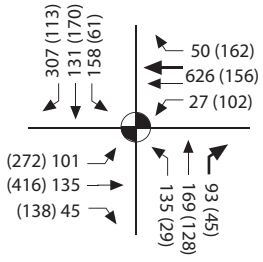
AMG ADVANCED MOBILITY GROUP

NORTH
Not to Scale

Intersection #1
International Pkwy / Schulte Rd



Intersection #2
Hansen Rd / Schulte Rd



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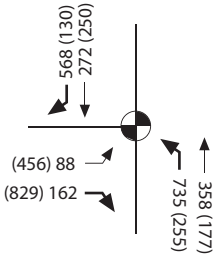
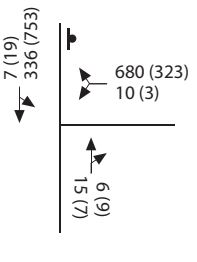
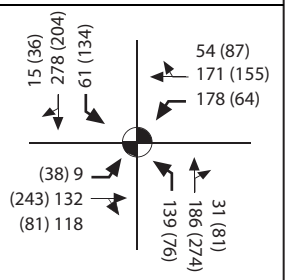
Lammers Rd / Schulte Rd



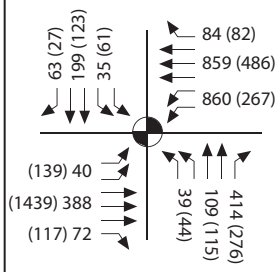
Intersection #4
Lammers Rd / Valpico Rd

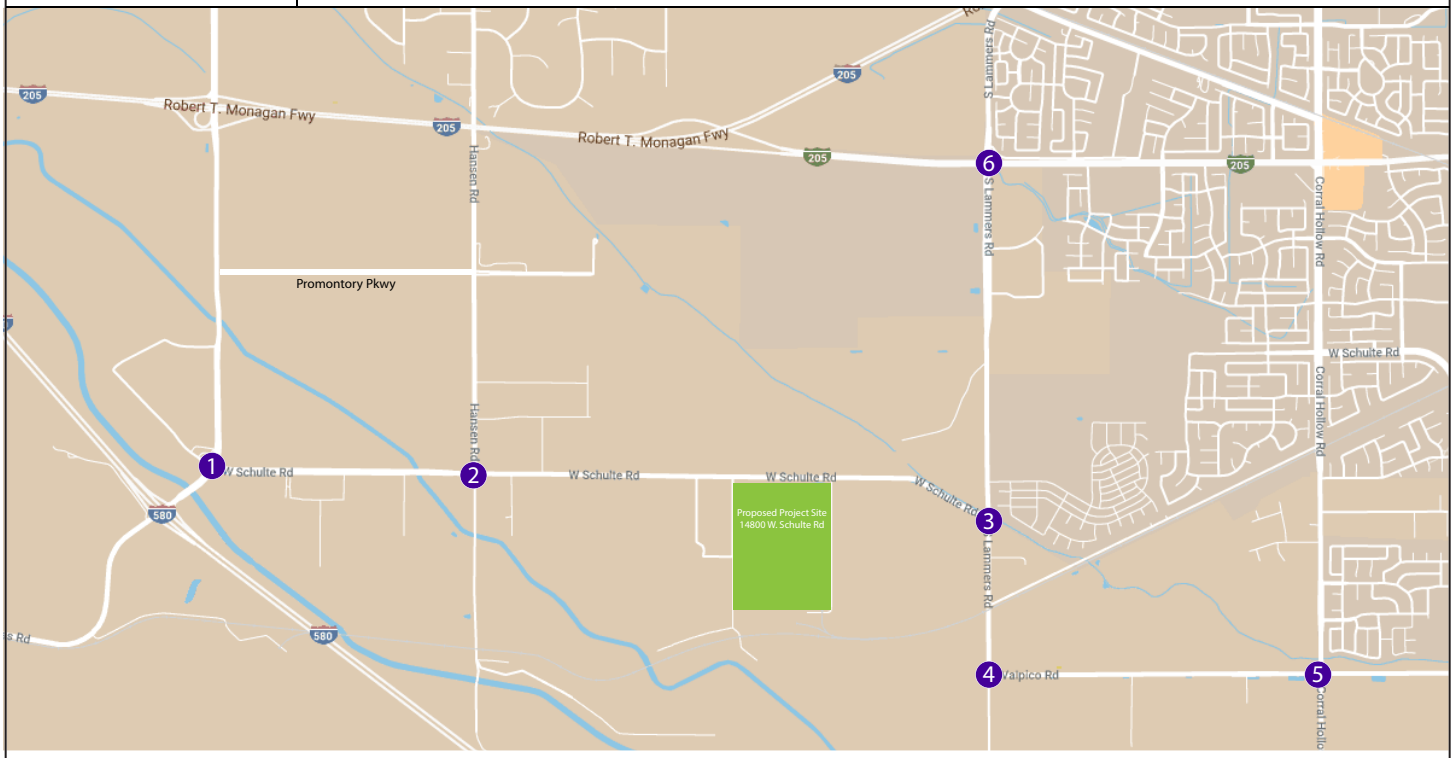


Intersection #5
Corral Hollow Rd / Valpico Rd



Intersection #6
Lammers Rd / 11th St





LEGEND

- Study Intersection
- Stop Sign
- Traffic Signal
- (XX) PM Peak Hour Volume
- XX AM Peak Hour Volume
- Proposed Project Site
- Recommended Mitigated Lane

AMG ADVANCED MOBILITY GROUP

NORTH
Not to Scale

PROPOSED ACCESS, PARKING AND CIRCULATION

AMG reviewed the project site plan with regards to key issues such as proximity to other driveways, driveway throat depth, truck access and Acceleration and Deceleration Lanes. The proposed project driveways are located approximately 1.3 miles to the east of the intersection of Schulte Road and Hansen Road. Two driveways are proposed. The width of the harvest truck entrance/exit is approximately 50-feet while the employee entrance/exit is 30-feet as shown in **Figure 3**. The two driveways are located approximately 630 feet apart.

Truck Entrance

The proposed truck entrance is located to the east of the project site. The throat of the truck entrance from the first internal intersection is approximately 150 feet. This would be able to accommodate one or two trucks. Approximately 116 truck trailer parking stalls are located approximately 300 feet further to the south as shown in **Exhibit 1**. A wide truck access aisle is available for trucks that provide access to 42 truck docks in Building A and 43 truck docks to Building B.

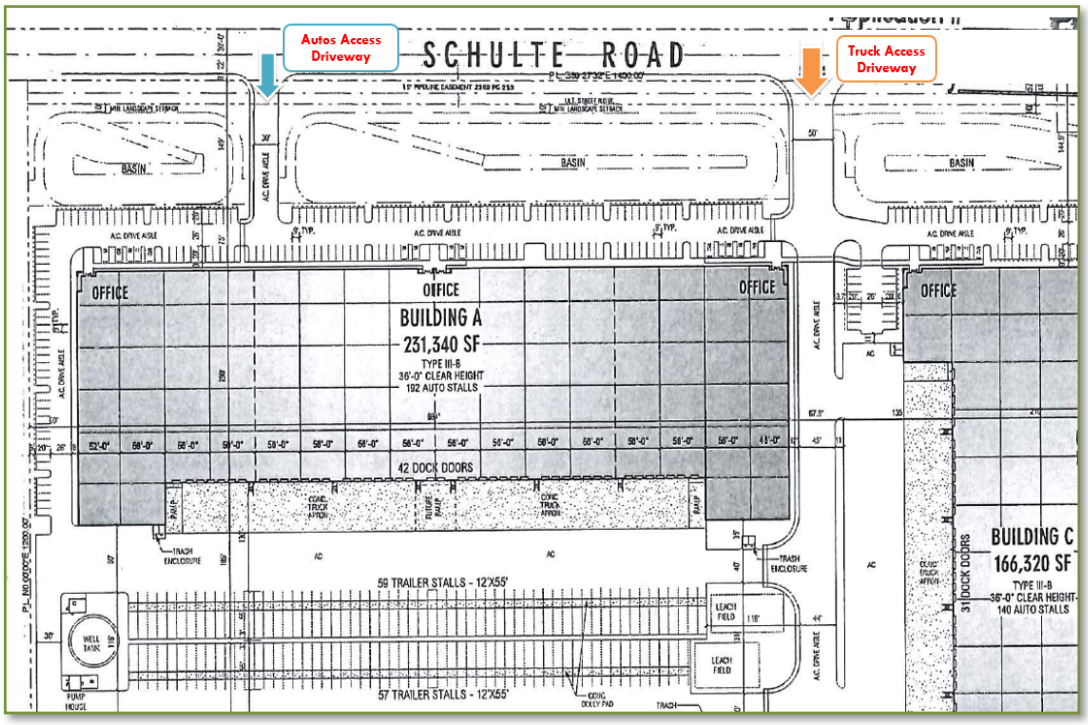


Exhibit 1: Truck Access and Truck Docks

Autos Entrance

The autos entrance is located approximately 600 feet to the west of the truck entrance. Autos parking stalls to Building A are available directly in front of the building. Auto parking for Buildings B and C would be available further towards southeast boundary of the site.

Some auto parking stalls are also available to the northern area of Building C adjacent to Schulte Road. Internal access road of 26-feet that provide access to the three buildings is shown on the site plan which is considered acceptable.

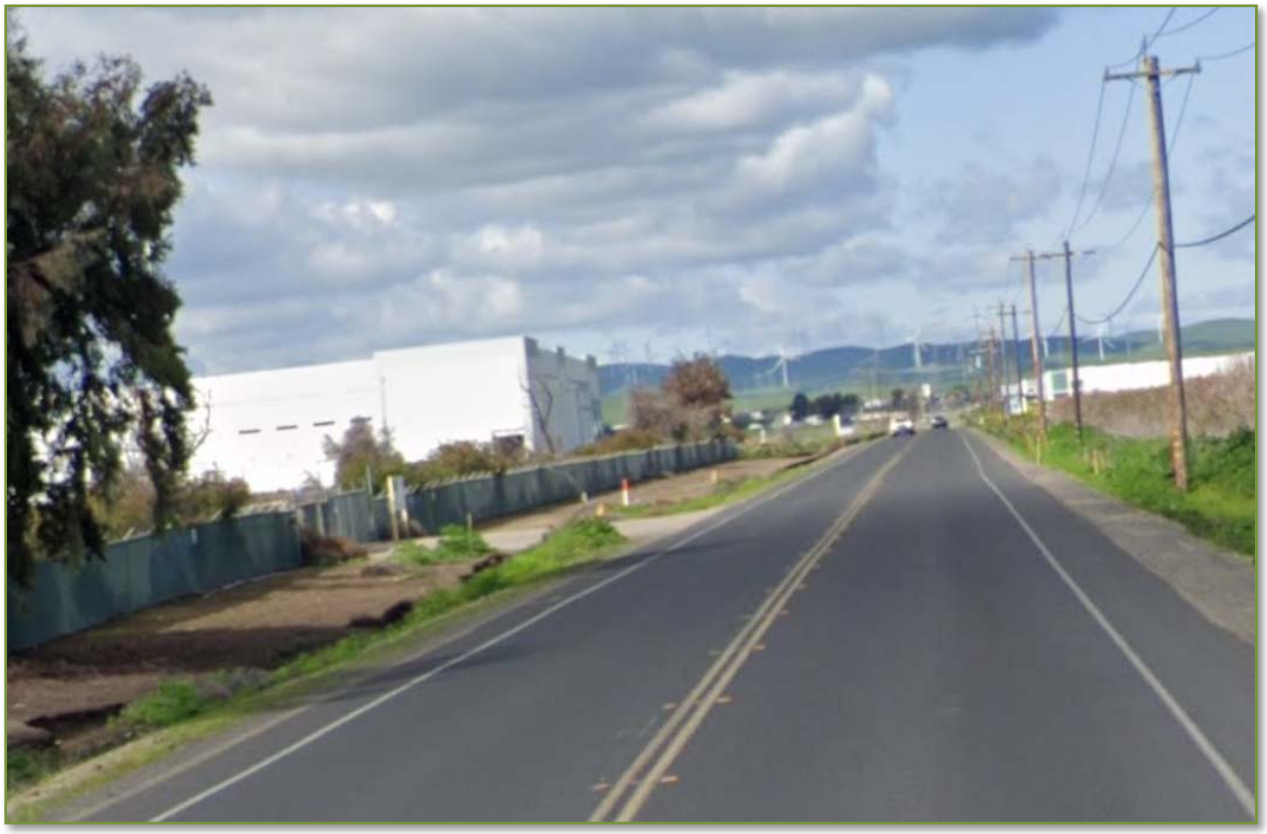


Exhibit 2: View of Schulte Road near Proposed East Entrance – Looking West

Acceleration and Deceleration Lanes

The traffic counts indicated approximately 8,400 vpd on this segment of Schulte Road. Maximum peak hour traffic is nearly 950 vehicles per hour (vph). Considering the high speed and high volumes, it is recommended that left-turn lane be provided for both proposed driveways.

It is our understanding that the following frontage access improvements were adopted for the project at 14900 W. Schulte Road which is located to the east and adjacent to the proposed project[14]:

- Westbound Schulte Road to include a dedicated left turn lane and bay taper terminating at the east driveway.
- Eastbound Schulte Road to include a dedicated right turn lane across the project frontage terminating at the east driveway.
- Westbound Schulte Road to include a dedicated left turn lane across the project frontage terminating at the west driveway.

[14] *December 9, 2016 Memorandum, PA-1600074; A Site Approval application for the expansion of an existing glass manufacturing facility to include construction of a 556,640 square foot distribution warehouse; located on the south side of W. Schulte Road, 5,280 feet east of Hansen Road, Tracy*

Since the project frontage on Schulte Road for both developments are approximately the same size, similar access treatment might be acceptable as it would provide drivers consistency which is good to facilitate operational safety.

The length of the left turn lane would be calculated based on the guidelines contained in the Caltrans Highway Design Manual (HDM). Section 405.2 of the HDM indicates that the total length of the left-turn lane includes bay taper as well as the left-turn storage and its accompanying bay taper for deceleration outside of the through travel lane.

The adopted posted speed limit is 50 mph, so it is assumed that the design speed is 60 mph. The HDM Table 405.2B as shown in **Exhibit 3** indicates that 530 feet of deceleration is required. The HDM allows for a reduction deceleration of up to 20 mph in locations where some slowing in the through travel lanes is acceptable, and under this scenario the deceleration requirement at 40 mph is roughly 315 feet. For left-turn storage, the HDM suggests a minimum for two waiting vehicles. If one vehicle was assumed to be a truck, that storage would be 90 feet. Therefore, depending on the acceptability of partial deceleration on the through lane the total length of left turn lane and its bay taper would be between 535 and 770 feet long (assumed 90-foot bay taper).

Table 405.2B

Deceleration Lane Length

Design Speed (mph)	Length to Stop (ft)
30	235
40	315
50	435
60	530

Exhibit 3: Caltrans HDM

It is our understanding that Schulte Road has an existing right-of-way width of 60 feet. The maximum recommended improvements would need to stay within the allowed right-of-way constraints.

6.0 CUMULATIVE NO PROJECT CONDITIONS

This section details expected traffic conditions at the study intersections under Cumulative (No Project) Conditions. This analysis scenario is defined as Cumulative conditions without the proposed project.

Cumulative project trips were provided by the City of Tracy staff[15] for the following projects:

- Cordes Ranch Specific Plan
- Tracy Hills Specific Plan
- Tracy Village Specific Plan
- Ellis Specific Plan
- Stringer/Rocking House Specific Plan

Figure 7 shows projected turning movement volumes at the study intersection for the Cumulative No Project Conditions for AM and PM peak hours.

[15] *May 15, 2020 email from Colin Ogilvie to Anju Pillai, City of Tracy*

INTERSECTION LEVEL OF SERVICE - CUMULATIVE NO PROJECT CONDITIONS

The intersection LOS analysis results for Cumulative No Project Conditions are summarized in **Table 7**. Under this scenario, all intersections operate at unacceptable LOS F, except the intersection of Schulte Road and International Parkway which will operate at LOS D or better.

Table 7: Cumulative (No Project) Peak Hour LOS

		Cumulative No Project					Cumulative No Project (Mitigated)				
ID	Intersection	Furure Control	A.M.		P.M.		Mitigated	A.M.		P.M.	
			Delay	LOS	Delay	LOS		Delay	LOS	Delay	LOS
1	Schulte Road & International Prkwy	Signal	29.6	C	45.6	D	Signal	29.6	C	45.6	D
2	Hansen Road & Schulte Road	Signal	32.1	C	81.8	F	Signal	23.0	C	38.6	D
3	Schulte Road & Lammers Road	Signal	19.9	B	45.6	D	Signal	18.9	B	45.6	D
4	Valpico Road & Lammers Road	Signal	176.9	F	368.7	F	Signal	41.2	D	272.5	F
5	Valpico Road & Corral Hollow Road	Signal	51.3	D	170.6	F	Signal	51.3	D	170.6	F
6	Lammers Road & 11th Street	Signal	80.1	F	149.2	F	Signal	67.3	E	116.1	F

Intersection Improvement Assumptions

AMG reviewed roadway improvements assumed in the cumulative scenario for approved projects[16]. As shown in **Exhibit 4**, The Cordes Ranch Specific Plan indicated several new roadways including Capital Parks Drive and New Schulte Road extensions. Consequently, some traffic diversions are expected from Schulte Road to other routes under cumulative scenario.

Exhibit 4: Cordes Ranch Future Roadways

Based on a review of the City of Tracy Transportation Master Plan[17] and review of previously approved roadway improvements under cumulative scenarios, AMG included these mitigation measures for the following intersections:

- Hansen Road/Schulte Road (#2) – add eastbound and westbound through lane and northbound and southbound through lanes. Intersection is estimated to operate at LOS D or better.
- Schulte Road & Lammers Road (#3) – add two through lanes in the northbound and southbound approaches as well as provide left and right turn lanes. Add right-turn lane in the eastbound and add new westbound approach. Intersection is estimated to operate at LOS D or better.

[16] *Draft Tracy Village Project EIR, Appendix H: Traffic Study, August 16, 2017, Tracy Hills Specific Plan, Recirculated Draft Subsequent EIR, Volume 1, October 2015, The Cordes Ranch Specific Plan Draft EIR, April 5, 2013*

[17] *Transportation Master Plan, November 2012, Figure 4.4a & Figure 4.4b*

- Valpico Road/Lammers Road (#4) – add two additional through lanes on Lammers Road making it a six-lane roadway. Add two right-turn lanes on the westbound approach and one through lane on the eastbound. It is estimated that traffic would operate at LOS F during the PM peak hour with signal control.
- Valpico Road/Corral Hollow Road (#5) – add one additional through lane on Valpico Road making it a four-lane roadway. Add one through lane on the north-south approach making Corral Hollow Road a four-lane roadway. It is estimated that traffic would operate at LOS D during the AM peak hour and LOS F during the PM peak hour with signal control.
- Lammers Road/11th Street (#6) – the intersection is assumed to be build out. It is estimated that traffic would operate at LOS E during the AM peak hour and LOS F during the PM peak hour.

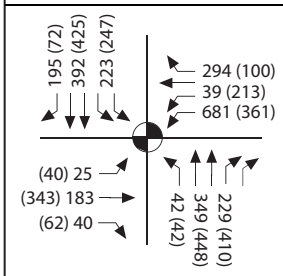
Detailed calculation sheets for Cumulative no Project Conditions are contained in **Appendix E**.

PEAK HOUR SIGNAL WARRANT

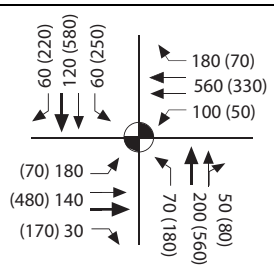
AMG completed a peak hour traffic signal warrant analysis for the three Stop controlled intersections of Schulte Road/Lammers Road, Valpico Road/Lammers Road and Valpico Road/Corral Hollow Road. Using the peak hour turning movement volumes, the CAMUTCD criteria were evaluated for Warrant 3, Peak Hour.

Cumulative (No Project) Conditions Peak Hour Warrant Results indicated that peak hour warrant is met for all three intersections. See **Appendix E** for peak hour signal warrant analysis worksheet.

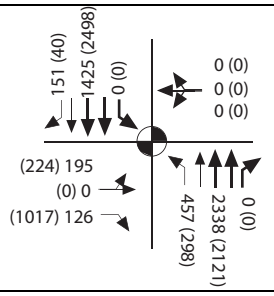
Intersection #1
International Pkwy / Schulte Rd



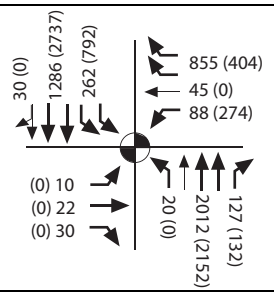
Intersection #2
Hansen Rd / Schulte Rd



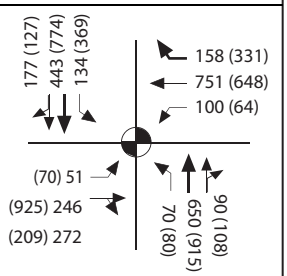
Intersection #3
Lammers Rd / Schulte Rd



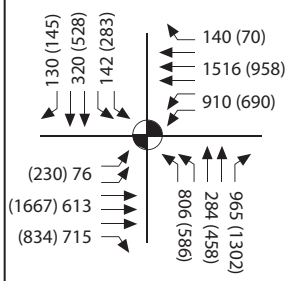
Intersection #4
Lammers Rd / Valpico Rd

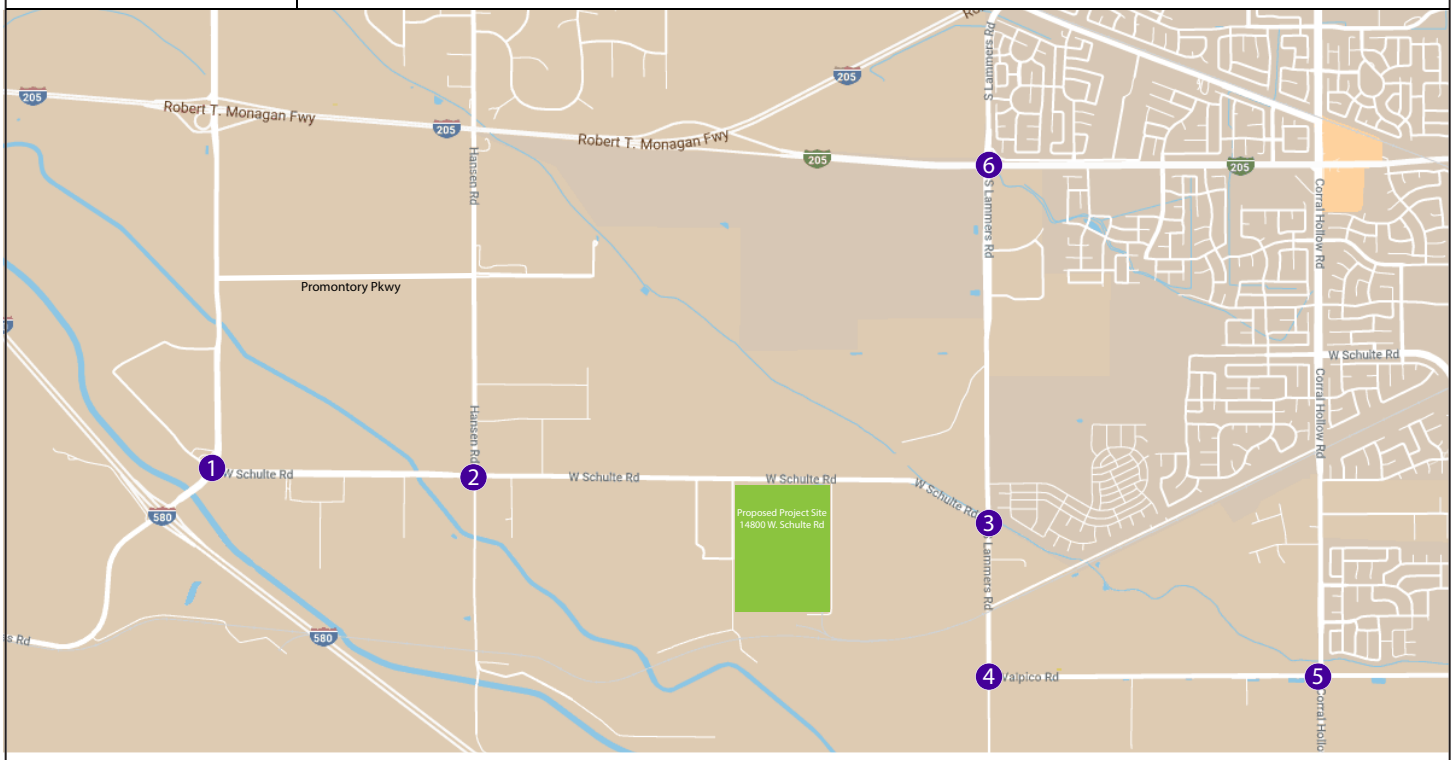


Intersection #5
Corral Hollow Rd / Valpico Rd



Intersection #6
Lammers Rd / 11th St





LEGEND

- Study Intersection
- Stop Sign
- Traffic Signal
- (XX) PM Peak Hour Volume
- XX AM Peak Hour Volume
- Proposed Project Site
- Recommended Mitigated Lane

AMG ADVANCED MOBILITY GROUP

NORTH
Not to Scale

7.0 CUMULATIVE PLUS PROJECT CONDITIONS

This scenario is identical to Cumulative Conditions, with the addition of projected traffic from the proposed development of the project. Trip generation, distribution, and assignment for the proposed project are identical to that assumed under Existing plus Approved plus Project Conditions. **Figure 8** shows projected turning movement volumes at the study intersection for Cumulative plus Project Conditions.

INTERSECTION LEVEL OF SERVICE ANALYSIS – CUMULATIVE PLUS PROJECT CONDITIONS

The intersection LOS analysis results for Cumulative plus Project Conditions are summarized in **Table 8** during Project Peak Hour. All intersections operate at unacceptable LOS F, except the intersections of Schulte Road/International Parkway and Hansen Road/Schulte Road which will operate at LOS D or better.

Table 8: Cumulative Plus Project Peak Hour LOS

		Cumulative + Project					Cumulative + Project (Mitigated)				
ID	*Intersection*	*Furure Control*	*A.M.*		*P.M.*		*Mitigated*	*A.M.*		*P.M.*	
			Delay	*LOS*	*Delay*	*LOS*		*Delay*	*LOS*	*Delay*	*LOS*
1	Schulte Road & International Prkwy	Signal	31.5	C	51.1	D	Signal	31.5	C	51.1	D
2	Hansen Road & Schulte Road	Signal	35.6	D	86.4	**F**	Signal	24.0	C	41.2	D
3	Schulte Road & Lammers Road	Signal	20.3	C	47.3	D	Signal	13.9	B	54.9	D
4	Valpico Road & Lammers Road	Signal	179.3	**F**	370.0	**F**	Signal	41.8	D	273.4	**F**
5	Valpico Road & Corral Hollow Road	Signal	51.7	D	171.3	**F**	Signal	51.7	D	171.3	**F**
6	Lammers Road & 11th Street	Signal	80.6	**F**	149.6	**F**	Signal	67.7	**E**	116.5	**F**

Intersection Improvement Assumptions

As indicated under the Cumulative No Project scenario, based on a review of the City of Tracy Transportation Master Plan and review of previously approved roadway improvements under cumulative scenarios, AMG included these mitigation measures for the following intersections:

- Hansen Road/Schulte Road (#2) – add eastbound and westbound through lane and northbound and southbound through lanes. Intersection is estimated to operate at LOS D or better.
- Schulte Road & Lammers Road (#3) – add two through lanes in the northbound and southbound approaches as well as provide left and right turn lanes. Add right-turn lane in the eastbound and add new westbound approach. Intersection is estimated to operate at LOS D or better.
- Valpico Road/Lammers Road (#4) – add two additional through lanes on Lammers Road making it a six-lane roadway. Add two right-turn lanes on the westbound approach and one through lane on the eastbound. It is estimated that traffic would operate at LOS F during the PM peak hour with signal control.
- Valpico Road/Corral Hollow Road (#5) – add one additional through lane on Valpico Road making it a four-lane roadway. Add one through lane on the north-south approach making Corral Hollow Road a four-lane roadway. It is estimated that traffic would operate at LOS D during the AM peak hour and LOS F during the PM peak hour with signal control.
- Lammers Road/11th Street (#6) – the intersection is assumed to be build out. It is estimated that traffic would operate at LOS E during the AM peak hour and LOS F during the PM peak hour.

Therefore, it could be concluded that with the added project traffic, the resulting LOS is similar to Cumulative No Project conditions. Three intersections would continue to operate at LOS E/F conditions. Intersection delay increases due to the project is expected to be minimal (increases ranges from one to seven seconds).

Detailed calculation sheets for Cumulative plus Project Conditions are contained in **Appendix F.**

PEAK HOUR SIGNAL WARRANT

AMG completed a peak hour traffic signal warrant analysis for the three Stop controlled intersections of Schulte Road/Lammers Road, Valpico Road/Lammers Road and Valpico Road/Corral Hollow Road. Using the peak hour turning movement volumes, the CAMUTCD criteria were evaluated for Warrant 3, Peak Hour.

Cumulative plus Project Peak Hour Warrant Results indicated that peak hour warrant is met for all three intersections. See **Appendix F** for peak hour signal warrant analysis worksheet.

PROJECT FAIR SHARE CALCULATION

Intersection improvements might be needed for some of the study intersections. The fair share is calculated based on the Caltrans and County of San Joaquin Traffic Impact Study guidelines under Cumulative plus Project Conditions. As appropriate the project sponsor might be required to pay a fair share contribution of the associated mitigation measure.

Based on the projected additional trips from the proposed project, the Fair Share Analysis results for Cumulative plus Project Conditions are summarized in **Table 9**.

Table 9: Cumulative Plus Project - Project Fair Share Calculation

ID	Intersection	Existing Control	A.M.				P.M.				Average Equitable Share
			Proj Trips	2020 Ex Trips	Cum Build-Out Trips	Project Equitable Share	Proj Trips	2020 Ex Trips	Cum Build-Out Trips	Project Equitable Share	
1	Schulte Road & International Prkwy	Signal	117	2,030	2,809	15.0%	117	1,376	2,880	7.8%	**11.4%**
2	Hansen Road & Schulte Road	Signal	156	937	1,906	16.1%	156	736	3,196	6.3%	**11.2%**
3	Schulte Road & Lammers Road	AWS	14	1,293	4,692	0.4%	18	978	6,198	0.3%	**0.4%**
4	Valpico Road & Lammers Road	OWS	7	604	4,787	0.2%	9	586	5,699	0.2%	**0.2%**
5	Valpico Road & Corral Hollow Road	AWS	7	1,365	3,142	0.4%	9	1,464	4,620	0.3%	**0.3%**

Note:
Based on Equitable Share Responsibility Equation C-1 of the Caltrans' Guide for the Preparation of Traffic Impact Studies (December 2002)

AMG estimated intersection improvement costs based on the roadway improvements assumed under the City of Tracy Transportation Master Plan. Details of the cost assumed for each intersection are contained in **Appendix F**. The estimated project fair share cost is shown in **Table 10**.

Table 10: Project Fair Share Improvement Cost

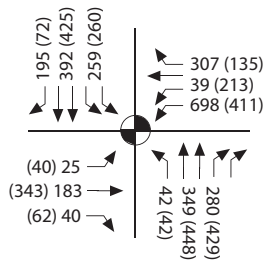
	Intersection	Signal Cost Estimate	Intersection Improvements	Total Cost	Project Fairshare
1	Schulte Road & International Prkwy	$10,000	$31,824	$41,824	$4,768
2	Schulte Road & Hansen Road	$400,000	$63,648	$463,648	$52,023
3	Schulte Road & Lammers Road	$400,000	$284,294	$684,294	$2,589
4	Valpico Road & Lammers Road	$400,000	$361,733	$761,733	$1,308
5	Valpico Road & Corral Hollow Road	$400,000	$250,349	$650,349	$2,208
			Total Fairshare Cost		***$58,128***

The estimated total project fair share cost is approximately $58,100.

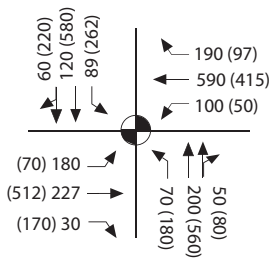
Traffic Impact Analysis for 14800 W. Schulte Road, San Joaquin County, CA
Cumulative plus Project Peak Hour Volumes and Lane Configurations

Figure 8

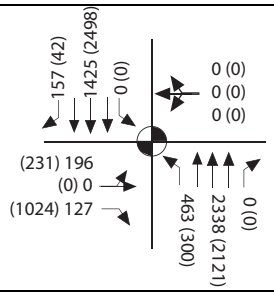
Intersection #1
International Pkwy / Schulte Rd



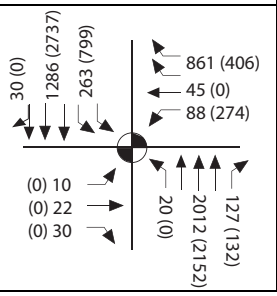
Intersection #2
Hansen Rd / Schulte Rd



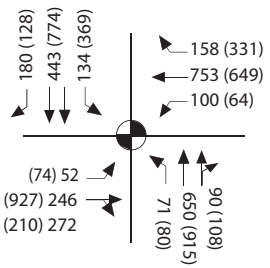
Intersection #3
Lammers Rd / Schulte Rd



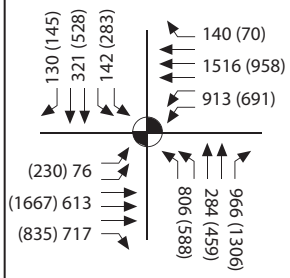
Intersection #4
Lammers Rd / Valpico Rd

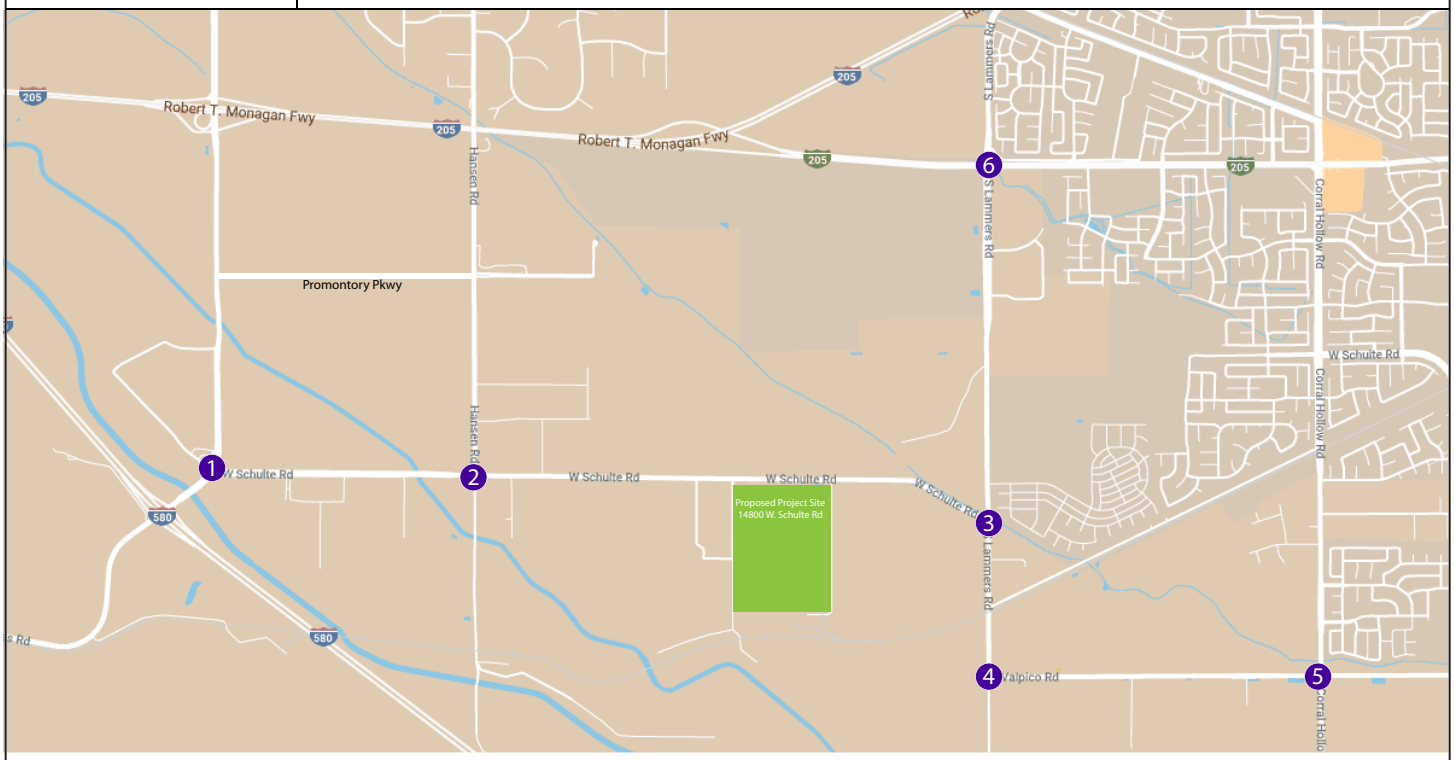


Intersection #5
Corral Hollow Rd / Valpico Rd



Intersection #6
Lammers Rd / 11th St





LEGEND

- Study Intersection
- Stop Sign
- Traffic Signal
- (XX) PM Peak Hour Volume
- XX AM Peak Hour Volume
- Proposed Project Site
- Recommended Mitigated Lane

AMG ADVANCED MOBILITY GROUP

NORTH
Not to Scale

P1808145 - 11/12/20020 - CT

8.0 CONCLUSION

Based on the results of the analysis, the following is a summary of our findings:

Existing Traffic Conditions

All the intersections operate at acceptable Level of Service (LOS) D or better indicating acceptable conditions except two unsignalized intersections of Schulte Road/Lammers Road and Valpico Road/Corral Hollow Road.

Proposed Project Trip Generation

It is estimated that the project will generate approximately 170 Passenger Car Equivalent (PCE) trips during the AM peak hour and 174 PCE trips during the PM peak hour.

Existing Plus Approved Projects (EPAP) Traffic Condition

A list of approved projects was provided by the City of Tracy staff and used for analysis under this scenario. Additional intersection improvements would be required. Based on a review of what was recommended in previously approved projects, AMG used the following mitigation measures (to be constructed by others) for the two intersections that are expected to deteriorate to LOS F:

- Schulte Road/International Parkway (#1) – improvements in the I- 580/International Parkway/Patterson Pass Road Traffic Operations Analysis Report (FTOAR). The intersection is estimated to improve significantly but will operate at LOS E during the PM peak hour which is considered acceptable.
- Hansen Road/Schulte Road (#2)– add westbound through lane and northbound right-turn lane. Intersection will operate at LOS C or better.

Existing Plus Approved Plus Project Traffic Condition

Similar to the EPAP scenario, all intersections operate at unacceptable LOS F except intersections at Valpico Road/Lammers Road and Lammers Road/11th Street which will operate at LOS C or better. Additional intersection improvements would be required. Based on a review of what was recommended in previously approved projects, AMG added the following mitigation measures (to be constructed by others) for the two intersections:

- Schulte Road/International Parkway (#1) – improvements in the I- 580/International Parkway/ Patterson Pass Road FTOAR as indicated previously. The intersection is estimated to improve significantly but will operate at LOS E during the PM peak hour which is considered acceptable.
- Hansen Road/Schulte Road (#2) – add westbound through lane and northbound right-turn lane.

The intersection of Schulte Road and International Parkway will improve to operate acceptably at LOS D during the AM peak hour and operate at acceptable LOS E during the PM peak hour. The resulting LOS due to the project's traffic impacts is similar when compared to the EPAP no project LOS.

Cumulative (No Project) Conditions

Cumulative project trips for five projects (Cordes Ranch Specific Plan, Tracy Hills Specific Plan, Tracy Village Specific Plan, Ellis Specific Plan, and Stringer/Rocking House Specific Plan) were provided by the City of Tracy staff to be considered for the base cumulative no project scenario.

All intersections operate at unacceptable LOS F, except the intersections of Schulte Road/International Parkway and Schulte Road/Lammers Road which will operate at LOS D or better. Based on a review of

the City of Tracy Transportation Master Plan and review of previously approved roadway improvements under cumulative scenarios, AMG included these mitigation measures for the following intersections:

- Hansen Road/Schulte Road (#2) – add eastbound and westbound through lane and northbound and southbound through lanes. Intersection is estimated to operate at LOS D or better.
- Schulte Road & Lammers Road (#3) – add two through lanes in the northbound and southbound approaches as well as provide left and right turn lanes. Add right-turn lane in the eastbound and add new westbound approach. Intersection is estimated to operate at LOS D or better.
- Valpico Road/Lammers Road (#4) – add two additional through lanes on Lammers Road making it a six-lane roadway. Add two right-turn lanes on the westbound approach and one through lane on the eastbound. It is estimated that traffic would operate at LOS F during the PM peak hour with signal control.
- Valpico Road/Corral Hollow Road (#5) – add one additional through lane on Valpico Road making it a four-lane roadway. Add one through lane on the north-south approach making Corral Hollow Road a four-lane roadway. It is estimated that traffic would operate at LOS D during the AM peak hour and LOS F during the PM peak hour with signal control.
- Lammers Road/11th Street (#6) – the intersection is assumed to be build out. It is estimated that traffic would operate at LOS E during the AM peak hour and LOS F during the PM peak hour.

Cumulative plus Project Conditions

All intersections operate at unacceptable LOS F, except the intersections of Schulte Road/International Parkway and Schulte Road/Lammers Road which will operate at LOS D or better.

As indicated under the Cumulative No Project scenario, based on a review of the City of Tracy Transportation Master Plan and review of previously approved roadway improvements under cumulative scenarios, AMG included these mitigation measures for the following intersections:

- Hansen Road/Schulte Road (#2) – add eastbound and westbound through lane and northbound and southbound through lanes. Intersection is estimated to operate at LOS D or better.
- Schulte Road & Lammers Road (#3) – add two through lanes in the northbound and southbound approaches as well as provide left and right turn lanes. Add right-turn lane in the eastbound and add new westbound approach. Intersection is estimated to operate at LOS D or better.
- Valpico Road/Lammers Road (#4) – add two additional through lanes on Lammers Road making it a six-lane roadway. Add two right-turn lanes on the westbound approach and one through lane on the eastbound. It is estimated that traffic would operate at LOS F during the PM peak hour with signal control.
- Valpico Road/Corral Hollow Road (#5) – add one additional through lane on Valpico Road making it a four-lane roadway. Add one through lane on the north-south approach making Corral Hollow Road a four-lane roadway. It is estimated that traffic would operate at LOS D during the AM peak hour and LOS F during the PM peak hour with signal control.
- Lammers Road/11th Street (#6) – the intersection is assumed to be build out. It is estimated that traffic would operate at LOS E during the AM peak hour and LOS F during the PM peak hour.

Therefore, it could be concluded that with the added project traffic, the resulting LOS is similar to Cumulative No Project conditions. Three intersections would continue to operate at LOS E/F conditions. Intersection delay increases due to the project is expected to be minimal (increases ranges from one to seven seconds).

Project Fair Share Cost

The estimated total project fair share cost is approximately $58,100.

REFERENCES

1. *The Cordes Ranch Specific Plan, Final Environmental Impact Report, September 3, 2013*
2. *DRAFT Environmental Impact Report, Appendices, Tracy Village Project EIR, August 16, 2017*
3. *Tracy Hills Specific Plan, Recirculated, Draft Subsequent Environmental Impact Report, October 2015*
4. *Ellis Specific Plan, Transportation Impact Analysis, Technical Appendix, City of Tracy, August 2007*
5. *Stringer Property Traffic Impact Study, City of Tracy, CA, July 20, 2015*

Advanced Mobility Group

Christopher Thnay, PE, AICP	Principal/Project Manager
Shruti Shrivastava	Project Engineer
Michael Ohnemus, AICP	Project Planner
Christina Ramos	Senior Project Analyst

Persons Consulted

Jeffrey Levers, T.E.	Department of Public Works

Appendix A TRAFFIC VOLUME COUNTS

Appendix B INTERSECTION LOS ANALYSIS: EXISTING CONDITIONS LOS CALCULATION SHEETS

Appendix C INTERSECTION LOS ANALYSIS: EXISTING PLUS APPROVED PROJECT (EPAP) CONDITIONS

- LOS CALCULATION SHEETS & MITIGATED LOS

- SIGNAL WARRANTS

Appendix D ANALYSIS: EXISTING PLUS APPROVED PROJECT CONDITIONS

- LOS CALCULATION SHEETS & MITIGATED LOS

- SIGNAL WARRANTS

Appendix E ANALYSIS: CUMULATIVE NO PROJECT CONDITIONS

- LOS CALCULATION SHEETS & MITIGATED LOS
- SIGNAL WARRANTS

Appendix F ANALYSIS: CUMULATIVE PLUS PROJECT CONDITIONS

- LOS CALCULATION SHEETS & MITIGATED LOS
- SIGNAL WARRANTS
- PROJECT FAIR SHARE CALCULATIONS

Appendix A TRAFFIC VOLUME COUNTS

Prepared by National Data & Surveying Services

CLASSIFICATION

Schulte Rd Bet. International Pkwy & Hansen Rd

Day: Tuesday
Date: 2/11/2020

City: Tracy
Project #: CA20_8058_001

Summary

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total	Percent
0:00 AM	2	100	10	4	3	2	0	8	62	3	13	0	0	207	2%
1:00	1	90	12	4	1	2	0	12	62	2	14	0	0	200	2%
2:00	2	137	23	2	1	3	1	8	63	1	14	0	0	255	2%
3:00	1	349	62	6	9	4	0	13	54	1	11	0	0	510	4%
4:00	0	530	106	10	31	6	1	14	80	4	9	0	0	791	6%
5:00	3	621	154	6	35	14	1	9	65	2	4	0	0	914	7%
6:00	6	738	142	5	22	20	5	8	72	2	13	0	0	1033	8%
7:00	7	605	101	9	39	20	4	15	75	1	3	0	0	879	7%
8:00	2	421	87	10	68	18	1	15	78	0	1	0	0	701	5%
9:00	6	211	63	11	39	29	4	17	97	2	4	0	0	483	4%
10:00	4	177	56	16	34	23	2	22	105	2	8	0	0	449	4%
11:00	6	241	58	10	40	27	0	27	106	3	9	0	0	527	4%
12:00 PM	5	310	90	14	26	22	3	18	98	1	15	0	0	602	5%
13:00	3	312	71	7	23	15	1	14	93	1	17	0	0	557	4%
14:00	9	311	74	9	21	18	3	14	65	2	8	0	0	534	4%
15:00	4	385	100	11	34	16	0	10	96	0	6	0	0	662	5%
16:00	6	437	103	10	40	17	5	16	57	3	7	0	0	701	5%
17:00	7	444	93	7	26	11	2	19	66	0	9	0	0	684	5%
18:00	9	456	67	3	19	12	0	17	56	1	10	0	0	650	5%
19:00	3	264	39	2	12	6	0	14	72	1	6	0	0	419	3%
20:00	0	166	20	3	5	4	0	9	73	1	8	0	0	289	2%
21:00	3	147	14	0	2	3	2	7	68	0	8	0	0	254	2%
22:00	1	146	16	1	3	1	1	4	74	3	8	0	0	258	2%
23:00	3	162	10	2	1	3	0	3	68	1	14	0	0	267	2%
Totals	93	7760	1571	162	534	296	36	313	1805	37	219			12826	
% of Totals	1%	61%	12%	1%	4%	2%	0%	2%	14%	0%	2%			100%	100%

Prepared by NDS/ATD

VOLUME

Schulte Rd Bet. Hansen Rd & Lammers Rd

Day: Tuesday
Date: 2/11/2020

City: Tracy
Project #: CA20_8058_002

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	3,405	4,998	8,403

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
0:00	0	0	7		1		8		12:00	0	0	24		35		59	
0:15	0	0	7		7		14		12:15	0	0	35		22		57	
0:30	0	0	5		0		5		12:30	0	0	62		31		93	
0:45	0	0	8	27	1	9	9	36	12:45	0	0	38	159	26	114	64	273
1:00	0	0	5		1		6		13:00	0	0	42		32		74	
1:15	0	0	6		2		8		13:15	0	0	30		21		51	
1:30	0	0	4		6		10		13:30	0	0	47		27		74	
1:45	0	0	7	22	5	14	12	36	13:45	0	0	51	170	29	109	80	279
2:00	0	0	6		4		10		14:00	0	0	51		20		71	
2:15	0	0	5		7		12		14:15	0	0	49		36		85	
2:30	0	0	8		15		23		14:30	0	0	90		26		116	
2:45	0	0	6	25	21	47	27	72	14:45	0	0	54	244	28	110	82	354
3:00	0	0	13		15		28		15:00	0	0	55		18		73	
3:15	0	0	11		32		43		15:15	0	0	46		30		76	
3:30	0	0	10		79		89		15:30	0	0	122		32		154	
3:45	0	0	11	45	92	218	103	263	15:45	0	0	101	324	25	105	126	429
4:00	0	0	6		102		108		16:00	0	0	115		20		135	
4:15	0	0	7		162		169		16:15	0	0	99		26		125	
4:30	0	0	9		180		189		16:30	0	0	145		20		165	
4:45	0	0	15	37	224	668	239	705	16:45	0	0	97	456	15	81	112	537
5:00	0	0	10		238		248		17:00	0	0	116		18		134	
5:15	0	0	8		219		227		17:15	0	0	99		21		120	
5:30	0	0	9		184		193		17:30	0	0	98		22		120	
5:45	0	0	16	43	222	863	238	906	17:45	0	0	102	415	16	77	118	492
6:00	0	0	17		241		258		18:00	0	0	105		19		124	
6:15	0	0	10		234		244		18:15	0	0	132		20		152	
6:30	0	0	14		237		251		18:30	0	0	102		13		115	
6:45	0	0	12	53	183	895	195	948	18:45	0	0	74	413	14	66	88	479
7:00	0	0	13		181		194		19:00	0	0	71		8		79	
7:15	0	0	12		198		210		19:15	0	0	73		5		78	
7:30	0	0	25		160		185		19:30	0	0	50		11		61	
7:45	0	0	20	70	112	651	132	721	19:45	0	0	36	230	6	30	42	260
8:00	0	0	24		106		130		20:00	0	0	42		9		51	
8:15	0	0	26		143		169		20:15	0	0	25		10		35	
8:30	0	0	17		112		129		20:30	0	0	30		10		40	
8:45	0	0	13	80	57	418	70	498	20:45	0	0	21	118	6	35	27	153
9:00	0	0	12		55		67		21:00	0	0	18		3		21	
9:15	0	0	19		41		60		21:15	0	0	15		11		26	
9:30	0	0	21		44		65		21:30	0	0	14		8		22	
9:45	0	0	25	77	40	180	65	257	21:45	0	0	19	66	6	28	25	94
10:00	0	0	28		27		55		22:00	0	0	23		6		29	
10:15	0	0	20		26		46		22:15	0	0	10		8		18	
10:30	0	0	31		22		53		22:30	0	0	17		12		29	
10:45	0	0	24	103	20	95	44	198	22:45	0	0	10	60	6	32	16	92
11:00	0	0	24		38		62		23:00	0	0	19		17		36	
11:15	0	0	22		33		55		23:15	0	0	18		15		33	
11:30	0	0	35		24		59		23:30	0	0	15		5		20	
11:45	0	0	25	106	18	113	43	219	23:45	0	0	10	62	3	40	13	102
TOTALS				688		4171		4859	TOTALS				2717		827		3544
SPLIT %				14.2%		85.8%		57.8%	SPLIT %				76.7%		23.3%		42.2%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	3,405	4,998	8,403

AM Peak Hour			11:45	5:45	5:45	PM Peak Hour	15:45	12:00	15:45
AM Pk Volume			146	934	991	PM Pk Volume	460	114	551
Pk Hr Factor			0.589	0.969	0.960	Pk Hr Factor	0.793	0.814	0.835
7 - 9 Volume	0	0	150	1069	1219	4 - 6 Volume	0 0 871	158	1029
7 - 9 Peak Hour			7:30	7:00	7:00	4 - 6 Peak Hour	16:15	16:00	16:00
7 - 9 Pk Volume	0	0	95	651	721	4 - 6 Pk Volume	0 0 457	81	537
Pk Hr Factor	0.000	0.000	0.913	0.822	0.858	Pk Hr Factor	0.000 0.000 0.788	0.779	0.814

Prepared by National Data & Surveying Services

International Pkwy/ Mountain House Pkwy & Schulte Rd

Peak Hour Turning Movement Count

ID: 20-08059-001
City: Tracy

Day: Tuesday
Date: 02/11/2020

PEAK HOURS	COUNT PERIODS
07:00 AM - 08:00 AM	07:00 AM - 09:00 AM
NONE	NONE
04:00 PM - 05:00 PM	04:00 PM - 06:00 PM

SOUTHBOUND — International Pkwy/ Mountain House Pkwy

	Left	Thru	Right	U-Turn	Total	
AM	20	581	99	0	222	AM
NOON	0	0	0	0	0	NOON
PM	20	89	144	0	528	PM

EASTBOUND — Schulte Rd

	AM	NOON	PM
Left	205	0	85
U-Turn	0	0	0
Thru	21	0	26
Right	27	0	35
Total	166	0	56

WESTBOUND — Schulte Rd

	PM	NOON	AM
Left	154	0	91
U-Turn	26	0	112
Thru	175	0	539
Right	0	0	0
Total	512	0	317

NORTHBOUND — ernational Pkwy/ Mountain House Pk

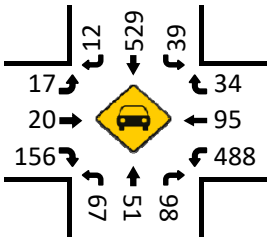
	Left	Thru	Right	U-Turn	Total	
PM	323	3	39	348	333	PM
NOON	0	0	0	0	0	NOON
AM	1286	0	73	110	191	AM

CONTROL

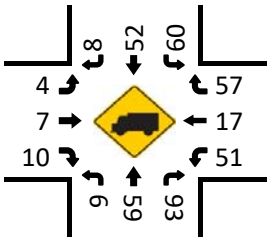
Signalized

TEV	2030	0	1448
	AM	NOON	PM
PHF	0.94		0.92

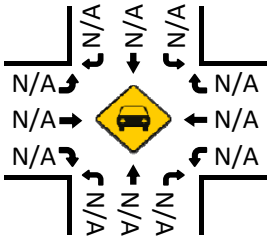
Cars (AM)



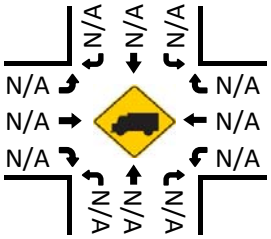
HT (AM)



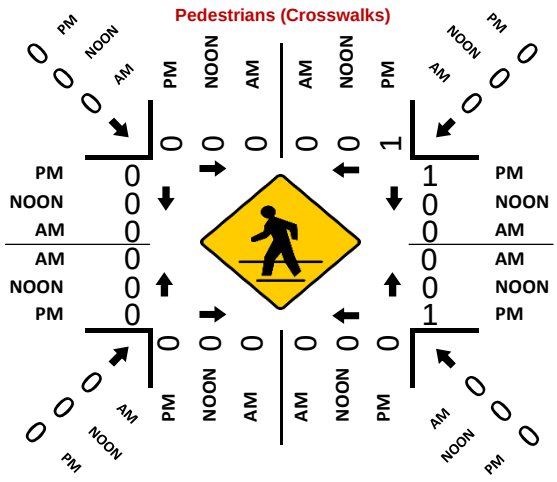
Cars (NOON)



HT (NOON)



Pedestrians (Crosswalks)


PM
NOON
AM
0
0
0
0
0
1
1
0
0
0
0
0

Prepared by National Data & Surveying Services

Hansen Rd & Schulte Rd

Peak Hour Turning Movement Count

ID: 20-08059-002
City: Tracy

Day: Tuesday
Date: 02/11/2020

PEAK HOURS
AM: 07:00 AM - 08:00 AM
NOON: NONE
PM: 04:00 PM - 05:00 PM

COUNT PERIODS
AM: 07:00 AM - 09:00 AM
NOON: NONE
PM: 04:00 PM - 06:00 PM

Hansen Rd — SOUTHBOUND

AM	125	12	11	0	89	AM
NOON	0	0	0	0	0	NOON
PM	60	4	19	0	106	PM

Schulte Rd — EASTBOUND

AM	NOON	PM	
738	0	160	⇦
0	0	0	↶ 0
60	0	89	↱ 0
48	0	384	→ 0
20	0	33	↳ 0
AM	NOON	PM	

Schulte Rd — WESTBOUND

PM	NOON	AM	
10	0	28	0 ↰
71	0	596	0 ←
8	0	7	0 ↶
0	0	0	0 ↶
431	0	65	⇨
PM	NOON	AM	

CONTROL: Signalized

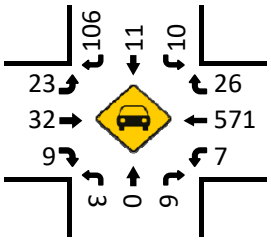
TEV	931	0	742
	AM	NOON	PM
PHF	0.91		0.79

Hansen Rd — NORTHBOUND

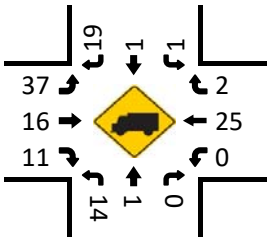
PM	45	0	29	7	28	PM
NOON	0	0	0	0	0	NOON
AM	39	0	17	1	6	AM

Hansen Rd

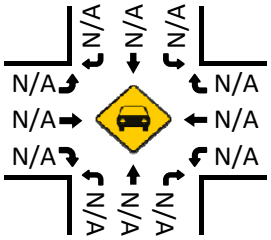
Cars (AM)



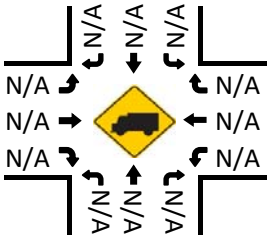
HT (AM)



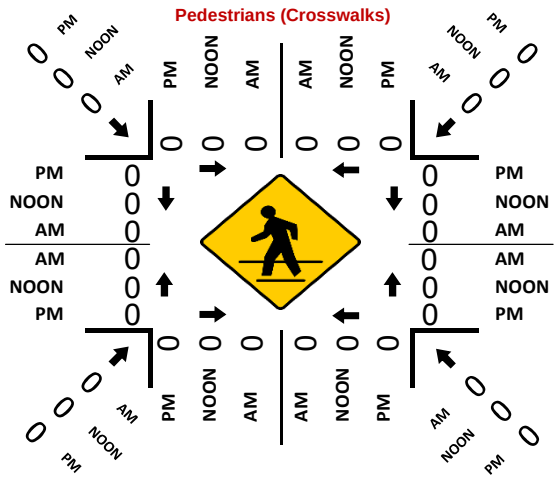
Cars (NOON)



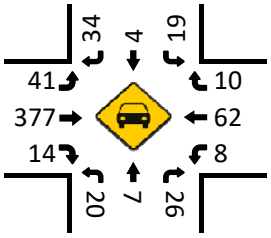
HT (NOON)



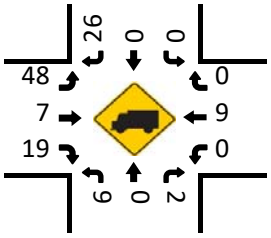
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



Prepared by National Data & Surveying Services

Lammers Rd & Schulte Rd

Peak Hour Turning Movement Count

ID: 20-08059-003
City: Tracy

Day: Tuesday
Date: 02/11/2020

PEAK HOURS	COUNT PERIODS
07:15 AM - 08:15 AM	07:00 AM - 09:00 AM
NONE	NONE
04:15 PM - 05:15 PM	04:00 PM - 06:00 PM

Lammers Rd — SOUTHBOUND

AM	321	272	0	0	380	AM
NOON	0	0	0	0	0	NOON
PM	18	250	0	0	353	PM

Schulte Rd — EASTBOUND

AM	NOON	PM	
603	0	64	
0	0	0	0
22	0	177	0
0	0	0	0
38	0	311	0
AM	NOON	PM	

Schulte Rd — WESTBOUND

PM	NOON	AM	
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	
PM	NOON	AM	

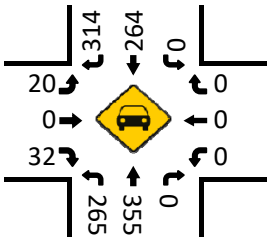
CONTROL
3-Way Stop(NB/SB/EB)

TEV	1293	0	978
	AM	NOON	PM
PHF	0.92		0.86

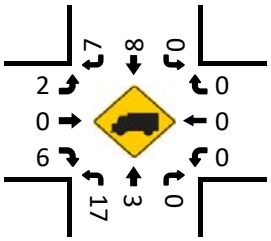
Lammers Rd — NORTHBOUND

PM	561	0	46	176	0	PM
NOON	0	0	0	0	0	NOON
AM	310	0	282	358	0	AM

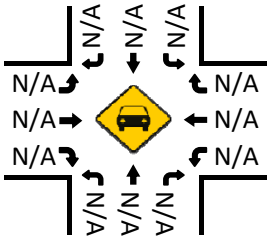
Cars (AM)



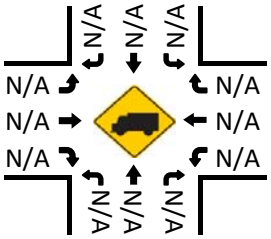
HT (AM)



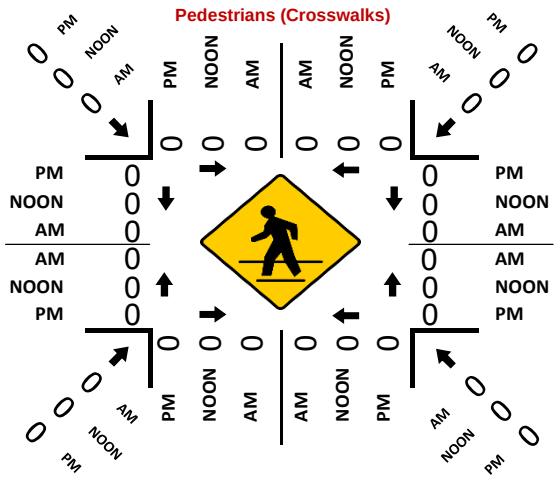
Cars (NOON)



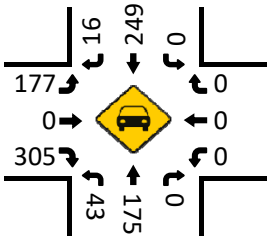
HT (NOON)



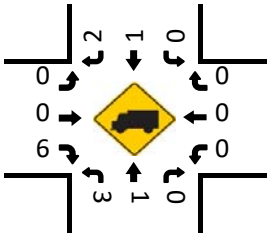
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



Prepared by National Data & Surveying Services

Lammers Rd & Valpico Rd

Peak Hour Turning Movement Count

ID: 20-08059-004
City: Tracy

Day: Tuesday
Date: 02/11/2020

PEAK HOURS	COUNT PERIODS
07:15 AM - 08:15 AM	07:00 AM - 09:00 AM
NONE	NONE
04:15 PM - 05:15 PM	04:00 PM - 06:00 PM

Lammers Rd — SOUTHBOUND

	L	T	R	U	Total	
AM	0	5	246	0	342	AM
NOON	0	0	0	0	0	NOON
PM	0	9	390	0	179	PM

Valpico Rd — EASTBOUND

	L	T	R	U
AM	0	0	0	0
NOON	0	0	0	0
PM	0	0	0	0

Valpico Rd — WESTBOUND

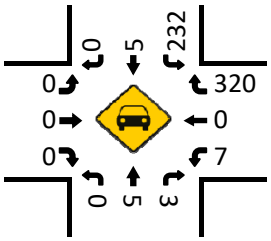
	L	T	R	U
PM	176	0	337	0
NOON	0	0	0	0
AM	2	0	7	0
	0	0	0	0
	396	0	250	0

Lammers Rd — NORTHBOUND

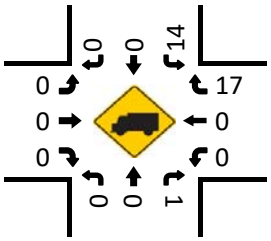
	L	T	R	U	Total	
PM	11	0	0	3	6	PM
NOON	0	0	0	0	0	NOON
AM	12	0	0	5	4	AM

CONTROL			
1-Way Stop(WB)			
TEV	604	0	586
	AM	NOON	PM
PHF	0.86		0.87

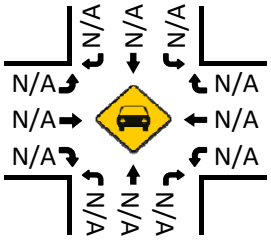
Cars (AM)



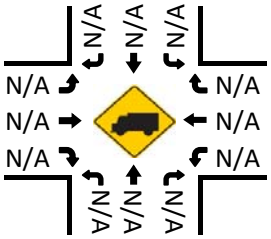
HT (AM)



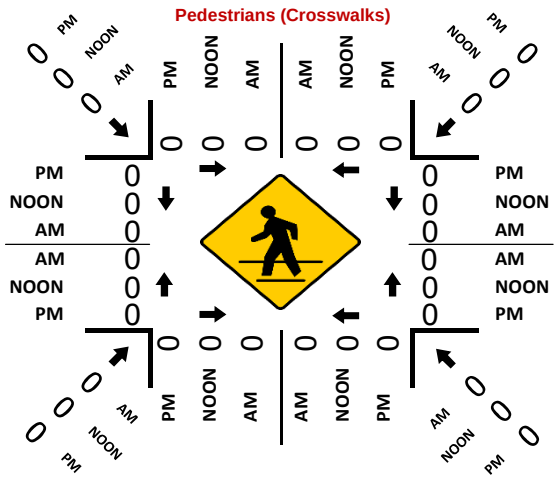
Cars (NOON)



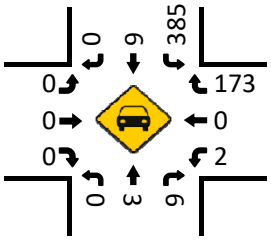
HT (NOON)



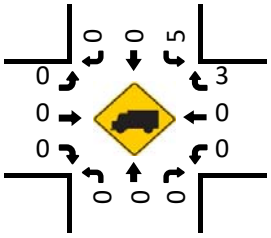
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



Prepared by National Data & Surveying Services

Corral Hollow Rd & Valpico Rd

Peak Hour Turning Movement Count

ID: 20-08059-005
City: Tracy

Day: Tuesday
Date: 02/11/2020

PEAK HOURS	COUNT PERIODS
07:30 AM - 08:30 AM	07:00 AM - 09:00 AM
NONE	NONE
05:00 PM - 06:00 PM	04:00 PM - 06:00 PM

Corral Hollow Rd — SOUTHBOUND

AM	12	278	61	0	248	AM
NOON	0	0	0	0	0	NOON
PM	35	204	134	0	395	PM

Valpico Rd — EASTBOUND

AM	NOON	PM	
319	0	265	
0	0	0	0
8	0	34	0
132	0	241	0
118	0	80	0
AM	NOON	PM	

Valpico Rd — WESTBOUND

PM	NOON	AM	
87	0	54	0
154	0	169	0
64	0	178	0
0	0	0	0
456	0	224	
PM	NOON	AM	

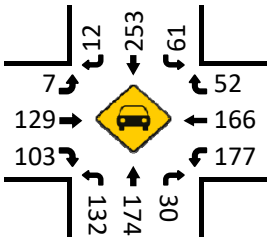
CONTROL: 4-Way Stop

TEV	1365	0	1464
	AM	NOON	PM
PHF	0.90		0.96

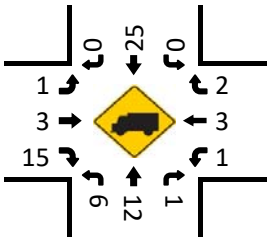
Corral Hollow Rd — NORTHBOUND

PM	348	0	76	274	81	PM
NOON	0	0	0	0	0	NOON
AM	574	0	138	186	31	AM

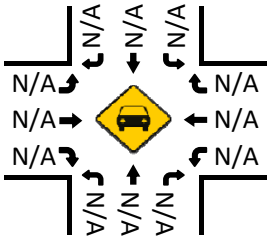
Cars (AM)



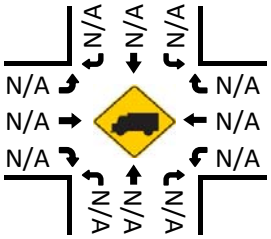
HT (AM)



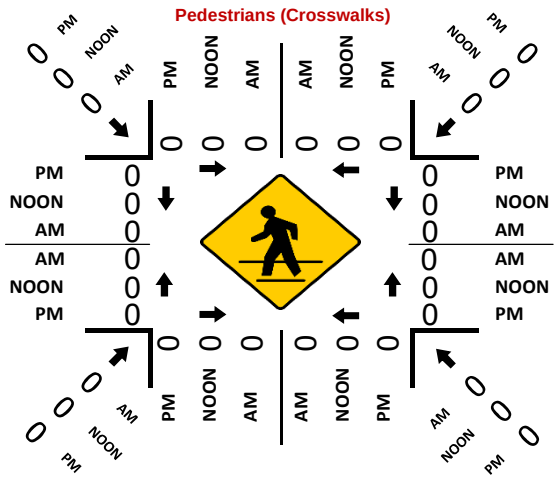
Cars (NOON)



HT (NOON)



Pedestrians (Crosswalks)


PM
NOON
AM
0
0
0

Prepared by National Data & Surveying Services

Lammers Rd & 11th St

Peak Hour Turning Movement Count

ID: 20-08059-006
City: Tracy

Day: Tuesday
Date: 02/11/2020

PEAK HOURS

AM: 07:30 AM - 08:30 AM
NOON: NONE
PM: 05:00 PM - 06:00 PM

COUNT PERIODS

AM: 07:00 AM - 09:00 AM
NOON: NONE
PM: 04:00 PM - 06:00 PM

Lammers Rd — SOUTHBOUND

AM	60	198	34	1	232	AM
NOON	0	0	0	0	0	NOON
PM	26	123	61	0	328	PM

EASTBOUND — 11th St

AM	NOON	PM	
666	0	414	⇦
0	0	1	↶ 0
40	0	134	↱ 0
308	0	1096	→ 0
69	0	113	↴ 0
AM	NOON	PM	

WESTBOUND — 11th St

PM	NOON	AM	
80	0	82	0 ↰
345	0	567	0 ←
159	0	614	0 ↙
0	0	2	0 ↶
1414	0	749	⇨
PM	NOON	AM	

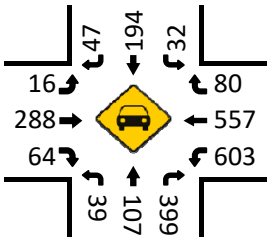
CONTROL: Signalized

TEV	2528	0	2551
	AM	NOON	PM
PHF	0.79		0.92

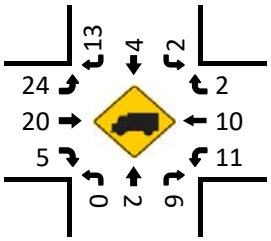
NORTHBOUND — Lammers Rd

PM	395	0	42	114	257	PM
NOON	0	0	0	0	0	NOON
AM	881	0	39	109	405	AM

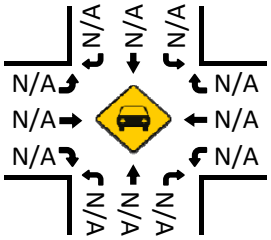
Cars (AM)



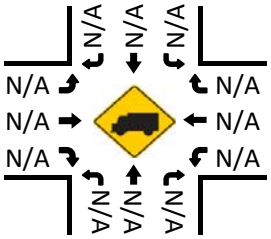
HT (AM)



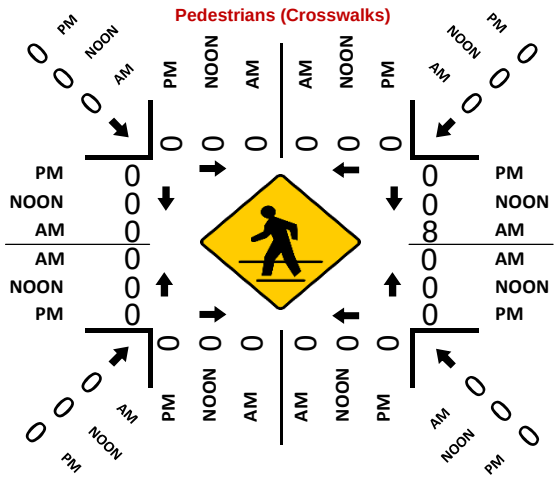
Cars (NOON)



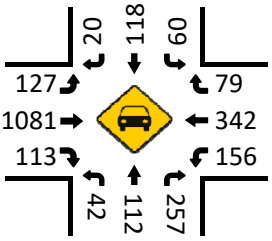
HT (NOON)



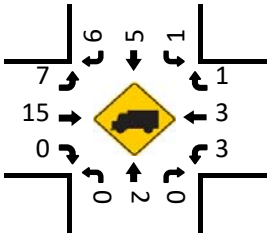
Pedestrians (Crosswalks)

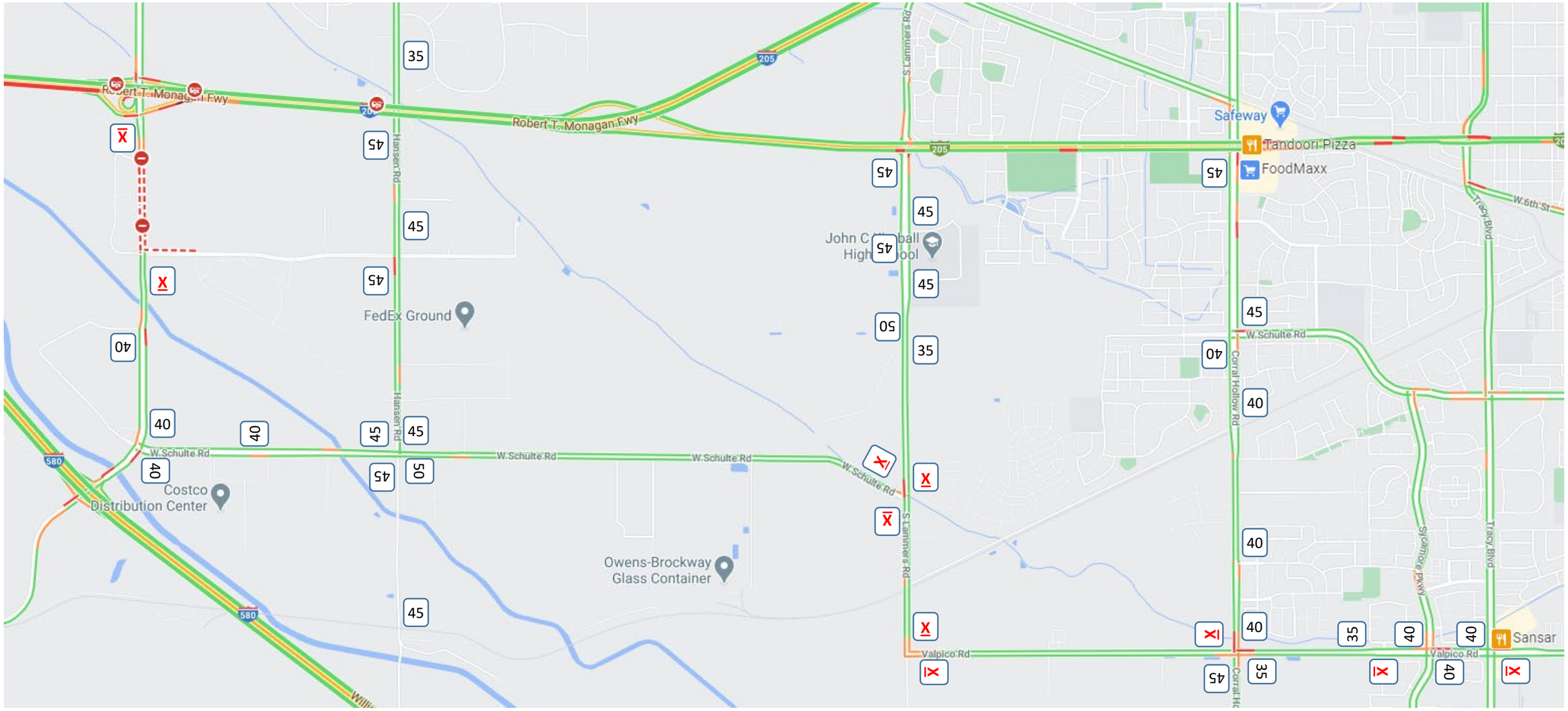


Cars (PM)



HT (PM)





NOTES:

- A X means no sign was posted on the segment.
- International Parkway was closed as shown above from Promontory Pkwy on the south to a new road just south of the EB 205 ramps. Due to construction, no permanent signage was currently installed.
- The signal at the intersection of Schulte & Lammers, which was “in design” at the time of Tracy’s comments, was completed and fully functional as of 12/14/2020.

Appendix B INTERSECTION LOS ANALYSIS: EXISTING CONDITIONS LOS CALCULATION SHEETS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	27	166	539	112	91	73	110	191	99	581	20
Future Volume (veh/h)	21	27	166	539	112	91	73	110	191	99	581	20
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1727	1727	1900	1624	1624	1624	1338	1338	1338	1624	1624	1624
Adj Flow Rate, veh/h	36	47	0	580	120	98	90	136	236	112	660	23
Adj No. of Lanes	1	2	0	2	1	1	1	2	1	2	2	1
Peak Hour Factor	0.58	0.58	0.58	0.93	0.93	0.93	0.81	0.81	0.81	0.88	0.88	0.88
Percent Heavy Veh, %	10	10	10	17	17	17	42	42	42	17	17	17
Cap, veh/h	58	356	0	714	505	429	104	770	344	183	870	389
Arrive On Green	0.04	0.11	0.00	0.24	0.31	0.31	0.08	0.30	0.30	0.06	0.28	0.28
Sat Flow, veh/h	1645	3368	0	3000	1624	1380	1274	2542	1137	3000	3085	1380
Grp Volume(v), veh/h	36	47	0	580	120	98	90	136	236	112	660	23
Grp Sat Flow(s),veh/h/ln	1645	1641	0	1500	1624	1380	1274	1271	1137	1500	1543	1380
Q Serve(g_s), s	1.6	1.0	0.0	13.4	4.0	3.9	5.1	2.9	13.4	2.7	14.4	0.9
Cycle Q Clear(g_c), s	1.6	1.0	0.0	13.4	4.0	3.9	5.1	2.9	13.4	2.7	14.4	0.9
Prop In Lane	1.00		0.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	58	356	0	714	505	429	104	770	344	183	870	389
V/C Ratio(X)	0.62	0.13	0.00	0.81	0.24	0.23	0.86	0.18	0.69	0.61	0.76	0.06
Avail Cap(c_a), veh/h	213	1080	0	1489	1131	961	165	1850	828	388	2245	1004
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.0	29.6	0.0	26.5	18.8	18.8	33.3	18.9	22.6	33.7	24.1	19.3
Incr Delay (d2), s/veh	10.2	0.2	0.0	2.3	0.2	0.3	22.8	0.1	2.4	3.3	1.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.4	0.0	5.8	1.8	1.5	2.5	1.0	4.4	1.2	6.2	0.3
LnGrp Delay(d),s/veh	45.2	29.8	0.0	28.8	19.1	19.1	56.1	19.0	25.0	36.9	25.5	19.3
LnGrp LOS	D	C		C	B	B	E	B	C	D	C	B
Approach Vol, veh/h		83			798			462			795	
Approach Delay, s/veh		36.5			26.1			29.3			26.9	
Approach LOS		D			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.0	28.8	22.0	13.8	10.5	27.2	7.1	28.7
Change Period (Y+Rc), s	4.5	6.5	4.5	5.8	4.5	6.5	4.5	5.8
Max Green Setting (Gmax), s	9.5	53.5	36.5	24.2	9.5	53.5	9.5	51.2
Max Q Clear Time (g_c+I1), s	4.7	15.4	15.4	3.0	7.1	16.4	3.6	6.0
Green Ext Time (p_c), s	0.1	1.6	2.1	0.2	0.0	4.4	0.0	0.9

Intersection Summary	
HCM 2010 Ctrl Delay	27.5
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	48	20	7	596	28	17	1	6	11	12	125
Future Volume (veh/h)	60	48	20	7	596	28	17	1	6	11	12	125
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1267	1267	1267	1827	1827	1827	1166	1166	1900	1667	1667	1667
Adj Flow Rate, veh/h	79	63	26	8	710	33	25	1	9	14	16	162
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	1
Peak Hour Factor	0.76	0.76	0.76	0.84	0.84	0.84	0.67	0.67	0.67	0.77	0.77	0.77
Percent Heavy Veh, %	50	50	50	4	4	4	63	63	63	14	14	14
Cap, veh/h	88	634	539	18	800	680	31	16	141	27	242	206
Arrive On Green	0.07	0.50	0.50	0.01	0.44	0.44	0.03	0.16	0.16	0.02	0.15	0.15
Sat Flow, veh/h	1206	1267	1077	1740	1827	1553	1110	101	905	1587	1667	1417
Grp Volume(v), veh/h	79	63	26	8	710	33	25	0	10	14	16	162
Grp Sat Flow(s),veh/h/ln	1206	1267	1077	1740	1827	1553	1110	0	1006	1587	1667	1417
Q Serve(g_s), s	4.2	1.7	0.8	0.3	23.3	0.8	1.5	0.0	0.6	0.6	0.5	7.2
Cycle Q Clear(g_c), s	4.2	1.7	0.8	0.3	23.3	0.8	1.5	0.0	0.6	0.6	0.5	7.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.90	1.00		1.00
Lane Grp Cap(c), veh/h	88	634	539	18	800	680	31	0	157	27	242	206
V/C Ratio(X)	0.89	0.10	0.05	0.44	0.89	0.05	0.81	0.00	0.06	0.51	0.07	0.79
Avail Cap(c_a), veh/h	176	684	581	253	986	838	162	0	466	231	772	656
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.0	8.6	8.3	32.1	16.9	10.5	31.5	0.0	23.5	31.8	24.1	26.9
Incr Delay (d2), s/veh	24.5	0.1	0.0	16.2	8.6	0.0	36.8	0.0	0.2	14.1	0.1	6.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.6	0.2	0.2	13.5	0.3	0.8	0.0	0.2	0.4	0.3	3.2
LnGrp Delay(d),s/veh	54.5	8.6	8.4	48.3	25.4	10.6	68.3	0.0	23.6	45.9	24.2	33.4
LnGrp LOS	D	A	A	D	C	B	E		C	D	C	C
Approach Vol, veh/h		168			751			35			192	
Approach Delay, s/veh		30.2			25.0			55.5			33.6	
Approach LOS		C			C			E			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.6	16.0	5.2	38.4	6.3	15.3	9.3	34.3
Change Period (Y+Rc), s	4.5	5.8	4.5	5.8	4.5	5.8	4.5	5.8
Max Green Setting (Gmax), s	9.5	30.2	9.5	35.2	9.5	30.2	9.5	35.2
Max Q Clear Time (g_c+I1), s	2.6	2.6	2.3	3.7	3.5	9.2	6.2	25.3
Green Ext Time (p_c), s	0.0	0.0	0.0	0.4	0.0	0.5	0.0	3.2

Intersection Summary	
HCM 2010 Ctrl Delay	28.1
HCM 2010 LOS	C

Intersection	
Intersection Delay, s/veh	40.4
Intersection LOS	E

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	22	38	282	358	272	321
Future Vol, veh/h	22	38	282	358	272	321
Peak Hour Factor	0.71	0.71	0.91	0.91	0.94	0.94
Heavy Vehicles, %	13	13	3	3	3	3
Mvmt Flow	31	54	310	393	289	341
Number of Lanes	1	0	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	11.1	54.6	28.4
HCM LOS	B	F	D

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	44%	37%	0%
Vol Thru, %	56%	0%	46%
Vol Right, %	0%	63%	54%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	640	60	593
LT Vol	282	22	0
Through Vol	358	0	272
RT Vol	0	38	321
Lane Flow Rate	703	85	631
Geometry Grp	1	1	1
Degree of Util (X)	0.994	0.159	0.847
Departure Headway (Hd)	5.088	6.776	4.831
Convergence, Y/N	Yes	Yes	Yes
Cap	717	528	757
Service Time	3.117	4.832	2.831
HCM Lane V/C Ratio	0.98	0.161	0.834
HCM Control Delay	54.6	11.1	28.4
HCM Lane LOS	F	B	D
HCM 95th-tile Q	15.9	0.6	9.8

Intersection	
Int Delay, s/veh	9.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	7	337	5	4	246	5
Future Vol, veh/h	7	337	5	4	246	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	75	75	85	85
Heavy Vehicles, %	5	5	11	11	6	6
Mvmt Flow	8	387	7	5	289	6

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	594	10	0	0	12	0
Stage 1	10	-	-	-	-	-
Stage 2	584	-	-	-	-	-
Critical Hdwy	6.45	6.25	-	-	4.16	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	-	-	2.254	-
Pot Cap-1 Maneuver	463	1063	-	-	1581	-
Stage 1	1005	-	-	-	-	-
Stage 2	552	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	378	1063	-	-	1581	-
Mov Cap-2 Maneuver	378	-	-	-	-	-
Stage 1	1005	-	-	-	-	-
Stage 2	451	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.7	0	7.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1025	1581	-
HCM Lane V/C Ratio	-	-	0.386	0.183	-
HCM Control Delay (s)	-	-	10.7	7.8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	1.8	0.7	-

Intersection	
Intersection Delay, s/veh	89.8
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	132	118	178	169	54	138	186	31	61	278	12
Future Vol, veh/h	8	132	118	178	169	54	138	186	31	61	278	12
Peak Hour Factor	0.84	0.84	0.84	0.88	0.88	0.88	0.85	0.85	0.85	0.88	0.88	0.88
Heavy Vehicles, %	7	7	7	1	1	1	5	5	5	7	7	7
Mvmt Flow	10	157	140	202	192	61	162	219	36	69	316	14
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	44.1	121.1	95.1	83.7
HCM LOS	E	F	F	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	39%	3%	44%	17%
Vol Thru, %	52%	51%	42%	79%
Vol Right, %	9%	46%	13%	3%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	355	258	401	351
LT Vol	138	8	178	61
Through Vol	186	132	169	278
RT Vol	31	118	54	12
Lane Flow Rate	418	307	456	399
Geometry Grp	1	1	1	1
Degree of Util (X)	1.057	0.803	1.142	1.015
Departure Headway (Hd)	9.791	10.219	9.465	9.923
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	376	356	387	367
Service Time	7.791	8.219	7.465	7.923
HCM Lane V/C Ratio	1.112	0.862	1.178	1.087
HCM Control Delay	95.1	44.1	121.1	83.7
HCM Lane LOS	F	E	F	F
HCM 95th-tile Q	13.5	6.8	16.6	12.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	308	69	616	567	82	39	109	405	35	198	60
Future Volume (veh/h)	40	308	69	616	567	82	39	109	405	35	198	60
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1696	1696	1696	1863	1863	1863	1881	1881	1881	1792	1792	1792
Adj Flow Rate, veh/h	43	335	0	780	718	0	60	168	0	50	283	0
Adj No. of Lanes	2	3	1	2	3	1	2	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.79	0.79	0.79	0.65	0.65	0.65	0.70	0.70	0.70
Percent Heavy Veh, %	12	12	12	2	2	2	1	1	1	6	6	6
Cap, veh/h	136	661	206	1003	1987	619	188	537	240	160	491	220
Arrive On Green	0.04	0.14	0.00	0.29	0.39	0.00	0.05	0.15	0.00	0.05	0.14	0.00
Sat Flow, veh/h	3134	4631	1442	3442	5085	1583	3476	3574	1599	3312	3406	1524
Grp Volume(v), veh/h	43	335	0	780	718	0	60	168	0	50	283	0
Grp Sat Flow(s),veh/h/ln	1567	1544	1442	1721	1695	1583	1738	1787	1599	1656	1703	1524
Q Serve(g_s), s	0.7	3.7	0.0	11.6	5.6	0.0	0.9	2.4	0.0	0.8	4.3	0.0
Cycle Q Clear(g_c), s	0.7	3.7	0.0	11.6	5.6	0.0	0.9	2.4	0.0	0.8	4.3	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	136	661	206	1003	1987	619	188	537	240	160	491	220
V/C Ratio(X)	0.32	0.51	0.00	0.78	0.36	0.00	0.32	0.31	0.00	0.31	0.58	0.00
Avail Cap(c_a), veh/h	531	2907	905	1872	5097	1587	589	2817	1260	561	2685	1201
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	26.0	22.2	0.0	18.2	12.1	0.0	25.5	21.2	0.0	25.8	22.4	0.0
Incr Delay (d2), s/veh	1.3	0.6	0.0	1.3	0.1	0.0	1.0	0.3	0.0	1.1	1.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	1.6	0.0	5.7	2.6	0.0	0.5	1.2	0.0	0.4	2.1	0.0
LnGrp Delay(d),s/veh	27.3	22.8	0.0	19.5	12.2	0.0	26.5	21.6	0.0	26.9	23.5	0.0
LnGrp LOS	C	C		B	B		C	C		C	C	
Approach Vol, veh/h		378			1498			228			333	
Approach Delay, s/veh		23.3			16.0			22.9			24.0	
Approach LOS		C			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.2	14.2	20.8	13.8	7.5	13.9	6.9	27.7
Change Period (Y+Rc), s	4.5	5.8	4.5	5.8	4.5	5.8	4.5	5.8
Max Green Setting (Gmax), s	9.5	44.2	30.5	35.2	9.5	44.2	9.5	56.2
Max Q Clear Time (g_c+I1), s	2.8	4.4	13.6	5.7	2.9	6.3	2.7	7.6
Green Ext Time (p_c), s	0.0	1.0	2.7	2.1	0.1	1.7	0.0	5.2

Intersection Summary	
HCM 2010 Ctrl Delay	18.9
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	35	56	175	26	154	42	348	333	144	89	20
Future Volume (veh/h)	26	35	56	175	26	154	42	348	333	144	89	20
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1743	1900	1439	1439	1439	1727	1727	1727	1397	1397	1397
Adj Flow Rate, veh/h	37	50	0	213	32	188	45	374	358	162	100	22
Adj No. of Lanes	1	2	0	2	1	1	1	2	1	2	2	1
Peak Hour Factor	0.70	0.70	0.70	0.82	0.82	0.82	0.93	0.93	0.93	0.89	0.89	0.89
Percent Heavy Veh, %	9	9	9	32	32	32	10	10	10	36	36	36
Cap, veh/h	63	427	0	313	301	255	72	1043	466	232	966	432
Arrive On Green	0.04	0.13	0.00	0.12	0.21	0.21	0.04	0.32	0.32	0.09	0.36	0.36
Sat Flow, veh/h	1660	3399	0	2659	1439	1222	1645	3282	1465	2581	2654	1188
Grp Volume(v), veh/h	37	50	0	213	32	188	45	374	358	162	100	22
Grp Sat Flow(s),veh/h/ln	1660	1656	0	1330	1439	1222	1645	1641	1465	1291	1327	1188
Q Serve(g_s), s	1.4	0.8	0.0	4.7	1.1	8.9	1.7	5.4	13.6	3.8	1.5	0.7
Cycle Q Clear(g_c), s	1.4	0.8	0.0	4.7	1.1	8.9	1.7	5.4	13.6	3.8	1.5	0.7
Prop In Lane	1.00		0.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	63	427	0	313	301	255	72	1043	466	232	966	432
V/C Ratio(X)	0.59	0.12	0.00	0.68	0.11	0.74	0.63	0.36	0.77	0.70	0.10	0.05
Avail Cap(c_a), veh/h	256	1300	0	1574	1195	1015	253	2848	1272	398	2303	1030
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.2	23.7	0.0	26.1	19.7	22.8	29.0	16.2	19.0	27.2	13.0	12.7
Incr Delay (d2), s/veh	8.3	0.1	0.0	2.6	0.2	4.1	8.7	0.2	2.7	3.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.4	0.0	1.9	0.4	3.3	0.9	2.5	5.8	1.4	0.6	0.2
LnGrp Delay(d),s/veh	37.5	23.9	0.0	28.7	19.9	26.9	37.7	16.4	21.7	31.0	13.0	12.8
LnGrp LOS	D	C		C	B	C	D	B	C	C	B	B
Approach Vol, veh/h		87			433			777			284	
Approach Delay, s/veh		29.7			27.3			20.1			23.3	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.0	26.1	11.8	13.8	7.2	28.9	6.8	18.7
Change Period (Y+Rc), s	4.5	6.5	4.5	5.8	4.5	6.5	4.5	5.8
Max Green Setting (Gmax), s	9.5	53.5	36.5	24.2	9.5	53.5	9.5	51.2
Max Q Clear Time (g_c+I1), s	5.8	15.6	6.7	2.8	3.7	3.5	3.4	10.9
Green Ext Time (p_c), s	0.2	3.5	0.7	0.2	0.0	0.6	0.0	0.8

Intersection Summary	
HCM 2010 Ctrl Delay	23.1
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	89	384	33	8	71	10	29	7	28	19	4	60
Future Volume (veh/h)	89	384	33	8	71	10	29	7	28	19	4	60
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1652	1652	1652	1727	1727	1727	1624	1624	1900	1450	1450	1450
Adj Flow Rate, veh/h	119	512	44	10	92	13	31	7	30	21	4	67
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	1
Peak Hour Factor	0.75	0.75	0.75	0.77	0.77	0.77	0.94	0.94	0.94	0.90	0.90	0.90
Percent Heavy Veh, %	15	15	15	10	10	10	17	17	17	31	31	31
Cap, veh/h	147	632	537	21	522	444	55	40	170	35	199	169
Arrive On Green	0.09	0.38	0.38	0.01	0.30	0.30	0.04	0.15	0.15	0.03	0.14	0.14
Sat Flow, veh/h	1573	1652	1404	1645	1727	1468	1547	269	1152	1381	1450	1233
Grp Volume(v), veh/h	119	512	44	10	92	13	31	0	37	21	4	67
Grp Sat Flow(s),veh/h/ln	1573	1652	1404	1645	1727	1468	1547	0	1421	1381	1450	1233
Q Serve(g_s), s	3.5	13.2	1.0	0.3	1.9	0.3	0.9	0.0	1.1	0.7	0.1	2.4
Cycle Q Clear(g_c), s	3.5	13.2	1.0	0.3	1.9	0.3	0.9	0.0	1.1	0.7	0.1	2.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.81	1.00		1.00
Lane Grp Cap(c), veh/h	147	632	537	21	522	444	55	0	209	35	199	169
V/C Ratio(X)	0.81	0.81	0.08	0.47	0.18	0.03	0.57	0.00	0.18	0.60	0.02	0.40
Avail Cap(c_a), veh/h	313	1219	1036	327	1274	1083	308	0	899	275	918	780
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.2	13.2	9.4	23.4	12.3	11.7	22.7	0.0	17.8	23.0	17.8	18.8
Incr Delay (d2), s/veh	10.0	2.5	0.1	15.0	0.2	0.0	8.9	0.0	0.4	15.1	0.0	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	6.4	0.4	0.2	0.9	0.1	0.5	0.0	0.4	0.4	0.0	0.9
LnGrp Delay(d),s/veh	31.2	15.7	9.5	38.4	12.4	11.8	31.6	0.0	18.2	38.1	17.8	20.3
LnGrp LOS	C	B	A	D	B	B	C		B	D	B	C
Approach Vol, veh/h		675			115			68			92	
Approach Delay, s/veh		18.0			14.6			24.3			24.2	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.7	12.8	5.1	24.1	6.2	12.4	9.0	20.2
Change Period (Y+Rc), s	4.5	5.8	4.5	5.8	4.5	5.8	4.5	5.8
Max Green Setting (Gmax), s	9.5	30.2	9.5	35.2	9.5	30.2	9.5	35.2
Max Q Clear Time (g_c+I1), s	2.7	3.1	2.3	15.2	2.9	4.4	5.5	3.9
Green Ext Time (p_c), s	0.0	0.1	0.0	3.0	0.0	0.2	0.1	0.5

Intersection Summary	
HCM 2010 Ctrl Delay	18.7
HCM 2010 LOS	B

Intersection	
Intersection Delay, s/veh	25.1
Intersection LOS	D

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	177	311	46	176	250	18
Future Vol, veh/h	177	311	46	176	250	18
Peak Hour Factor	0.81	0.81	0.87	0.87	0.87	0.87
Heavy Vehicles, %	1	1	2	2	1	1
Mvmt Flow	219	384	53	202	287	21
Number of Lanes	1	0	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	34.6	14.3	15.6
HCM LOS	D	B	C

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	21%	36%	0%
Vol Thru, %	79%	0%	93%
Vol Right, %	0%	64%	7%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	222	488	268
LT Vol	46	177	0
Through Vol	176	0	250
RT Vol	0	311	18
Lane Flow Rate	255	602	308
Geometry Grp	1	1	1
Degree of Util (X)	0.443	0.88	0.519
Departure Headway (Hd)	6.252	5.258	6.064
Convergence, Y/N	Yes	Yes	Yes
Cap	572	687	591
Service Time	4.34	3.324	4.147
HCM Lane V/C Ratio	0.446	0.876	0.521
HCM Control Delay	14.3	34.6	15.6
HCM Lane LOS	B	D	C
HCM 95th-tile Q	2.3	10.7	3

Intersection	
Int Delay, s/veh	8.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	176	3	6	390	9
Future Vol, veh/h	2	176	3	6	390	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	81	81	45	45	80	80
Heavy Vehicles, %	2	2	2	2	1	1
Mvmt Flow	2	217	7	13	488	11

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1001	14	0	0	20	0
Stage 1	14	-	-	-	-	-
Stage 2	987	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.11	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.209	-
Pot Cap-1 Maneuver	269	1066	-	-	1603	-
Stage 1	1009	-	-	-	-	-
Stage 2	361	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	187	1066	-	-	1603	-
Mov Cap-2 Maneuver	187	-	-	-	-	-
Stage 1	1009	-	-	-	-	-
Stage 2	251	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.5	0	8
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1013	1603	-
HCM Lane V/C Ratio	-	-	0.217	0.304	-
HCM Control Delay (s)	-	-	9.5	8.2	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.8	1.3	-

Intersection	
Intersection Delay, s/veh	106
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	34	241	80	64	154	87	76	274	81	134	204	35
Future Vol, veh/h	34	241	80	64	154	87	76	274	81	134	204	35
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	39	277	92	74	177	100	84	301	89	147	224	38
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	94.3	65	151.3	100.4
HCM LOS	F	F	F	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	18%	10%	21%	36%
Vol Thru, %	64%	68%	50%	55%
Vol Right, %	19%	23%	29%	9%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	431	355	305	373
LT Vol	76	34	64	134
Through Vol	274	241	154	204
RT Vol	81	80	87	35
Lane Flow Rate	474	408	351	410
Geometry Grp	1	1	1	1
Degree of Util (X)	1.221	1.048	0.924	1.067
Departure Headway (Hd)	9.828	10.224	10.591	10.329
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	374	359	344	357
Service Time	7.828	8.224	8.591	8.329
HCM Lane V/C Ratio	1.267	1.136	1.02	1.148
HCM Control Delay	151.3	94.3	65	100.4
HCM Lane LOS	F	F	F	F
HCM 95th-tile Q	19	12.9	9.4	13.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	135	1096	113	159	345	80	42	114	257	61	123	26
Future Volume (veh/h)	135	1096	113	159	345	80	42	114	257	61	123	26
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1881	1881	1881	1900	1900	1900	1792	1792	1792
Adj Flow Rate, veh/h	147	1191	0	171	371	0	50	136	0	69	140	0
Adj No. of Lanes	2	3	1	2	3	1	2	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.84	0.84	0.84	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	1	1	1	0	0	0	6	6	6
Cap, veh/h	268	1870	582	295	1925	599	167	493	220	191	499	223
Arrive On Green	0.08	0.37	0.00	0.08	0.37	0.00	0.05	0.14	0.00	0.06	0.15	0.00
Sat Flow, veh/h	3442	5085	1583	3476	5136	1599	3510	3610	1615	3312	3406	1524
Grp Volume(v), veh/h	147	1191	0	171	371	0	50	136	0	69	140	0
Grp Sat Flow(s),veh/h/ln	1721	1695	1583	1738	1712	1599	1755	1805	1615	1656	1703	1524
Q Serve(g_s), s	2.4	11.3	0.0	2.8	2.8	0.0	0.8	2.0	0.0	1.2	2.1	0.0
Cycle Q Clear(g_c), s	2.4	11.3	0.0	2.8	2.8	0.0	0.8	2.0	0.0	1.2	2.1	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	268	1870	582	295	1925	599	167	493	220	191	499	223
V/C Ratio(X)	0.55	0.64	0.00	0.58	0.19	0.00	0.30	0.28	0.00	0.36	0.28	0.00
Avail Cap(c_a), veh/h	561	3069	955	1817	4948	1541	572	2735	1224	539	2581	1154
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	25.9	15.2	0.0	25.7	12.3	0.0	26.8	22.6	0.0	26.4	22.2	0.0
Incr Delay (d2), s/veh	1.8	0.4	0.0	1.8	0.0	0.0	1.0	0.3	0.0	1.1	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	5.2	0.0	1.4	1.3	0.0	0.4	1.0	0.0	0.6	1.0	0.0
LnGrp Delay(d),s/veh	27.7	15.6	0.0	27.5	12.3	0.0	27.8	22.9	0.0	27.6	22.5	0.0
LnGrp LOS	C	B		C	B		C	C		C	C	
Approach Vol, veh/h		1338			542			186			209	
Approach Delay, s/veh		16.9			17.1			24.2			24.2	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.9	13.8	9.5	27.3	7.3	14.3	9.0	27.7
Change Period (Y+Rc), s	4.5	5.8	4.5	5.8	4.5	5.8	4.5	5.8
Max Green Setting (Gmax), s	9.5	44.2	30.5	35.2	9.5	44.2	9.5	56.2
Max Q Clear Time (g_c+I1), s	3.2	4.0	4.8	13.3	2.8	4.1	4.4	4.8
Green Ext Time (p_c), s	0.1	0.8	0.5	8.2	0.0	0.8	0.2	2.5

Intersection Summary		
HCM 2010 Ctrl Delay		18.2
HCM 2010 LOS		B

Appendix C INTERSECTION LOS ANALYSIS: EXISTING PLUS APPROVED PROJECT (EPAP) CONDITIONS

- LOS CALCULATION SHEETS & MITIGATED LOS

- SIGNAL WARRANTS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	30	169	610	115	317	76	179	463	434	606	23
Future Volume (veh/h)	24	30	169	610	115	317	76	179	463	434	606	23
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1727	1727	1900	1624	1624	1624	1338	1338	1338	1624	1624	1624
Adj Flow Rate, veh/h	41	52	0	656	124	341	94	221	572	493	689	26
Adj No. of Lanes	1	2	0	2	1	1	1	2	1	2	2	1
Peak Hour Factor	0.58	0.58	0.58	0.93	0.93	0.93	0.81	0.81	0.81	0.88	0.88	0.88
Percent Heavy Veh, %	10	10	10	17	17	17	42	42	42	17	17	17
Cap, veh/h	51	215	0	728	450	383	99	1116	499	234	1355	606
Arrive On Green	0.03	0.07	0.00	0.24	0.28	0.28	0.08	0.44	0.44	0.08	0.44	0.44
Sat Flow, veh/h	1645	3368	0	3000	1624	1380	1274	2542	1137	3000	3085	1380
Grp Volume(v), veh/h	41	52	0	656	124	341	94	221	572	493	689	26
Grp Sat Flow(s),veh/h/ln	1645	1641	0	1500	1624	1380	1274	1271	1137	1500	1543	1380
Q Serve(g_s), s	3.0	1.8	0.0	25.8	7.3	28.9	8.9	6.5	53.5	9.5	19.7	1.3
Cycle Q Clear(g_c), s	3.0	1.8	0.0	25.8	7.3	28.9	8.9	6.5	53.5	9.5	19.7	1.3
Prop In Lane	1.00		0.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	51	215	0	728	450	383	99	1116	499	234	1355	606
V/C Ratio(X)	0.80	0.24	0.00	0.90	0.28	0.89	0.95	0.20	1.15	2.11	0.51	0.04
Avail Cap(c_a), veh/h	128	652	0	899	682	580	99	1116	499	234	1355	606
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.7	54.0	0.0	44.7	34.5	42.3	55.9	21.0	34.2	56.2	24.7	19.5
Incr Delay (d2), s/veh	24.5	0.6	0.0	10.5	0.3	11.1	72.8	0.1	86.9	512.6	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.8	0.0	11.7	3.3	12.2	5.2	2.3	28.7	20.6	8.4	0.5
LnGrp Delay(d),s/veh	83.1	54.6	0.0	55.3	34.8	53.4	128.7	21.1	121.0	568.8	25.0	19.6
LnGrp LOS	F	D		E	C	D	F	C	F	F	C	B
Approach Vol, veh/h		93			1121			887			1208	
Approach Delay, s/veh		67.2			52.4			96.9			246.8	
Approach LOS		E			D			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	60.0	34.1	13.8	14.0	60.0	8.3	39.6
Change Period (Y+Rc), s	4.5	6.5	4.5	5.8	4.5	6.5	4.5	5.8
Max Green Setting (Gmax), s	9.5	53.5	36.5	24.2	9.5	53.5	9.5	51.2
Max Q Clear Time (g_c+I1), s	11.5	55.5	27.8	3.8	10.9	21.7	5.0	30.9
Green Ext Time (p_c), s	0.0	0.0	1.7	0.2	0.0	4.5	0.0	1.7

Intersection Summary	
HCM 2010 Ctrl Delay	135.7
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	101	48	45	27	596	40	135	169	93	129	131	307
Future Volume (veh/h)	101	48	45	27	596	40	135	169	93	129	131	307
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1267	1267	1267	1827	1827	1827	1166	1166	1900	1667	1667	1667
Adj Flow Rate, veh/h	133	63	59	32	710	48	201	252	139	168	170	399
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	1
Peak Hour Factor	0.76	0.76	0.76	0.84	0.84	0.84	0.67	0.67	0.67	0.77	0.77	0.77
Percent Heavy Veh, %	50	50	50	4	4	4	63	63	63	14	14	14
Cap, veh/h	109	503	427	50	612	521	100	203	112	144	479	407
Arrive On Green	0.09	0.40	0.40	0.03	0.34	0.34	0.09	0.29	0.29	0.09	0.29	0.29
Sat Flow, veh/h	1206	1267	1077	1740	1827	1553	1110	707	390	1587	1667	1417
Grp Volume(v), veh/h	133	63	59	32	710	48	201	0	391	168	170	399
Grp Sat Flow(s),veh/h/ln	1206	1267	1077	1740	1827	1553	1110	0	1097	1587	1667	1417
Q Serve(g_s), s	9.5	3.3	3.7	1.9	35.2	2.2	9.5	0.0	30.2	9.5	8.5	29.3
Cycle Q Clear(g_c), s	9.5	3.3	3.7	1.9	35.2	2.2	9.5	0.0	30.2	9.5	8.5	29.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.36	1.00		1.00
Lane Grp Cap(c), veh/h	109	503	427	50	612	521	100	0	315	144	479	407
V/C Ratio(X)	1.22	0.13	0.14	0.64	1.16	0.09	2.00	0.00	1.24	1.17	0.35	0.98
Avail Cap(c_a), veh/h	109	503	427	157	612	521	100	0	315	144	479	407
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.8	20.1	20.2	50.4	34.9	23.9	47.7	0.0	37.4	47.8	29.7	37.1
Incr Delay (d2), s/veh	156.2	0.1	0.1	12.6	88.9	0.1	483.9	0.0	131.9	128.0	0.4	39.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.9	1.2	1.1	1.1	32.8	1.0	16.4	0.0	20.7	9.3	4.0	15.8
LnGrp Delay(d),s/veh	204.0	20.2	20.4	63.0	123.8	24.0	531.6	0.0	169.3	175.7	30.1	76.1
LnGrp LOS	F	C	C	E	F	C	F		F	F	C	E
Approach Vol, veh/h		255			790			592			737	
Approach Delay, s/veh		116.1			115.3			292.3			88.2	
Approach LOS		F			F			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	36.0	7.5	47.5	14.0	36.0	14.0	41.0
Change Period (Y+Rc), s	4.5	5.8	4.5	5.8	4.5	5.8	4.5	5.8
Max Green Setting (Gmax), s	9.5	30.2	9.5	35.2	9.5	30.2	9.5	35.2
Max Q Clear Time (g_c+I1), s	11.5	32.2	3.9	5.7	11.5	31.3	11.5	37.2
Green Ext Time (p_c), s	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0

Intersection Summary		
HCM 2010 Ctrl Delay		151.1
HCM 2010 LOS		F

Intersection	
Intersection Delay, s/veh	345.2
Intersection LOS	F

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	87	161	729	358	272	562
Future Vol, veh/h	87	161	729	358	272	562
Peak Hour Factor	0.71	0.71	0.91	0.91	0.94	0.94
Heavy Vehicles, %	13	13	3	3	3	3
Mvmt Flow	123	227	801	393	289	598
Number of Lanes	1	0	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	27.5	524.7	228.7
HCM LOS	D	F	F

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	67%	35%	0%
Vol Thru, %	33%	0%	33%
Vol Right, %	0%	65%	67%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	1087	248	834
LT Vol	729	87	0
Through Vol	358	0	272
RT Vol	0	161	562
Lane Flow Rate	1195	349	887
Geometry Grp	1	1	1
Degree of Util (X)	2.115	0.669	1.438
Departure Headway (Hd)	7.018	8.656	7.217
Convergence, Y/N	Yes	Yes	Yes
Cap	526	423	515
Service Time	5.018	6.656	5.217
HCM Lane V/C Ratio	2.272	0.825	1.722
HCM Control Delay	524.7	27.5	228.7
HCM Lane LOS	F	D	F
HCM 95th-tile Q	76.8	4.8	35

Intersection	
Int Delay, s/veh	15.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	674	15	6	335	7
Future Vol, veh/h	10	674	15	6	335	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	75	75	85	85
Heavy Vehicles, %	5	5	11	11	6	6
Mvmt Flow	11	775	20	8	394	8

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	820	24	0	0	28	0
Stage 1	24	-	-	-	-	-
Stage 2	796	-	-	-	-	-
Critical Hdwy	6.45	6.25	-	-	4.16	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	-	-	2.254	-
Pot Cap-1 Maneuver	341	1044	-	-	1560	-
Stage 1	991	-	-	-	-	-
Stage 2	439	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	254	1044	-	-	1560	-
Mov Cap-2 Maneuver	254	-	-	-	-	-
Stage 1	991	-	-	-	-	-
Stage 2	327	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	20.5	0	7.9
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	999	1560	-
HCM Lane V/C Ratio	-	-	0.787	0.253	-
HCM Control Delay (s)	-	-	20.5	8.1	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	8.4	1	-

Intersection	
Intersection Delay, s/veh	89.8
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	132	118	178	169	54	138	186	31	61	278	12
Future Vol, veh/h	8	132	118	178	169	54	138	186	31	61	278	12
Peak Hour Factor	0.84	0.84	0.84	0.88	0.88	0.88	0.85	0.85	0.85	0.88	0.88	0.88
Heavy Vehicles, %	7	7	7	1	1	1	5	5	5	7	7	7
Mvmt Flow	10	157	140	202	192	61	162	219	36	69	316	14
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	44.1	121.1	95.1	83.7
HCM LOS	E	F	F	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	39%	3%	44%	17%
Vol Thru, %	52%	51%	42%	79%
Vol Right, %	9%	46%	13%	3%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	355	258	401	351
LT Vol	138	8	178	61
Through Vol	186	132	169	278
RT Vol	31	118	54	12
Lane Flow Rate	418	307	456	399
Geometry Grp	1	1	1	1
Degree of Util (X)	1.057	0.803	1.142	1.015
Departure Headway (Hd)	9.791	10.219	9.465	9.923
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	376	356	387	367
Service Time	7.791	8.219	7.465	7.923
HCM Lane V/C Ratio	1.112	0.862	1.178	1.087
HCM Control Delay	95.1	44.1	121.1	83.7
HCM Lane LOS	F	E	F	F
HCM 95th-tile Q	13.5	6.8	16.6	12.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	388	70	857	859	84	39	109	413	35	198	63
Future Volume (veh/h)	40	388	70	857	859	84	39	109	413	35	198	63
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1696	1696	1696	1863	1863	1863	1881	1881	1881	1792	1792	1792
Adj Flow Rate, veh/h	43	422	0	1085	1087	0	60	168	0	50	283	0
Adj No. of Lanes	2	3	1	2	3	1	2	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.79	0.79	0.79	0.65	0.65	0.65	0.70	0.70	0.70
Percent Heavy Veh, %	12	12	12	2	2	2	1	1	1	6	6	6
Cap, veh/h	128	709	221	1255	2425	755	172	493	220	148	453	203
Arrive On Green	0.04	0.15	0.00	0.36	0.48	0.00	0.05	0.14	0.00	0.04	0.13	0.00
Sat Flow, veh/h	3134	4631	1442	3442	5085	1583	3476	3574	1599	3312	3406	1524
Grp Volume(v), veh/h	43	422	0	1085	1087	0	60	168	0	50	283	0
Grp Sat Flow(s),veh/h/ln	1567	1544	1442	1721	1695	1583	1738	1787	1599	1656	1703	1524
Q Serve(g_s), s	0.9	5.8	0.0	20.1	9.8	0.0	1.1	2.9	0.0	1.0	5.4	0.0
Cycle Q Clear(g_c), s	0.9	5.8	0.0	20.1	9.8	0.0	1.1	2.9	0.0	1.0	5.4	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	128	709	221	1255	2425	755	172	493	220	148	453	203
V/C Ratio(X)	0.34	0.60	0.00	0.86	0.45	0.00	0.35	0.34	0.00	0.34	0.62	0.00
Avail Cap(c_a), veh/h	433	2372	739	1528	4159	1295	481	2299	1029	458	2191	980
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	32.1	27.1	0.0	20.3	12.0	0.0	31.6	26.8	0.0	31.8	28.2	0.0
Incr Delay (d2), s/veh	1.5	0.8	0.0	4.7	0.1	0.0	1.2	0.4	0.0	1.3	1.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	2.5	0.0	10.3	4.6	0.0	0.6	1.5	0.0	0.5	2.6	0.0
LnGrp Delay(d),s/veh	33.6	27.9	0.0	24.9	12.1	0.0	32.8	27.2	0.0	33.2	29.6	0.0
LnGrp LOS	C	C		C	B		C	C		C	C	
Approach Vol, veh/h		465			2172			228			333	
Approach Delay, s/veh		28.4			18.5			28.7			30.1	
Approach LOS		C			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.6	15.3	29.6	16.3	7.9	14.9	7.3	38.6
Change Period (Y+Rc), s	4.5	5.8	4.5	5.8	4.5	5.8	4.5	5.8
Max Green Setting (Gmax), s	9.5	44.2	30.5	35.2	9.5	44.2	9.5	56.2
Max Q Clear Time (g_c+I1), s	3.0	4.9	22.1	7.8	3.1	7.4	2.9	11.8
Green Ext Time (p_c), s	0.0	1.0	2.9	2.7	0.1	1.7	0.0	8.8

Intersection Summary		
HCM 2010 Ctrl Delay		21.9
HCM 2010 LOS		C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	48	64	471	32	595	52	446	468	476	226	22
Future Volume (veh/h)	29	48	64	471	32	595	52	446	468	476	226	22
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1743	1900	1439	1439	1439	1727	1727	1727	1397	1397	1397
Adj Flow Rate, veh/h	41	69	0	574	39	726	56	480	503	535	254	25
Adj No. of Lanes	1	2	0	2	1	1	1	2	1	2	2	1
Peak Hour Factor	0.70	0.70	0.70	0.82	0.82	0.82	0.93	0.93	0.93	0.89	0.89	0.89
Percent Heavy Veh, %	9	9	9	32	32	32	10	10	10	36	36	36
Cap, veh/h	51	575	0	623	543	461	70	1199	535	181	1042	466
Arrive On Green	0.03	0.17	0.00	0.23	0.38	0.38	0.04	0.37	0.37	0.07	0.39	0.39
Sat Flow, veh/h	1660	3399	0	2659	1439	1223	1645	3282	1466	2581	2654	1188
Grp Volume(v), veh/h	41	69	0	574	39	726	56	480	503	535	254	25
Grp Sat Flow(s),veh/h/ln	1660	1656	0	1330	1439	1223	1645	1641	1466	1291	1327	1188
Q Serve(g_s), s	3.3	2.4	0.0	28.6	2.4	51.2	4.6	14.8	45.0	9.5	8.7	1.8
Cycle Q Clear(g_c), s	3.3	2.4	0.0	28.6	2.4	51.2	4.6	14.8	45.0	9.5	8.7	1.8
Prop In Lane	1.00		0.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	51	575	0	623	543	461	70	1199	535	181	1042	466
V/C Ratio(X)	0.80	0.12	0.00	0.92	0.07	1.58	0.80	0.40	0.94	2.96	0.24	0.05
Avail Cap(c_a), veh/h	116	590	0	715	543	461	115	1293	577	181	1046	468
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.4	47.3	0.0	50.8	27.1	42.3	64.4	32.0	41.7	63.2	27.7	25.6
Incr Delay (d2), s/veh	23.6	0.1	0.0	16.1	0.1	269.2	18.1	0.2	22.7	898.2	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	1.1	0.0	11.9	1.0	51.7	2.4	6.7	21.6	25.9	3.2	0.6
LnGrp Delay(d),s/veh	88.9	47.4	0.0	66.9	27.1	311.5	82.5	32.3	64.4	961.4	27.8	25.7
LnGrp LOS	F	D		E	C	F	F	C	E	F	C	C
Approach Vol, veh/h		110			1339			1039			814	
Approach Delay, s/veh		62.9			198.3			50.5			641.3	
Approach LOS		E			F			D			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	56.1	36.3	29.4	10.3	59.8	8.7	57.0
Change Period (Y+Rc), s	4.5	6.5	4.5	5.8	4.5	6.5	4.5	5.8
Max Green Setting (Gmax), s	9.5	53.5	36.5	24.2	9.5	53.5	9.5	51.2
Max Q Clear Time (g_c+I1), s	11.5	47.0	30.6	4.4	6.6	10.7	5.3	53.2
Green Ext Time (p_c), s	0.0	2.6	1.2	0.3	0.0	1.6	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	256.5
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	272	384	138	102	71	135	29	128	45	49	170	113
Future Volume (veh/h)	272	384	138	102	71	135	29	128	45	49	170	113
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1652	1652	1652	1727	1727	1727	1624	1624	1900	1450	1450	1450
Adj Flow Rate, veh/h	363	512	184	132	92	175	31	136	48	54	189	126
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	1
Peak Hour Factor	0.75	0.75	0.75	0.77	0.77	0.77	0.94	0.94	0.94	0.90	0.90	0.90
Percent Heavy Veh, %	15	15	15	10	10	10	17	17	17	31	31	31
Cap, veh/h	235	606	515	165	548	466	51	184	65	67	255	217
Arrive On Green	0.15	0.37	0.37	0.10	0.32	0.32	0.03	0.16	0.16	0.05	0.18	0.18
Sat Flow, veh/h	1573	1652	1404	1645	1727	1468	1547	1147	405	1381	1450	1233
Grp Volume(v), veh/h	363	512	184	132	92	175	31	0	184	54	189	126
Grp Sat Flow(s),veh/h/ln	1573	1652	1404	1645	1727	1468	1547	0	1552	1381	1450	1233
Q Serve(g_s), s	9.5	18.1	6.1	5.0	2.4	5.9	1.3	0.0	7.2	2.5	7.8	6.0
Cycle Q Clear(g_c), s	9.5	18.1	6.1	5.0	2.4	5.9	1.3	0.0	7.2	2.5	7.8	6.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.26	1.00		1.00
Lane Grp Cap(c), veh/h	235	606	515	165	548	466	51	0	249	67	255	217
V/C Ratio(X)	1.54	0.85	0.36	0.80	0.17	0.38	0.60	0.00	0.74	0.81	0.74	0.58
Avail Cap(c_a), veh/h	235	916	778	246	957	814	231	0	738	207	690	586
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.0	18.5	14.7	28.0	15.6	16.8	30.3	0.0	25.4	29.9	24.8	24.0
Incr Delay (d2), s/veh	264.1	4.7	0.4	10.7	0.1	0.5	10.9	0.0	4.3	19.9	4.2	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	21.3	8.9	2.4	2.8	1.2	2.4	0.7	0.0	3.4	1.3	3.4	2.2
LnGrp Delay(d),s/veh	291.1	23.2	15.1	38.6	15.8	17.3	41.2	0.0	29.6	49.9	29.0	26.5
LnGrp LOS	F	C	B	D	B	B	D		C	D	C	C
Approach Vol, veh/h		1059			399			215			369	
Approach Delay, s/veh		113.6			24.0			31.3			31.2	
Approach LOS		F			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.6	16.0	10.9	29.1	6.6	17.0	14.0	25.9
Change Period (Y+Rc), s	4.5	5.8	4.5	5.8	4.5	5.8	4.5	5.8
Max Green Setting (Gmax), s	9.5	30.2	9.5	35.2	9.5	30.2	9.5	35.2
Max Q Clear Time (g_c+I1), s	11.5	9.2	7.0	20.1	3.3	9.8	11.5	7.9
Green Ext Time (p_c), s	0.0	0.9	0.1	3.2	0.0	1.3	0.0	1.0

Intersection Summary		
HCM 2010 Ctrl Delay		72.6
HCM 2010 LOS		E

Intersection	
Intersection Delay, s/veh	820.5
Intersection LOS	F

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	457	1133	346	520	405	133
Future Vol, veh/h	457	1133	346	520	405	133
Peak Hour Factor	0.81	0.81	0.87	0.87	0.87	0.87
Heavy Vehicles, %	1	1	2	2	1	1
Mvmt Flow	564	1399	398	598	466	153
Number of Lanes	1	0	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	1202.5	478.5	158.3
HCM LOS	F	F	F

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	40%	29%	0%
Vol Thru, %	60%	0%	75%
Vol Right, %	0%	71%	25%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	866	1590	538
LT Vol	346	457	0
Through Vol	520	0	405
RT Vol	0	1133	133
Lane Flow Rate	995	1963	618
Geometry Grp	1	1	1
Degree of Util (X)	1.966	3.623	1.179
Departure Headway (Hd)	13.977	8.087	15.577
Convergence, Y/N	Yes	Yes	Yes
Cap	269	471	241
Service Time	11.977	6.087	13.577
HCM Lane V/C Ratio	3.699	4.168	2.564
HCM Control Delay	478.5	1202.5	158.3
HCM Lane LOS	F	F	F
HCM 95th-tile Q	36.3	150	13

Intersection	
Int Delay, s/veh	14.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	176	3	17	958	29
Future Vol, veh/h	2	176	3	17	958	29
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	81	81	45	45	80	80
Heavy Vehicles, %	2	2	2	2	1	1
Mvmt Flow	2	217	7	38	1198	36

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2458	26	0	0	45	0
Stage 1	26	-	-	-	-	-
Stage 2	2432	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.11	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.209	-
Pot Cap-1 Maneuver	34	1050	-	-	1570	-
Stage 1	997	-	-	-	-	-
Stage 2	69	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	8	1050	-	-	1570	-
Mov Cap-2 Maneuver	8	-	-	-	-	-
Stage 1	997	-	-	-	-	-
Stage 2	15	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	22.1	0	13.8
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	426	1570	-
HCM Lane V/C Ratio	-	-	0.516	0.763	-
HCM Control Delay (s)	-	-	22.1	14.2	0
HCM Lane LOS	-	-	C	B	A
HCM 95th %tile Q(veh)	-	-	2.9	8.2	-

Intersection	
Intersection Delay, s/veh	1154.9
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	34	357	120	278	221	152	96	1100	299	244	991	35
Future Vol, veh/h	34	357	120	278	221	152	96	1100	299	244	991	35
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	39	410	138	320	254	175	105	1209	329	268	1089	38
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

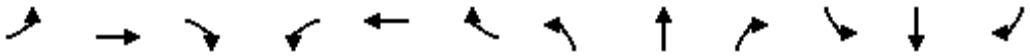
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	394.4	554.7	1570.1	1308
HCM LOS	F	F	F	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	6%	7%	43%	19%
Vol Thru, %	74%	70%	34%	78%
Vol Right, %	20%	23%	23%	3%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	1495	511	651	1270
LT Vol	96	34	278	244
Through Vol	1100	357	221	991
RT Vol	299	120	152	35
Lane Flow Rate	1643	587	748	1396
Geometry Grp	1	1	1	1
Degree of Util (X)	4.339	1.548	1.987	3.736
Departure Headway (Hd)	28.454	47.817	39.186	31.796
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	148	82	105	140
Service Time	26.454	45.817	37.186	29.796
HCM Lane V/C Ratio	11.101	7.159	7.124	9.971
HCM Control Delay	1570.1	394.4	554.7	1308
HCM Lane LOS	F	F	F	F
HCM 95th-tile Q	56.5	9.7	15.7	42.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	139	1444	126	270	486	82	49	124	281	61	132	27
Future Volume (veh/h)	139	1444	126	270	486	82	49	124	281	61	132	27
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1881	1881	1881	1900	1900	1900	1792	1792	1792
Adj Flow Rate, veh/h	151	1570	0	290	523	0	58	148	0	69	150	0
Adj No. of Lanes	2	3	1	2	3	1	2	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.84	0.84	0.84	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	1	1	1	0	0	0	6	6	6
Cap, veh/h	240	2120	660	422	2407	749	170	413	185	175	404	181
Arrive On Green	0.07	0.42	0.00	0.12	0.47	0.00	0.05	0.11	0.00	0.05	0.12	0.00
Sat Flow, veh/h	3442	5085	1583	3476	5136	1599	3510	3610	1615	3312	3406	1524
Grp Volume(v), veh/h	151	1570	0	290	523	0	58	148	0	69	150	0
Grp Sat Flow(s),veh/h/ln	1721	1695	1583	1738	1712	1599	1755	1805	1615	1656	1703	1524
Q Serve(g_s), s	3.0	18.2	0.0	5.6	4.2	0.0	1.1	2.6	0.0	1.4	2.8	0.0
Cycle Q Clear(g_c), s	3.0	18.2	0.0	5.6	4.2	0.0	1.1	2.6	0.0	1.4	2.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	240	2120	660	422	2407	749	170	413	185	175	404	181
V/C Ratio(X)	0.63	0.74	0.00	0.69	0.22	0.00	0.34	0.36	0.00	0.39	0.37	0.00
Avail Cap(c_a), veh/h	468	2560	797	1516	4128	1285	477	2282	1021	450	2153	963
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	31.6	17.2	0.0	29.4	11.0	0.0	32.2	28.6	0.0	32.0	28.4	0.0
Incr Delay (d2), s/veh	2.7	0.9	0.0	2.0	0.0	0.0	1.2	0.5	0.0	1.4	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	8.6	0.0	2.8	2.0	0.0	0.6	1.3	0.0	0.7	1.4	0.0
LnGrp Delay(d),s/veh	34.4	18.1	0.0	31.4	11.0	0.0	33.4	29.1	0.0	33.5	29.0	0.0
LnGrp LOS	C	B		C	B		C	C		C	C	
Approach Vol, veh/h		1721			813			206			219	
Approach Delay, s/veh		19.6			18.3			30.3			30.4	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.2	13.8	13.0	35.0	7.9	14.1	9.4	38.6
Change Period (Y+Rc), s	4.5	5.8	4.5	5.8	4.5	5.8	4.5	5.8
Max Green Setting (Gmax), s	9.5	44.2	30.5	35.2	9.5	44.2	9.5	56.2
Max Q Clear Time (g_c+I1), s	3.4	4.6	7.6	20.2	3.1	4.8	5.0	6.2
Green Ext Time (p_c), s	0.1	0.9	0.9	8.9	0.0	0.9	0.2	3.6

Intersection Summary	
HCM 2010 Ctrl Delay	20.8
HCM 2010 LOS	C



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	41	52	291	656	124	341	94	221	572	493	689	26
v/c Ratio	0.53	0.27	0.78	0.79	0.21	0.34	0.63	0.46	0.68	0.74	0.76	0.05
Control Delay	81.2	51.0	27.5	45.9	27.3	2.2	68.7	42.8	7.7	49.8	42.4	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	81.2	51.0	27.5	45.9	27.3	2.2	68.7	42.8	7.7	49.8	42.4	0.2
Queue Length 50th (ft)	29	35	38	211	61	0	63	72	0	168	236	0
Queue Length 95th (ft)	49	51	14	#390	122	40	126	107	21	#311	335	0
Internal Link Dist (ft)		1694			1451			380			1029	
Turn Bay Length (ft)	105			260		355	225		235	325		265
Base Capacity (vph)	77	343	479	922	747	1007	180	1098	1189	666	1582	767
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.15	0.61	0.71	0.17	0.34	0.52	0.20	0.48	0.74	0.44	0.03

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	30	169	610	115	317	76	179	463	434	606	23
Future Volume (veh/h)	24	30	169	610	115	317	76	179	463	434	606	23
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1727	1727	1727	1624	1624	1624	1338	1338	1338	1624	1624	1624
Adj Flow Rate, veh/h	41	52	0	656	124	341	94	221	572	493	689	26
Adj No. of Lanes	1	1	1	2	1	1	1	2	2	2	2	1
Peak Hour Factor	0.58	0.58	0.58	0.93	0.93	0.93	0.81	0.81	0.81	0.88	0.88	0.88
Percent Heavy Veh, %	10	10	10	17	17	17	42	42	42	17	17	17
Cap, veh/h	52	121	103	727	456	641	110	807	635	551	1280	572
Arrive On Green	0.03	0.07	0.00	0.24	0.28	0.28	0.09	0.32	0.32	0.18	0.41	0.41
Sat Flow, veh/h	1645	1727	1468	3000	1624	1380	1274	2542	2002	3000	3085	1380
Grp Volume(v), veh/h	41	52	0	656	124	341	94	221	572	493	689	26
Grp Sat Flow(s),veh/h/ln	1645	1727	1468	1500	1624	1380	1274	1271	1001	1500	1543	1380
Q Serve(g_s), s	2.8	3.3	0.0	24.2	6.8	20.1	8.3	7.4	31.2	18.3	19.2	1.3
Cycle Q Clear(g_c), s	2.8	3.3	0.0	24.2	6.8	20.1	8.3	7.4	31.2	18.3	19.2	1.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	52	121	103	727	456	641	110	807	635	551	1280	572
V/C Ratio(X)	0.78	0.43	0.00	0.90	0.27	0.53	0.85	0.27	0.90	0.90	0.54	0.05
Avail Cap(c_a), veh/h	72	321	273	862	697	846	169	1024	806	623	1475	660
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.9	50.9	0.0	41.9	32.0	21.8	51.5	29.1	37.2	45.5	25.2	19.9
Incr Delay (d2), s/veh	30.5	2.4	0.0	11.3	0.3	0.7	22.1	0.2	11.1	14.4	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	1.7	0.0	11.2	3.1	7.7	3.6	2.6	9.6	8.7	8.2	0.5
LnGrp Delay(d),s/veh	85.4	53.3	0.0	53.3	32.3	22.5	73.5	29.3	48.4	59.9	25.5	20.0
LnGrp LOS	F	D		D	C	C	E	C	D	E	C	B
Approach Vol, veh/h		93			1121			887			1208	
Approach Delay, s/veh		67.5			41.6			46.3			39.5	
Approach LOS		E			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.5	42.8	32.2	13.8	14.4	53.9	8.1	37.8
Change Period (Y+Rc), s	4.5	6.5	4.5	5.8	4.5	6.5	4.5	5.8
Max Green Setting (Gmax), s	23.7	46.0	32.8	21.2	15.1	54.6	5.0	49.0
Max Q Clear Time (g_c+I1), s	20.3	33.2	26.2	5.3	10.3	21.2	4.8	22.1
Green Ext Time (p_c), s	0.6	3.1	1.5	0.1	0.1	4.5	0.0	1.8

Intersection Summary	
HCM 2010 Ctrl Delay	42.8
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	30	169	610	115	317	76	179	463	434	606	23
Future Volume (veh/h)	24	30	169	610	115	317	76	179	463	434	606	23
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1727	1727	1727	1624	1624	1624	1338	1338	1338	1624	1624	1624
Adj Flow Rate, veh/h	41	52	0	656	124	341	94	221	572	493	689	26
Adj No. of Lanes	1	2	1	2	1	1	1	2	1	2	2	1
Peak Hour Factor	0.58	0.58	0.58	0.93	0.93	0.93	0.81	0.81	0.81	0.88	0.88	0.88
Percent Heavy Veh, %	10	10	10	17	17	17	42	42	42	17	17	17
Cap, veh/h	51	204	91	709	434	616	109	909	407	536	1390	622
Arrive On Green	0.03	0.06	0.00	0.24	0.27	0.27	0.09	0.36	0.36	0.18	0.45	0.45
Sat Flow, veh/h	1645	3282	1468	3000	1624	1380	1274	2542	1137	3000	3085	1380
Grp Volume(v), veh/h	41	52	0	656	124	341	94	221	572	493	689	26
Grp Sat Flow(s),veh/h/ln	1645	1641	1468	1500	1624	1380	1274	1271	1137	1500	1543	1380
Q Serve(g_s), s	3.2	1.9	0.0	27.5	7.8	23.4	9.4	7.9	46.0	20.8	20.3	1.4
Cycle Q Clear(g_c), s	3.2	1.9	0.0	27.5	7.8	23.4	9.4	7.9	46.0	20.8	20.3	1.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	51	204	91	709	434	616	109	909	407	536	1390	622
V/C Ratio(X)	0.80	0.25	0.00	0.93	0.29	0.55	0.86	0.24	1.41	0.92	0.50	0.04
Avail Cap(c_a), veh/h	64	541	242	765	618	772	150	909	407	553	1390	622
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	62.0	57.5	0.0	48.0	37.4	26.2	58.1	29.1	41.3	51.9	25.0	19.8
Incr Delay (d2), s/veh	42.7	0.7	0.0	16.5	0.4	0.8	29.0	0.1	197.3	20.5	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.9	0.0	13.0	3.6	9.1	4.2	2.8	36.7	10.2	8.7	0.5
LnGrp Delay(d),s/veh	104.7	58.1	0.0	64.5	37.7	27.0	87.1	29.2	238.6	72.4	25.3	19.8
LnGrp LOS	F	E		E	D	C	F	C	F	E	C	B
Approach Vol, veh/h		93			1121			887			1208	
Approach Delay, s/veh		78.7			50.1			170.4			44.4	
Approach LOS		E			D			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	27.5	52.5	34.9	13.8	15.5	64.5	8.5	40.2
Change Period (Y+Rc), s	4.5	6.5	4.5	5.8	4.5	6.5	4.5	5.8
Max Green Setting (Gmax), s	23.7	46.0	32.8	21.2	15.1	54.6	5.0	49.0
Max Q Clear Time (g_c+I1), s	22.8	48.0	29.5	3.9	11.4	22.3	5.2	25.4
Green Ext Time (p_c), s	0.2	0.0	0.9	0.2	0.1	4.5	0.0	1.8

Intersection Summary	
HCM 2010 Ctrl Delay	81.1
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	101	48	45	27	596	40	135	169	93	129	131	307
Future Volume (veh/h)	101	48	45	27	596	40	135	169	93	129	131	307
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1267	1267	1267	1827	1827	1827	1166	1166	1166	1667	1667	1667
Adj Flow Rate, veh/h	133	63	59	32	710	48	201	252	139	168	170	399
Adj No. of Lanes	1	1	1	1	2	1	1	1	1	1	1	1
Peak Hour Factor	0.76	0.76	0.76	0.84	0.84	0.84	0.67	0.67	0.67	0.77	0.77	0.77
Percent Heavy Veh, %	50	50	50	4	4	4	63	63	63	14	14	14
Cap, veh/h	134	418	356	51	860	385	188	371	316	194	452	542
Arrive On Green	0.11	0.33	0.33	0.03	0.25	0.25	0.17	0.32	0.32	0.12	0.27	0.27
Sat Flow, veh/h	1206	1267	1077	1740	3471	1553	1110	1166	991	1587	1667	1417
Grp Volume(v), veh/h	133	63	59	32	710	48	201	252	139	168	170	399
Grp Sat Flow(s),veh/h/ln	1206	1267	1077	1740	1736	1553	1110	1166	991	1587	1667	1417
Q Serve(g_s), s	11.4	3.6	4.0	1.9	19.9	2.5	17.5	19.4	11.5	10.7	8.5	25.0
Cycle Q Clear(g_c), s	11.4	3.6	4.0	1.9	19.9	2.5	17.5	19.4	11.5	10.7	8.5	25.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	134	418	356	51	860	385	188	371	316	194	452	542
V/C Ratio(X)	0.99	0.15	0.17	0.63	0.83	0.12	1.07	0.68	0.44	0.86	0.38	0.74
Avail Cap(c_a), veh/h	134	480	408	108	1144	512	188	402	342	205	507	589
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.8	24.3	24.5	49.5	36.7	30.1	42.8	30.6	27.9	44.4	30.5	27.3
Incr Delay (d2), s/veh	74.0	0.2	0.2	12.3	3.8	0.1	84.5	4.1	1.0	28.8	0.5	4.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.5	1.3	1.2	1.1	10.0	1.1	9.8	6.7	3.2	6.3	4.0	10.4
LnGrp Delay(d),s/veh	119.8	24.5	24.7	61.8	40.5	30.3	127.4	34.7	28.8	73.2	31.0	31.8
LnGrp LOS	F	C	C	E	D	C	F	C	C	E	C	C
Approach Vol, veh/h		255			790			592			737	
Approach Delay, s/veh		74.2			40.7			64.8			41.0	
Approach LOS		E			D			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.1	38.6	7.5	39.9	22.0	33.8	16.0	31.4
Change Period (Y+Rc), s	4.5	5.8	4.5	5.8	4.5	5.8	4.5	5.8
Max Green Setting (Gmax), s	12.6	35.6	6.4	39.1	17.5	31.4	11.5	34.0
Max Q Clear Time (g_c+I1), s	12.7	21.4	3.9	6.0	19.5	27.0	13.4	21.9
Green Ext Time (p_c), s	0.0	1.6	0.0	0.5	0.0	1.0	0.0	3.6

Intersection Summary	
HCM 2010 Ctrl Delay	50.4
HCM 2010 LOS	D

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	87	161	729	358	272	562
Future Volume (veh/h)	87	161	729	358	272	562
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1681	1681	1845	1845	1845	1845
Adj Flow Rate, veh/h	123	227	801	393	289	598
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.71	0.71	0.91	0.91	0.94	0.94
Percent Heavy Veh, %	13	13	3	3	3	3
Cap, veh/h	181	846	841	1424	434	546
Arrive On Green	0.11	0.11	0.48	0.77	0.24	0.24
Sat Flow, veh/h	1601	1429	1757	1845	1845	1568
Grp Volume(v), veh/h	123	227	801	393	289	598
Grp Sat Flow(s),veh/h/ln	1601	1429	1757	1845	1845	1568
Q Serve(g_s), s	5.8	6.0	34.1	4.8	11.1	18.4
Cycle Q Clear(g_c), s	5.8	6.0	34.1	4.8	11.1	18.4
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	181	846	841	1424	434	546
V/C Ratio(X)	0.68	0.27	0.95	0.28	0.67	1.09
Avail Cap(c_a), veh/h	369	1014	902	1488	434	546
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.3	7.7	19.5	2.6	27.1	22.6
Incr Delay (d2), s/veh	4.5	0.2	18.8	0.1	3.8	66.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	7.0	20.9	2.4	6.1	21.8
LnGrp Delay(d),s/veh	37.8	7.9	38.3	2.7	30.9	89.5
LnGrp LOS	D	A	D	A	C	F
Approach Vol, veh/h	350			1194	887	
Approach Delay, s/veh	18.4			26.6	70.4	
Approach LOS	B			C	E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		64.8		13.3	41.9	22.9		
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5		
Max Green Setting (Gmax), s		63.0		18.0	40.1	18.4		
Max Q Clear Time (g_c+I1), s		6.8		8.0	36.1	20.4		
Green Ext Time (p_c), s		2.6		0.8	1.3	0.0		

Intersection Summary	
HCM 2010 Ctrl Delay	41.4
HCM 2010 LOS	D

Intersection	
Int Delay, s/veh	15.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	674	15	6	335	7
Future Vol, veh/h	10	674	15	6	335	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	75	75	85	85
Heavy Vehicles, %	5	5	11	11	6	6
Mvmt Flow	11	775	20	8	394	8

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	820	24	0	0	28	0
Stage 1	24	-	-	-	-	-
Stage 2	796	-	-	-	-	-
Critical Hdwy	6.45	6.25	-	-	4.16	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	-	-	2.254	-
Pot Cap-1 Maneuver	341	1044	-	-	1560	-
Stage 1	991	-	-	-	-	-
Stage 2	439	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	254	1044	-	-	1560	-
Mov Cap-2 Maneuver	254	-	-	-	-	-
Stage 1	991	-	-	-	-	-
Stage 2	327	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	20.5	0	7.9
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	999	1560	-
HCM Lane V/C Ratio	-	-	0.787	0.253	-
HCM Control Delay (s)	-	-	20.5	8.1	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	8.4	1	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	132	118	178	169	54	138	186	31	61	278	12
Future Volume (veh/h)	8	132	118	178	169	54	138	186	31	61	278	12
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1776	1776	1900	1881	1881	1900	1810	1810	1900	1776	1776	1900
Adj Flow Rate, veh/h	10	157	140	202	192	61	162	219	36	69	316	14
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.84	0.84	0.84	0.88	0.88	0.88	0.85	0.85	0.85	0.88	0.88	0.88
Percent Heavy Veh, %	7	7	7	1	1	1	5	5	5	7	7	7
Cap, veh/h	22	190	169	250	473	150	203	436	72	96	382	17
Arrive On Green	0.01	0.22	0.22	0.14	0.35	0.35	0.12	0.29	0.29	0.06	0.23	0.23
Sat Flow, veh/h	1691	867	773	1792	1369	435	1723	1516	249	1691	1688	75
Grp Volume(v), veh/h	10	0	297	202	0	253	162	0	255	69	0	330
Grp Sat Flow(s),veh/h/ln	1691	0	1639	1792	0	1804	1723	0	1766	1691	0	1763
Q Serve(g_s), s	0.4	0.0	10.4	6.6	0.0	6.5	5.5	0.0	7.3	2.4	0.0	10.8
Cycle Q Clear(g_c), s	0.4	0.0	10.4	6.6	0.0	6.5	5.5	0.0	7.3	2.4	0.0	10.8
Prop In Lane	1.00		0.47	1.00		0.24	1.00		0.14	1.00		0.04
Lane Grp Cap(c), veh/h	22	0	359	250	0	623	203	0	507	96	0	399
V/C Ratio(X)	0.46	0.00	0.83	0.81	0.00	0.41	0.80	0.00	0.50	0.72	0.00	0.83
Avail Cap(c_a), veh/h	140	0	488	311	0	702	271	0	614	210	0	554
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.6	0.0	22.5	25.2	0.0	15.1	26.0	0.0	17.9	28.0	0.0	22.2
Incr Delay (d2), s/veh	14.6	0.0	8.4	12.1	0.0	0.4	11.6	0.0	0.8	9.6	0.0	7.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	5.5	4.1	0.0	3.2	3.3	0.0	3.7	1.4	0.0	6.0
LnGrp Delay(d),s/veh	44.2	0.0	30.9	37.3	0.0	15.5	37.6	0.0	18.7	37.7	0.0	29.4
LnGrp LOS	D		C	D		B	D		B	D		C
Approach Vol, veh/h		307			455			417			399	
Approach Delay, s/veh		31.4			25.2			26.0			30.9	
Approach LOS		C			C			C			C	

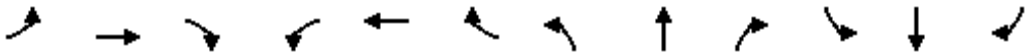
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.9	21.9	12.9	17.7	11.6	18.2	5.3	25.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	7.5	21.0	10.5	18.0	9.5	19.0	5.0	23.5
Max Q Clear Time (g_c+I1), s	4.4	9.3	8.6	12.4	7.5	12.8	2.4	8.5
Green Ext Time (p_c), s	0.0	1.0	0.1	0.8	0.1	0.9	0.0	1.2

Intersection Summary	
HCM 2010 Ctrl Delay	28.0
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	388	70	857	859	84	39	109	413	35	198	63
Future Volume (veh/h)	40	388	70	857	859	84	39	109	413	35	198	63
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1696	1696	1696	1863	1863	1863	1881	1881	1881	1792	1792	1792
Adj Flow Rate, veh/h	43	422	0	1085	1087	0	60	168	0	50	283	0
Adj No. of Lanes	2	3	1	2	3	1	2	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.79	0.79	0.79	0.65	0.65	0.65	0.70	0.70	0.70
Percent Heavy Veh, %	12	12	12	2	2	2	1	1	1	6	6	6
Cap, veh/h	126	700	218	1299	2483	773	170	487	218	146	447	200
Arrive On Green	0.04	0.15	0.00	0.38	0.49	0.00	0.05	0.14	0.00	0.04	0.13	0.00
Sat Flow, veh/h	3134	4631	1442	3442	5085	1583	3476	3574	1599	3312	3406	1524
Grp Volume(v), veh/h	43	422	0	1085	1087	0	60	168	0	50	283	0
Grp Sat Flow(s),veh/h/ln	1567	1544	1442	1721	1695	1583	1738	1787	1599	1656	1703	1524
Q Serve(g_s), s	0.9	6.0	0.0	20.3	9.8	0.0	1.2	3.0	0.0	1.0	5.6	0.0
Cycle Q Clear(g_c), s	0.9	6.0	0.0	20.3	9.8	0.0	1.2	3.0	0.0	1.0	5.6	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	126	700	218	1299	2483	773	170	487	218	146	447	200
V/C Ratio(X)	0.34	0.60	0.00	0.84	0.44	0.00	0.35	0.35	0.00	0.34	0.63	0.00
Avail Cap(c_a), veh/h	252	2290	713	2261	5447	1696	246	2167	969	234	2064	924
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	33.0	28.1	0.0	20.0	11.8	0.0	32.6	27.7	0.0	32.8	29.1	0.0
Incr Delay (d2), s/veh	1.6	0.8	0.0	1.5	0.1	0.0	1.2	0.4	0.0	1.4	1.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	2.6	0.0	9.8	4.6	0.0	0.6	1.5	0.0	0.5	2.7	0.0
LnGrp Delay(d),s/veh	34.6	28.9	0.0	21.5	11.9	0.0	33.8	28.1	0.0	34.2	30.6	0.0
LnGrp LOS	C	C		C	B		C	C		C	C	
Approach Vol, veh/h		465			2172			228			333	
Approach Delay, s/veh		29.4			16.7			29.6			31.1	
Approach LOS		C			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.6	15.4	31.2	16.5	8.0	15.1	7.4	40.4
Change Period (Y+Rc), s	4.5	5.8	4.5	5.8	4.5	5.8	4.5	5.8
Max Green Setting (Gmax), s	5.0	42.9	46.5	35.0	5.0	42.9	5.7	75.8
Max Q Clear Time (g_c+I1), s	3.0	5.0	22.3	8.0	3.2	7.6	2.9	11.8
Green Ext Time (p_c), s	0.0	1.0	4.4	2.7	0.0	1.7	0.0	9.0

Intersection Summary	
HCM 2010 Ctrl Delay	21.0
HCM 2010 LOS	C



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	41	56	81	557	32	720	46	442	443	527	211	25
v/c Ratio	0.13	0.35	0.29	0.80	0.09	1.15	0.35	0.59	0.48	1.00	0.21	0.05
Control Delay	47.5	56.6	2.5	46.5	32.7	107.1	59.4	39.0	4.9	82.6	24.8	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.5	56.6	2.5	46.5	32.7	107.1	59.4	39.0	4.9	82.6	24.8	0.2
Queue Length 50th (ft)	15	33	0	165	19	~570	27	131	0	168	48	0
Queue Length 95th (ft)	#70	75	0	271	41	#534	85	218	41	#445	96	0
Internal Link Dist (ft)		1694			1451			380			1029	
Turn Bay Length (ft)	105			260		355	225		235	325		265
Base Capacity (vph)	317	214	324	1105	704	627	165	1613	1477	527	1580	757
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.26	0.25	0.50	0.05	1.15	0.28	0.27	0.30	1.00	0.13	0.03

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	39	57	457	26	590	43	411	412	469	188	22
Future Volume (veh/h)	29	39	57	457	26	590	43	411	412	469	188	22
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1743	1743	1439	1439	1439	1727	1727	1727	1397	1397	1397
Adj Flow Rate, veh/h	41	56	0	557	32	720	46	442	443	527	211	25
Adj No. of Lanes	1	1	1	2	1	1	1	2	2	2	2	1
Peak Hour Factor	0.70	0.70	0.70	0.82	0.82	0.82	0.93	0.93	0.93	0.89	0.89	0.89
Percent Heavy Veh, %	9	9	9	32	32	32	10	10	10	36	36	36
Cap, veh/h	51	349	296	624	581	700	58	725	569	436	942	421
Arrive On Green	0.03	0.20	0.00	0.23	0.40	0.40	0.03	0.22	0.22	0.17	0.35	0.35
Sat Flow, veh/h	1660	1743	1482	2659	1439	1223	1645	3282	2577	2581	2654	1188
Grp Volume(v), veh/h	41	56	0	557	32	720	46	442	443	527	211	25
Grp Sat Flow(s),veh/h/ln	1660	1743	1482	1330	1439	1223	1645	1641	1288	1291	1327	1188
Q Serve(g_s), s	3.0	3.2	0.0	24.6	1.6	49.0	3.4	14.7	19.6	20.5	6.8	1.7
Cycle Q Clear(g_c), s	3.0	3.2	0.0	24.6	1.6	49.0	3.4	14.7	19.6	20.5	6.8	1.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	51	349	296	624	581	700	58	725	569	436	942	421
V/C Ratio(X)	0.80	0.16	0.00	0.89	0.06	1.03	0.80	0.61	0.78	1.21	0.22	0.06
Avail Cap(c_a), veh/h	68	349	296	914	581	700	137	1330	1045	436	1304	583
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.4	40.1	0.0	45.0	22.1	25.9	58.1	42.6	44.5	50.4	27.4	25.8
Incr Delay (d2), s/veh	37.1	0.2	0.0	8.0	0.0	41.4	21.7	0.8	2.3	113.7	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	1.6	0.0	9.7	0.7	31.4	1.9	6.8	7.2	14.1	2.5	0.6
LnGrp Delay(d),s/veh	95.5	40.3	0.0	53.0	22.1	67.3	79.8	43.4	46.8	164.1	27.6	25.9
LnGrp LOS	F	D		D	C	F	E	D	D	F	C	C
Approach Vol, veh/h		97			1309			931			763	
Approach Delay, s/veh		63.7			60.1			46.8			121.8	
Approach LOS		E			E			D			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.0	33.3	33.0	30.1	8.7	49.6	8.2	54.8
Change Period (Y+Rc), s	4.5	6.5	4.5	5.8	4.5	6.5	4.5	5.8
Max Green Setting (Gmax), s	20.5	49.2	41.7	12.3	10.1	59.6	5.0	49.0
Max Q Clear Time (g_c+I1), s	22.5	21.6	26.6	5.2	5.4	8.8	5.0	51.0
Green Ext Time (p_c), s	0.0	4.5	1.9	0.1	0.0	1.3	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	71.4
HCM 2010 LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	39	57	457	26	590	43	411	412	469	188	22
Future Volume (veh/h)	29	39	57	457	26	590	43	411	412	469	188	22
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1743	1743	1439	1439	1439	1727	1727	1727	1397	1397	1397
Adj Flow Rate, veh/h	41	56	0	557	32	720	46	442	443	527	211	25
Adj No. of Lanes	1	2	1	2	1	1	1	2	1	2	2	1
Peak Hour Factor	0.70	0.70	0.70	0.82	0.82	0.82	0.93	0.93	0.93	0.89	0.89	0.89
Percent Heavy Veh, %	9	9	9	32	32	32	10	10	10	36	36	36
Cap, veh/h	51	495	222	611	502	604	58	1061	474	376	1152	515
Arrive On Green	0.03	0.15	0.00	0.23	0.35	0.35	0.04	0.32	0.32	0.15	0.43	0.43
Sat Flow, veh/h	1660	3312	1482	2659	1439	1222	1645	3282	1465	2581	2654	1188
Grp Volume(v), veh/h	41	56	0	557	32	720	46	442	443	527	211	25
Grp Sat Flow(s),veh/h/ln	1660	1656	1482	1330	1439	1222	1645	1641	1465	1291	1327	1188
Q Serve(g_s), s	3.4	2.1	0.0	28.7	2.1	49.0	3.9	14.8	41.2	20.5	6.9	1.7
Cycle Q Clear(g_c), s	3.4	2.1	0.0	28.7	2.1	49.0	3.9	14.8	41.2	20.5	6.9	1.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	51	495	222	611	502	604	58	1061	474	376	1152	515
V/C Ratio(X)	0.80	0.11	0.00	0.91	0.06	1.19	0.80	0.42	0.94	1.40	0.18	0.05
Avail Cap(c_a), veh/h	59	495	222	789	502	604	118	1149	513	376	1152	515
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	67.7	51.7	0.0	52.7	30.5	35.5	67.3	37.2	46.2	60.0	24.5	23.0
Incr Delay (d2), s/veh	47.4	0.1	0.0	12.4	0.1	101.7	21.3	0.3	23.8	195.5	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.9	0.0	11.6	0.8	40.4	2.1	6.7	19.8	17.5	2.5	0.6
LnGrp Delay(d),s/veh	115.1	51.8	0.0	65.1	30.6	137.2	88.6	37.5	69.9	255.5	24.6	23.1
LnGrp LOS	F	D		E	C	F	F	D	E	F	C	C
Approach Vol, veh/h		97			1309			931			763	
Approach Delay, s/veh		78.6			103.9			55.5			184.0	
Approach LOS		E			F			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.0	51.9	36.8	26.8	9.4	67.5	8.9	54.8
Change Period (Y+Rc), s	4.5	6.5	4.5	5.8	4.5	6.5	4.5	5.8
Max Green Setting (Gmax), s	20.5	49.2	41.7	12.3	10.1	59.6	5.0	49.0
Max Q Clear Time (g_c+I1), s	22.5	43.2	30.7	4.1	5.9	8.9	5.4	51.0
Green Ext Time (p_c), s	0.0	2.2	1.6	0.1	0.0	1.3	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	108.3
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	272	384	138	102	71	135	29	128	45	49	170	113
Future Volume (veh/h)	272	384	138	102	71	135	29	128	45	49	170	113
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1652	1652	1652	1727	1727	1727	1624	1624	1624	1450	1450	1450
Adj Flow Rate, veh/h	363	512	184	132	92	175	31	136	48	54	189	126
Adj No. of Lanes	1	1	1	1	2	1	1	1	1	1	1	1
Peak Hour Factor	0.75	0.75	0.75	0.77	0.77	0.77	0.94	0.94	0.94	0.90	0.90	0.90
Percent Heavy Veh, %	15	15	15	10	10	10	17	17	17	31	31	31
Cap, veh/h	414	614	522	166	687	307	51	260	221	66	254	540
Arrive On Green	0.26	0.37	0.37	0.10	0.21	0.21	0.03	0.16	0.16	0.05	0.18	0.18
Sat Flow, veh/h	1573	1652	1404	1645	3282	1468	1547	1624	1380	1381	1450	1233
Grp Volume(v), veh/h	363	512	184	132	92	175	31	136	48	54	189	126
Grp Sat Flow(s),veh/h/ln	1573	1652	1404	1645	1641	1468	1547	1624	1380	1381	1450	1233
Q Serve(g_s), s	14.3	18.2	6.1	5.1	1.5	6.9	1.3	5.0	2.0	2.5	8.0	4.1
Cycle Q Clear(g_c), s	14.3	18.2	6.1	5.1	1.5	6.9	1.3	5.0	2.0	2.5	8.0	4.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	414	614	522	166	687	307	51	260	221	66	254	540
V/C Ratio(X)	0.88	0.83	0.35	0.79	0.13	0.57	0.61	0.52	0.22	0.81	0.74	0.23
Avail Cap(c_a), veh/h	607	1178	1002	329	1730	774	120	609	518	242	686	907
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.8	18.5	14.7	28.3	20.7	22.9	30.8	24.8	23.6	30.4	25.2	11.3
Incr Delay (d2), s/veh	9.7	3.1	0.4	8.3	0.1	1.7	11.1	1.6	0.5	20.5	4.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.3	8.8	2.4	2.7	0.7	2.9	0.7	2.3	0.8	1.3	3.5	1.4
LnGrp Delay(d),s/veh	32.5	21.5	15.1	36.6	20.8	24.5	41.8	26.5	24.1	50.9	29.5	11.6
LnGrp LOS	C	C	B	D	C	C	D	C	C	D	C	B
Approach Vol, veh/h		1059			399			215			369	
Approach Delay, s/veh		24.2			27.7			28.1			26.5	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.6	16.1	11.0	29.8	6.6	17.1	21.5	19.3
Change Period (Y+Rc), s	4.5	5.8	4.5	5.8	4.5	5.8	4.5	5.8
Max Green Setting (Gmax), s	1.3	24.2	12.9	46.0	5.0	30.5	24.9	34.0
Max Q Clear Time (g_c+I1), s	4.5	7.0	7.1	20.2	3.3	10.0	16.3	8.9
Green Ext Time (p_c), s	0.0	0.7	0.1	3.7	0.0	1.3	0.7	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	25.7
HCM 2010 LOS	C

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	449	822	253	177	250	128
Future Volume (veh/h)	449	822	253	177	250	128
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1863	1863	1881	1881
Adj Flow Rate, veh/h	554	1015	291	203	287	147
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.81	0.81	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	1	1	2	2	1	1
Cap, veh/h	752	983	347	843	363	979
Arrive On Green	0.42	0.42	0.20	0.45	0.19	0.19
Sat Flow, veh/h	1792	1599	1774	1863	1881	1599
Grp Volume(v), veh/h	554	1015	291	203	287	147
Grp Sat Flow(s),veh/h/ln	1792	1599	1774	1863	1881	1599
Q Serve(g_s), s	18.3	29.5	11.1	4.7	10.2	2.8
Cycle Q Clear(g_c), s	18.3	29.5	11.1	4.7	10.2	2.8
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	752	983	347	843	363	979
V/C Ratio(X)	0.74	1.03	0.84	0.24	0.79	0.15
Avail Cap(c_a), veh/h	752	983	668	1364	548	1137
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.2	13.5	27.2	11.8	27.0	5.8
Incr Delay (d2), s/veh	3.8	37.2	5.4	0.1	4.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.7	36.7	5.9	2.5	5.7	2.6
LnGrp Delay(d),s/veh	21.0	50.8	32.6	12.0	31.5	5.9
LnGrp LOS	C	F	C	B	C	A
Approach Vol, veh/h	1569			494	434	
Approach Delay, s/veh	40.3			24.1	22.8	
Approach LOS	D			C	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		36.3		34.0	18.3	18.1		
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5		
Max Green Setting (Gmax), s		51.5		29.5	26.5	20.5		
Max Q Clear Time (g_c+I1), s		6.7		31.5	13.1	12.2		
Green Ext Time (p_c), s		1.2		0.0	0.7	1.4		

Intersection Summary		
HCM 2010 Ctrl Delay		34.0
HCM 2010 LOS		C

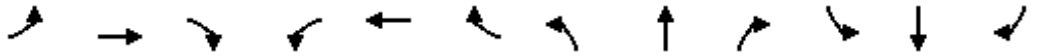
Intersection	
Int Delay, s/veh	11

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	3	321	7	9	746	19
Future Vol, veh/h	3	321	7	9	746	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	81	81	45	45	80	80
Heavy Vehicles, %	2	2	2	2	1	1
Mvmt Flow	4	396	16	20	933	24

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1916	26	0	0	36	0
Stage 1	26	-	-	-	-	-
Stage 2	1890	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.11	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.209	-
Pot Cap-1 Maneuver	74	1050	-	-	1581	-
Stage 1	997	-	-	-	-	-
Stage 2	130	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	30	1050	-	-	1581	-
Mov Cap-2 Maneuver	30	-	-	-	-	-
Stage 1	997	-	-	-	-	-
Stage 2	52	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.9	0	10.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	799	1581	-
HCM Lane V/C Ratio	-	-	0.501	0.59	-
HCM Control Delay (s)	-	-	13.9	10.5	0
HCM Lane LOS	-	-	B	B	A
HCM 95th %tile Q(veh)	-	-	2.8	4.1	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	241	80	64	154	87	76	274	81	134	204	35
Future Volume (veh/h)	34	241	80	64	154	87	76	274	81	134	204	35
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1881	1881	1900	1881	1881	1900
Adj Flow Rate, veh/h	39	277	92	74	177	100	84	301	89	147	224	38
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	73	335	111	110	304	172	118	360	106	187	464	79
Arrive On Green	0.04	0.25	0.25	0.06	0.27	0.27	0.07	0.26	0.26	0.10	0.30	0.30
Sat Flow, veh/h	1792	1353	449	1792	1130	638	1792	1396	413	1792	1568	266
Grp Volume(v), veh/h	39	0	369	74	0	277	84	0	390	147	0	262
Grp Sat Flow(s),veh/h/ln	1792	0	1802	1792	0	1769	1792	0	1808	1792	0	1834
Q Serve(g_s), s	1.2	0.0	10.6	2.2	0.0	7.4	2.5	0.0	11.2	4.4	0.0	6.4
Cycle Q Clear(g_c), s	1.2	0.0	10.6	2.2	0.0	7.4	2.5	0.0	11.2	4.4	0.0	6.4
Prop In Lane	1.00		0.25	1.00		0.36	1.00		0.23	1.00		0.15
Lane Grp Cap(c), veh/h	73	0	447	110	0	475	118	0	466	187	0	543
V/C Ratio(X)	0.53	0.00	0.83	0.67	0.00	0.58	0.71	0.00	0.84	0.79	0.00	0.48
Avail Cap(c_a), veh/h	164	0	592	164	0	581	190	0	598	193	0	609
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.8	0.0	19.5	25.2	0.0	17.4	25.1	0.0	19.2	23.9	0.0	15.8
Incr Delay (d2), s/veh	5.9	0.0	7.2	6.8	0.0	1.1	7.7	0.0	8.1	18.8	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	6.1	1.3	0.0	3.8	1.5	0.0	6.6	3.1	0.0	3.3
LnGrp Delay(d),s/veh	31.7	0.0	26.7	32.0	0.0	18.5	32.8	0.0	27.4	42.7	0.0	16.5
LnGrp LOS	C		C	C		B	C		C	D		B
Approach Vol, veh/h		408			351			474			409	
Approach Delay, s/veh		27.1			21.3			28.3			25.9	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.2	18.6	7.9	18.1	8.1	20.7	6.7	19.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.9	18.1	5.0	18.0	5.8	18.2	5.0	18.0
Max Q Clear Time (g_c+I1), s	6.4	13.2	4.2	12.6	4.5	8.4	3.2	9.4
Green Ext Time (p_c), s	0.0	0.9	0.0	1.0	0.0	0.9	0.0	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	25.9
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	139	1439	116	266	486	82	42	114	272	61	123	27
Future Volume (veh/h)	139	1439	116	266	486	82	42	114	272	61	123	27
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1881	1881	1881	1900	1900	1900	1792	1792	1792
Adj Flow Rate, veh/h	151	1564	0	286	523	0	50	136	0	69	140	0
Adj No. of Lanes	2	3	1	2	3	1	2	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.84	0.84	0.84	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	1	1	1	0	0	0	6	6	6
Cap, veh/h	241	2153	670	337	2312	720	159	429	192	179	435	195
Arrive On Green	0.07	0.42	0.00	0.10	0.45	0.00	0.05	0.12	0.00	0.05	0.13	0.00
Sat Flow, veh/h	3442	5085	1583	3476	5136	1599	3510	3610	1615	3312	3406	1524
Grp Volume(v), veh/h	151	1564	0	286	523	0	50	136	0	69	140	0
Grp Sat Flow(s),veh/h/ln	1721	1695	1583	1738	1712	1599	1755	1805	1615	1656	1703	1524
Q Serve(g_s), s	2.9	17.2	0.0	5.4	4.2	0.0	0.9	2.3	0.0	1.4	2.5	0.0
Cycle Q Clear(g_c), s	2.9	17.2	0.0	5.4	4.2	0.0	0.9	2.3	0.0	1.4	2.5	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	241	2153	670	337	2312	720	159	429	192	179	435	195
V/C Ratio(X)	0.63	0.73	0.00	0.85	0.23	0.00	0.32	0.32	0.00	0.39	0.32	0.00
Avail Cap(c_a), veh/h	282	2652	826	337	2754	858	262	2307	1032	247	2177	974
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	30.4	16.1	0.0	29.8	11.3	0.0	31.0	27.1	0.0	30.7	26.6	0.0
Incr Delay (d2), s/veh	3.3	0.8	0.0	18.2	0.0	0.0	1.1	0.4	0.0	1.4	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	8.1	0.0	3.5	2.0	0.0	0.5	1.2	0.0	0.6	1.2	0.0
LnGrp Delay(d),s/veh	33.7	16.9	0.0	48.0	11.3	0.0	32.2	27.5	0.0	32.0	27.1	0.0
LnGrp LOS	C	B		D	B		C	C		C	C	
Approach Vol, veh/h		1715			809			186			209	
Approach Delay, s/veh		18.4			24.3			28.7			28.7	
Approach LOS		B			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.1	13.8	11.0	34.2	7.5	14.4	9.2	36.0
Change Period (Y+Rc), s	4.5	5.8	4.5	5.8	4.5	5.8	4.5	5.8
Max Green Setting (Gmax), s	5.0	42.9	6.5	35.0	5.0	42.9	5.5	36.0
Max Q Clear Time (g_c+I1), s	3.4	4.3	7.4	19.2	2.9	4.5	4.9	6.2
Green Ext Time (p_c), s	0.0	0.8	0.0	9.2	0.0	0.8	0.0	3.4

Intersection Summary	
HCM 2010 Ctrl Delay	21.4
HCM 2010 LOS	C

14800 W. Schulte Rd Traffic Impact Study

Caltrans Peak Hour Warrant Summary

ID	Intersection	Existing Control	Ex. Peak Hr		EPAP		EPAP+P		Cumulative NP		Cumulative + P	
			AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
			Warrant Met?		Warrant Met?		Warrant Met?		Warrant Met?		Warrant Met?	
3	Schulte Road and Lammers Road	AWS	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
4	Valpico Road and Lammers Road	OWS	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
5	Valpico Road and Corral Hollow Road	AWS	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note:
OWS - One Way Stop control
AWS - All Way Stop control

Appendix D ANALYSIS: EXISTING PLUS APPROVED PLUS PROJECT CONDITIONS

- LOS CALCULATION SHEETS & MITIGATED LOS

- SIGNAL WARRANTS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	30	169	610	115	317	76	179	463	434	606	23
Future Volume (veh/h)	24	30	169	627	115	330	76	179	514	470	606	23
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1727	1727	1900	1624	1624	1624	1338	1338	1338	1624	1624	1624
Adj Flow Rate, veh/h	41	52	0	674	124	355	94	221	635	534	689	26
Adj No. of Lanes	1	2	0	2	1	1	1	2	1	2	2	1
Peak Hour Factor	0.58	0.58	0.58	0.93	0.93	0.93	0.81	0.81	0.81	0.88	0.88	0.88
Percent Heavy Veh, %	10	10	10	17	17	17	42	42	42	17	17	17
Cap, veh/h	51	214	0	744	458	389	99	1108	496	232	1345	602
Arrive On Green	0.03	0.07	0.00	0.25	0.28	0.28	0.08	0.44	0.44	0.08	0.44	0.44
Sat Flow, veh/h	1645	3368	0	3000	1624	1380	1274	2542	1137	3000	3085	1380
Grp Volume(v), veh/h	41	52	0	674	124	355	94	221	635	534	689	26
Grp Sat Flow(s),veh/h/ln	1645	1641	0	1500	1624	1380	1274	1271	1137	1500	1543	1380
Q Serve(g_s), s	3.0	1.8	0.0	26.7	7.3	30.5	9.0	6.6	53.5	9.5	19.9	1.3
Cycle Q Clear(g_c), s	3.0	1.8	0.0	26.7	7.3	30.5	9.0	6.6	53.5	9.5	19.9	1.3
Prop In Lane	1.00		0.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	51	214	0	744	458	389	99	1108	496	232	1345	602
V/C Ratio(X)	0.80	0.24	0.00	0.91	0.27	0.91	0.95	0.20	1.28	2.30	0.51	0.04
Avail Cap(c_a), veh/h	127	647	0	892	678	576	99	1108	496	232	1345	602
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	59.1	54.5	0.0	44.8	34.2	42.6	56.4	21.4	34.6	56.6	25.1	19.9
Incr Delay (d2), s/veh	24.4	0.6	0.0	11.4	0.3	14.1	75.2	0.1	141.1	597.9	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.9	0.0	12.2	3.3	13.2	5.2	2.3	36.1	23.2	8.5	0.5
LnGrp Delay(d),s/veh	83.5	55.1	0.0	56.1	34.6	56.7	131.6	21.5	175.7	654.6	25.5	19.9
LnGrp LOS	F	E		E	C	E	F	C	F	F	C	B
Approach Vol, veh/h		93			1153			950			1249	
Approach Delay, s/veh		67.6			54.0			135.5			294.3	
Approach LOS		E			D			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	60.0	34.9	13.8	14.0	60.0	8.3	40.4
Change Period (Y+Rc), s	4.5	6.5	4.5	5.8	4.5	6.5	4.5	5.8
Max Green Setting (Gmax), s	9.5	53.5	36.5	24.2	9.5	53.5	9.5	51.2
Max Q Clear Time (g_c+I1), s	11.5	55.5	28.7	3.8	11.0	21.9	5.0	32.5
Green Ext Time (p_c), s	0.0	0.0	1.7	0.2	0.0	4.5	0.0	1.8

Intersection Summary	
HCM 2010 Ctrl Delay	164.0
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	101	48	45	27	596	40	135	169	93	129	131	307
Future Volume (veh/h)	101	135	45	27	626	50	135	169	93	158	131	307
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1267	1267	1267	1827	1827	1827	1166	1166	1900	1667	1667	1667
Adj Flow Rate, veh/h	133	178	59	32	745	60	201	252	139	205	170	399
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	1
Peak Hour Factor	0.76	0.76	0.76	0.84	0.84	0.84	0.67	0.67	0.67	0.77	0.77	0.77
Percent Heavy Veh, %	50	50	50	4	4	4	63	63	63	14	14	14
Cap, veh/h	109	503	427	50	612	521	100	203	112	144	479	407
Arrive On Green	0.09	0.40	0.40	0.03	0.34	0.34	0.09	0.29	0.29	0.09	0.29	0.29
Sat Flow, veh/h	1206	1267	1077	1740	1827	1553	1110	707	390	1587	1667	1417
Grp Volume(v), veh/h	133	178	59	32	745	60	201	0	391	205	170	399
Grp Sat Flow(s),veh/h/ln	1206	1267	1077	1740	1827	1553	1110	0	1097	1587	1667	1417
Q Serve(g_s), s	9.5	10.4	3.7	1.9	35.2	2.8	9.5	0.0	30.2	9.5	8.5	29.3
Cycle Q Clear(g_c), s	9.5	10.4	3.7	1.9	35.2	2.8	9.5	0.0	30.2	9.5	8.5	29.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.36	1.00		1.00
Lane Grp Cap(c), veh/h	109	503	427	50	612	521	100	0	315	144	479	407
V/C Ratio(X)	1.22	0.35	0.14	0.64	1.22	0.12	2.00	0.00	1.24	1.43	0.35	0.98
Avail Cap(c_a), veh/h	109	503	427	157	612	521	100	0	315	144	479	407
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.8	22.2	20.2	50.4	34.9	24.1	47.7	0.0	37.4	47.8	29.7	37.1
Incr Delay (d2), s/veh	156.2	0.4	0.1	12.6	111.8	0.1	483.9	0.0	131.9	227.7	0.4	39.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.9	3.7	1.1	1.1	36.7	1.2	16.4	0.0	20.7	13.2	4.0	15.8
LnGrp Delay(d),s/veh	204.0	22.6	20.4	63.0	146.7	24.2	531.6	0.0	169.3	275.5	30.1	76.1
LnGrp LOS	F	C	C	E	F	C	F		F	F	C	E
Approach Vol, veh/h		370			837			592			774	
Approach Delay, s/veh		87.5			134.7			292.3			118.8	
Approach LOS		F			F			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	36.0	7.5	47.5	14.0	36.0	14.0	41.0
Change Period (Y+Rc), s	4.5	5.8	4.5	5.8	4.5	5.8	4.5	5.8
Max Green Setting (Gmax), s	9.5	30.2	9.5	35.2	9.5	30.2	9.5	35.2
Max Q Clear Time (g_c+I1), s	11.5	32.2	3.9	12.4	11.5	31.3	11.5	37.2
Green Ext Time (p_c), s	0.0	0.0	0.0	1.1	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	159.4
HCM 2010 LOS	F

Intersection	
Intersection Delay, s/veh	350.7
Intersection LOS	F

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	87	161	729	358	272	562
Future Vol, veh/h	88	162	735	358	272	568
Peak Hour Factor	0.71	0.71	0.91	0.91	0.94	0.94
Heavy Vehicles, %	13	13	3	3	3	3
Mvmt Flow	124	228	808	393	289	604
Number of Lanes	1	0	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	27.9	531.9	234.3
HCM LOS	D	F	F

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	67%	35%	0%
Vol Thru, %	33%	0%	32%
Vol Right, %	0%	65%	68%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	1093	250	840
LT Vol	735	88	0
Through Vol	358	0	272
RT Vol	0	162	568
Lane Flow Rate	1201	352	894
Geometry Grp	1	1	1
Degree of Util (X)	2.131	0.675	1.451
Departure Headway (Hd)	7.048	8.679	7.251
Convergence, Y/N	Yes	Yes	Yes
Cap	528	419	509
Service Time	5.048	6.679	5.251
HCM Lane V/C Ratio	2.275	0.84	1.756
HCM Control Delay	531.9	27.9	234.3
HCM Lane LOS	F	D	F
HCM 95th-tile Q	77.5	4.8	35.6

Intersection	
Int Delay, s/veh	16.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	674	15	6	335	7
Future Vol, veh/h	10	680	15	6	336	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	75	75	85	85
Heavy Vehicles, %	5	5	11	11	6	6
Mvmt Flow	11	782	20	8	395	8

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	822	24	0	0	28	0
Stage 1	24	-	-	-	-	-
Stage 2	798	-	-	-	-	-
Critical Hdwy	6.45	6.25	-	-	4.16	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	-	-	2.254	-
Pot Cap-1 Maneuver	340	1044	-	-	1560	-
Stage 1	991	-	-	-	-	-
Stage 2	438	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	254	1044	-	-	1560	-
Mov Cap-2 Maneuver	254	-	-	-	-	-
Stage 1	991	-	-	-	-	-
Stage 2	327	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	20.9	0	7.9
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	999	1560	-
HCM Lane V/C Ratio	-	-	0.794	0.253	-
HCM Control Delay (s)	-	-	20.9	8.1	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	8.6	1	-

Intersection	
Intersection Delay, s/veh	92.9
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	8	132	118	178	169	54	138	186	31	61	278	12
Future Vol, veh/h	9	132	118	178	171	54	139	186	31	61	278	15
Peak Hour Factor	0.84	0.84	0.84	0.88	0.88	0.88	0.85	0.85	0.85	0.88	0.88	0.88
Heavy Vehicles, %	7	7	7	1	1	1	5	5	5	7	7	7
Mvmt Flow	11	157	140	202	194	61	164	219	36	69	316	17
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	45.2	125.6	98.1	86.7
HCM LOS	E	F	F	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	39%	3%	44%	17%
Vol Thru, %	52%	51%	42%	79%
Vol Right, %	9%	46%	13%	4%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	356	259	403	354
LT Vol	139	9	178	61
Through Vol	186	132	171	278
RT Vol	31	118	54	15
Lane Flow Rate	419	308	458	402
Geometry Grp	1	1	1	1
Degree of Util (X)	1.066	0.809	1.154	1.025
Departure Headway (Hd)	9.866	10.309	9.527	9.99
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	373	355	385	366
Service Time	7.866	8.309	7.527	7.99
HCM Lane V/C Ratio	1.123	0.868	1.19	1.098
HCM Control Delay	98.1	45.2	125.6	86.7
HCM Lane LOS	F	E	F	F
HCM 95th-tile Q	13.7	6.9	16.9	12.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	388	70	857	859	84	39	109	413	35	198	63
Future Volume (veh/h)	40	388	72	860	859	84	39	109	414	35	199	63
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1696	1696	1696	1863	1863	1863	1881	1881	1881	1792	1792	1792
Adj Flow Rate, veh/h	43	422	0	1089	1087	0	60	168	0	50	284	0
Adj No. of Lanes	2	3	1	2	3	1	2	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.79	0.79	0.79	0.65	0.65	0.65	0.70	0.70	0.70
Percent Heavy Veh, %	12	12	12	2	2	2	1	1	1	6	6	6
Cap, veh/h	128	708	220	1257	2429	756	172	493	221	148	454	203
Arrive On Green	0.04	0.15	0.00	0.37	0.48	0.00	0.05	0.14	0.00	0.04	0.13	0.00
Sat Flow, veh/h	3134	4631	1442	3442	5085	1583	3476	3574	1599	3312	3406	1524
Grp Volume(v), veh/h	43	422	0	1089	1087	0	60	168	0	50	284	0
Grp Sat Flow(s),veh/h/ln	1567	1544	1442	1721	1695	1583	1738	1787	1599	1656	1703	1524
Q Serve(g_s), s	0.9	5.9	0.0	20.2	9.8	0.0	1.2	2.9	0.0	1.0	5.4	0.0
Cycle Q Clear(g_c), s	0.9	5.9	0.0	20.2	9.8	0.0	1.2	2.9	0.0	1.0	5.4	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	128	708	220	1257	2429	756	172	493	221	148	454	203
V/C Ratio(X)	0.34	0.60	0.00	0.87	0.45	0.00	0.35	0.34	0.00	0.34	0.63	0.00
Avail Cap(c_a), veh/h	432	2366	737	1524	4148	1291	479	2293	1026	457	2185	977
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	32.1	27.2	0.0	20.3	12.0	0.0	31.7	26.9	0.0	31.9	28.2	0.0
Incr Delay (d2), s/veh	1.5	0.8	0.0	4.7	0.1	0.0	1.2	0.4	0.0	1.3	1.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	2.6	0.0	10.4	4.6	0.0	0.6	1.5	0.0	0.5	2.7	0.0
LnGrp Delay(d),s/veh	33.7	28.0	0.0	25.0	12.1	0.0	32.9	27.3	0.0	33.3	29.7	0.0
LnGrp LOS	C	C		C	B		C	C		C	C	
Approach Vol, veh/h		465			2176			228			334	
Approach Delay, s/veh		28.5			18.6			28.7			30.2	
Approach LOS		C			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.6	15.3	29.7	16.3	7.9	15.0	7.3	38.7
Change Period (Y+Rc), s	4.5	5.8	4.5	5.8	4.5	5.8	4.5	5.8
Max Green Setting (Gmax), s	9.5	44.2	30.5	35.2	9.5	44.2	9.5	56.2
Max Q Clear Time (g_c+I1), s	3.0	4.9	22.2	7.9	3.2	7.4	2.9	11.8
Green Ext Time (p_c), s	0.0	1.0	2.9	2.7	0.1	1.7	0.0	8.8

Intersection Summary	
HCM 2010 Ctrl Delay	22.0
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	2.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	0	0	0
Future Vol, veh/h	0	36	8	4	12	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	39	9	4	13	2

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	39	0	42	20
Stage 1	-	-	-	-	20	-
Stage 2	-	-	-	-	22	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1571	-	969	1058
Stage 1	-	-	-	-	1003	-
Stage 2	-	-	-	-	1001	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1571	-	963	1058
Mov Cap-2 Maneuver	-	-	-	-	963	-
Stage 1	-	-	-	-	1003	-
Stage 2	-	-	-	-	995	-

Approach	EB	WB	NB
HCM Control Delay, s	0	4.9	8.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	976	-	-	1571	-
HCM Lane V/C Ratio	0.016	-	-	0.006	-
HCM Control Delay (s)	8.7	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	1.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	0	0	0
Future Vol, veh/h	36	80	4	12	28	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	39	87	4	13	30	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	126	0	104	83
Stage 1	-	-	-	-	83	-
Stage 2	-	-	-	-	21	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1460	-	894	976
Stage 1	-	-	-	-	940	-
Stage 2	-	-	-	-	1002	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1460	-	891	976
Mov Cap-2 Maneuver	-	-	-	-	891	-
Stage 1	-	-	-	-	940	-
Stage 2	-	-	-	-	999	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.9	9.2
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	891	-	-	1460	-
HCM Lane V/C Ratio	0.034	-	-	0.003	-
HCM Control Delay (s)	9.2	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	39	57	457	26	590	43	411	412	469	188	22
Future Volume (veh/h)	29	39	57	507	26	625	43	411	431	482	188	22
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1743	1900	1439	1439	1439	1727	1727	1727	1397	1397	1397
Adj Flow Rate, veh/h	41	56	0	618	32	762	46	442	463	542	211	25
Adj No. of Lanes	1	2	0	2	1	1	1	2	1	2	2	1
Peak Hour Factor	0.70	0.70	0.70	0.82	0.82	0.82	0.93	0.93	0.93	0.89	0.89	0.89
Percent Heavy Veh, %	9	9	9	32	32	32	10	10	10	36	36	36
Cap, veh/h	51	565	0	667	562	477	58	1129	504	187	1012	453
Arrive On Green	0.03	0.17	0.00	0.25	0.39	0.39	0.04	0.34	0.34	0.07	0.38	0.38
Sat Flow, veh/h	1660	3399	0	2659	1439	1223	1645	3282	1466	2581	2654	1188
Grp Volume(v), veh/h	41	56	0	618	32	762	46	442	463	542	211	25
Grp Sat Flow(s),veh/h/ln	1660	1656	0	1330	1439	1223	1645	1641	1466	1291	1327	1188
Q Serve(g_s), s	3.2	1.9	0.0	29.8	1.8	51.2	3.6	13.4	39.7	9.5	7.0	1.7
Cycle Q Clear(g_c), s	3.2	1.9	0.0	29.8	1.8	51.2	3.6	13.4	39.7	9.5	7.0	1.7
Prop In Lane	1.00		0.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	51	565	0	667	562	477	58	1129	504	187	1012	453
V/C Ratio(X)	0.80	0.10	0.00	0.93	0.06	1.60	0.80	0.39	0.92	2.90	0.21	0.06
Avail Cap(c_a), veh/h	120	611	0	740	562	477	119	1338	598	187	1083	484
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	63.2	45.9	0.0	48.0	24.9	40.0	62.8	32.6	41.3	60.8	27.3	25.6
Incr Delay (d2), s/veh	23.7	0.1	0.0	16.8	0.0	278.4	21.5	0.2	17.6	869.3	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.9	0.0	12.5	0.7	54.1	2.0	6.1	18.5	25.9	2.6	0.6
LnGrp Delay(d),s/veh	86.9	46.0	0.0	64.8	25.0	318.4	84.3	32.8	58.8	930.1	27.4	25.7
LnGrp LOS	F	D		E	C	F	F	C	E	F	C	C
Approach Vol, veh/h		97			1412			951			778	
Approach Delay, s/veh		63.3			200.8			48.0			656.2	
Approach LOS		E			F			D			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	51.6	37.4	28.2	9.1	56.5	8.6	57.0
Change Period (Y+Rc), s	4.5	6.5	4.5	5.8	4.5	6.5	4.5	5.8
Max Green Setting (Gmax), s	9.5	53.5	36.5	24.2	9.5	53.5	9.5	51.2
Max Q Clear Time (g_c+I1), s	11.5	41.7	31.8	3.9	5.6	9.0	5.2	53.2
Green Ext Time (p_c), s	0.0	3.3	1.1	0.2	0.0	1.3	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	261.2
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	272	384	138	102	71	135	29	128	45	49	170	113
Future Volume (veh/h)	272	416	138	102	156	162	29	128	45	61	170	113
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1652	1652	1652	1727	1727	1727	1624	1624	1900	1450	1450	1450
Adj Flow Rate, veh/h	363	555	184	132	203	210	31	136	48	68	189	126
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	1
Peak Hour Factor	0.75	0.75	0.75	0.77	0.77	0.77	0.94	0.94	0.94	0.90	0.90	0.90
Percent Heavy Veh, %	15	15	15	10	10	10	17	17	17	31	31	31
Cap, veh/h	219	638	542	164	599	509	50	178	63	79	261	222
Arrive On Green	0.14	0.39	0.39	0.10	0.35	0.35	0.03	0.16	0.16	0.06	0.18	0.18
Sat Flow, veh/h	1573	1652	1404	1645	1727	1468	1547	1147	405	1381	1450	1233
Grp Volume(v), veh/h	363	555	184	132	203	210	31	0	184	68	189	126
Grp Sat Flow(s),veh/h/ln	1573	1652	1404	1645	1727	1468	1547	0	1552	1381	1450	1233
Q Serve(g_s), s	9.5	21.2	6.3	5.4	5.9	7.4	1.4	0.0	7.8	3.3	8.4	6.4
Cycle Q Clear(g_c), s	9.5	21.2	6.3	5.4	5.9	7.4	1.4	0.0	7.8	3.3	8.4	6.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.26	1.00		1.00
Lane Grp Cap(c), veh/h	219	638	542	164	599	509	50	0	241	79	261	222
V/C Ratio(X)	1.66	0.87	0.34	0.80	0.34	0.41	0.62	0.00	0.76	0.86	0.72	0.57
Avail Cap(c_a), veh/h	219	852	724	229	891	757	215	0	687	192	642	545
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.4	19.4	14.8	30.1	16.5	17.0	32.6	0.0	27.6	31.9	26.4	25.6
Incr Delay (d2), s/veh	315.4	7.6	0.4	13.2	0.3	0.5	11.6	0.0	4.9	22.8	3.8	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	23.3	10.9	2.5	3.0	2.9	3.1	0.7	0.0	3.7	1.8	3.6	2.3
LnGrp Delay(d),s/veh	344.8	27.0	15.2	43.2	16.8	17.5	44.2	0.0	32.6	54.7	30.2	27.8
LnGrp LOS	F	C	B	D	B	B	D		C	D	C	C
Approach Vol, veh/h		1102			545			215			383	
Approach Delay, s/veh		129.7			23.5			34.2			33.8	
Approach LOS		F			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.4	16.4	11.3	32.1	6.7	18.1	14.0	29.5
Change Period (Y+Rc), s	4.5	5.8	4.5	5.8	4.5	5.8	4.5	5.8
Max Green Setting (Gmax), s	9.5	30.2	9.5	35.2	9.5	30.2	9.5	35.2
Max Q Clear Time (g_c+I1), s	5.3	9.8	7.4	23.2	3.4	10.4	11.5	9.4
Green Ext Time (p_c), s	0.0	0.9	0.1	3.1	0.0	1.3	0.0	1.7

Intersection Summary		
HCM 2010 Ctrl Delay		78.4
HCM 2010 LOS		E

Intersection	
Intersection Delay, s/veh	562.7
Intersection LOS	F

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	449	822	253	177	250	128
Future Vol, veh/h	456	829	255	177	250	130
Peak Hour Factor	0.81	0.81	0.87	0.87	0.87	0.87
Heavy Vehicles, %	1	1	2	2	1	1
Mvmt Flow	563	1023	293	203	287	149
Number of Lanes	1	0	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	857.7	72.4	48.6
HCM LOS	F	F	E

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	59%	35%	0%
Vol Thru, %	41%	0%	66%
Vol Right, %	0%	65%	34%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	432	1285	380
LT Vol	255	456	0
Through Vol	177	0	250
RT Vol	0	829	130
Lane Flow Rate	497	1586	437
Geometry Grp	1	1	1
Degree of Util (X)	0.944	2.863	0.81
Departure Headway (Hd)	11.375	6.496	11.284
Convergence, Y/N	Yes	Yes	Yes
Cap	323	571	328
Service Time	9.375	4.496	9.284
HCM Lane V/C Ratio	1.539	2.778	1.332
HCM Control Delay	72.4	857.7	48.6
HCM Lane LOS	F	F	E
HCM 95th-tile Q	9.5	133.5	6.8

Intersection	
Int Delay, s/veh	11.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	3	321	7	9	746	19
Future Vol, veh/h	3	323	7	9	753	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	81	81	45	45	80	80
Heavy Vehicles, %	2	2	2	2	1	1
Mvmt Flow	4	399	16	20	941	24

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1932	26	0	0	36	0
Stage 1	26	-	-	-	-	-
Stage 2	1906	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.11	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.209	-
Pot Cap-1 Maneuver	73	1050	-	-	1581	-
Stage 1	997	-	-	-	-	-
Stage 2	128	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	29	1050	-	-	1581	-
Mov Cap-2 Maneuver	29	-	-	-	-	-
Stage 1	997	-	-	-	-	-
Stage 2	51	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.1	0	10.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	793	1581	-
HCM Lane V/C Ratio	-	-	0.508	0.595	-
HCM Control Delay (s)	-	-	14.1	10.6	0
HCM Lane LOS	-	-	B	B	A
HCM 95th %tile Q(veh)	-	-	2.9	4.2	-

Intersection	
Intersection Delay, s/veh	109.2
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	34	241	80	64	154	87	76	274	81	134	204	35
Future Vol, veh/h	38	243	81	64	155	87	76	274	81	134	204	36
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	44	279	93	74	178	100	84	301	89	147	224	40
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	101.7	66.1	153.2	102.9
HCM LOS	F	F	F	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	18%	10%	21%	36%
Vol Thru, %	64%	67%	51%	55%
Vol Right, %	19%	22%	28%	10%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	431	362	306	374
LT Vol	76	38	64	134
Through Vol	274	243	155	204
RT Vol	81	81	87	36
Lane Flow Rate	474	416	352	411
Geometry Grp	1	1	1	1
Degree of Util (X)	1.225	1.072	0.927	1.074
Departure Headway (Hd)	9.92	10.265	10.697	10.417
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	369	358	341	353
Service Time	7.92	8.265	8.697	8.417
HCM Lane V/C Ratio	1.285	1.162	1.032	1.164
HCM Control Delay	153.2	101.7	66.1	102.9
HCM Lane LOS	F	F	F	F
HCM 95th-tile Q	19	13.6	9.4	13.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	139	1439	116	266	486	82	42	114	272	61	123	27
Future Volume (veh/h)	139	1439	117	267	486	82	44	115	276	61	123	27
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1881	1881	1881	1900	1900	1900	1792	1792	1792
Adj Flow Rate, veh/h	151	1564	0	287	523	0	52	137	0	69	140	0
Adj No. of Lanes	2	3	1	2	3	1	2	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.84	0.84	0.84	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	1	1	1	0	0	0	6	6	6
Cap, veh/h	240	2118	659	419	2400	747	160	414	185	175	415	186
Arrive On Green	0.07	0.42	0.00	0.12	0.47	0.00	0.05	0.11	0.00	0.05	0.12	0.00
Sat Flow, veh/h	3442	5085	1583	3476	5136	1599	3510	3610	1615	3312	3406	1524
Grp Volume(v), veh/h	151	1564	0	287	523	0	52	137	0	69	140	0
Grp Sat Flow(s),veh/h/ln	1721	1695	1583	1738	1712	1599	1755	1805	1615	1656	1703	1524
Q Serve(g_s), s	3.0	18.1	0.0	5.5	4.2	0.0	1.0	2.4	0.0	1.4	2.6	0.0
Cycle Q Clear(g_c), s	3.0	18.1	0.0	5.5	4.2	0.0	1.0	2.4	0.0	1.4	2.6	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	240	2118	659	419	2400	747	160	414	185	175	415	186
V/C Ratio(X)	0.63	0.74	0.00	0.69	0.22	0.00	0.33	0.33	0.00	0.39	0.34	0.00
Avail Cap(c_a), veh/h	469	2568	800	1521	4141	1289	478	2289	1024	451	2159	966
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	31.5	17.1	0.0	29.4	11.0	0.0	32.2	28.4	0.0	31.9	28.0	0.0
Incr Delay (d2), s/veh	2.7	0.9	0.0	2.0	0.0	0.0	1.2	0.5	0.0	1.4	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	8.6	0.0	2.7	2.0	0.0	0.5	1.2	0.0	0.7	1.3	0.0
LnGrp Delay(d),s/veh	34.3	18.1	0.0	31.4	11.1	0.0	33.4	28.9	0.0	33.4	28.5	0.0
LnGrp LOS	C	B		C	B		C	C		C	C	
Approach Vol, veh/h		1715			810			189			209	
Approach Delay, s/veh		19.5			18.3			30.1			30.1	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.2	13.8	12.9	34.8	7.7	14.3	9.4	38.4
Change Period (Y+Rc), s	4.5	5.8	4.5	5.8	4.5	5.8	4.5	5.8
Max Green Setting (Gmax), s	9.5	44.2	30.5	35.2	9.5	44.2	9.5	56.2
Max Q Clear Time (g_c+I1), s	3.4	4.4	7.5	20.1	3.0	4.6	5.0	6.2
Green Ext Time (p_c), s	0.1	0.8	0.9	9.0	0.0	0.8	0.2	3.6

Intersection Summary	
HCM 2010 Ctrl Delay	20.6
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	6.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	0	0	0
Future Vol, veh/h	4	14	4	0	34	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	15	4	0	37	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	19	0	20	12
Stage 1	-	-	-	-	12	-
Stage 2	-	-	-	-	8	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1597	-	997	1069
Stage 1	-	-	-	-	1011	-
Stage 2	-	-	-	-	1015	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1597	-	994	1069
Mov Cap-2 Maneuver	-	-	-	-	994	-
Stage 1	-	-	-	-	1011	-
Stage 2	-	-	-	-	1012	-

Approach	EB	WB	NB
HCM Control Delay, s	0	7.3	8.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1010	-	-	1597	-
HCM Lane V/C Ratio	0.047	-	-	0.003	-
HCM Control Delay (s)	8.7	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

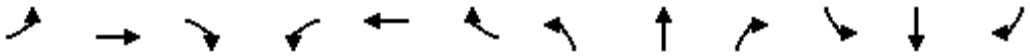
Intersection	
Int Delay, s/veh	4.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	0	0	0
Future Vol, veh/h	14	30	0	34	78	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	15	33	0	37	85	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	48	0	69	32
Stage 1	-	-	-	-	32	-
Stage 2	-	-	-	-	37	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1559	-	936	1042
Stage 1	-	-	-	-	991	-
Stage 2	-	-	-	-	985	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1559	-	936	1042
Mov Cap-2 Maneuver	-	-	-	-	936	-
Stage 1	-	-	-	-	991	-
Stage 2	-	-	-	-	985	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9.2
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	941	-	-	1559	-
HCM Lane V/C Ratio	0.095	-	-	-	-
HCM Control Delay (s)	9.2	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.3	-	-	0	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	41	52	291	674	124	355	94	221	635	534	689	26
v/c Ratio	0.55	0.27	0.79	0.78	0.20	0.35	0.64	0.45	0.46	0.86	0.78	0.05
Control Delay	82.8	51.8	28.7	45.2	27.1	2.3	70.1	42.0	2.1	58.7	43.7	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	82.8	51.8	28.7	45.2	27.1	2.3	70.1	42.0	2.1	58.7	43.7	0.2
Queue Length 50th (ft)	29	35	40	221	61	0	64	72	0	191	240	0
Queue Length 95th (ft)	49	51	16	#397	122	41	126	106	11	#362	335	0
Internal Link Dist (ft)		1694			1451			380			1029	
Turn Bay Length (ft)	105			260		355	225		235	325		265
Base Capacity (vph)	75	325	464	935	737	1007	178	1112	1411	624	1561	759
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.16	0.63	0.72	0.17	0.35	0.53	0.20	0.45	0.86	0.44	0.03

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	30	169	610	115	317	76	179	463	434	606	23
Future Volume (veh/h)	24	30	169	627	115	330	76	179	514	470	606	23
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1727	1727	1727	1624	1624	1624	1338	1338	1338	1624	1624	1624
Adj Flow Rate, veh/h	41	52	0	674	124	355	94	221	635	534	689	26
Adj No. of Lanes	1	1	1	2	1	1	1	2	2	2	2	1
Peak Hour Factor	0.58	0.58	0.58	0.93	0.93	0.93	0.81	0.81	0.81	0.88	0.88	0.88
Percent Heavy Veh, %	10	10	10	17	17	17	42	42	42	17	17	17
Cap, veh/h	54	130	110	757	478	678	110	701	1056	591	1191	533
Arrive On Green	0.03	0.08	0.00	0.25	0.29	0.29	0.09	0.28	0.28	0.20	0.39	0.39
Sat Flow, veh/h	1645	1727	1468	3000	1624	1380	1274	2542	2002	3000	3085	1380
Grp Volume(v), veh/h	41	52	0	674	124	355	94	221	635	534	689	26
Grp Sat Flow(s),veh/h/ln	1645	1727	1468	1500	1624	1380	1274	1271	1001	1500	1543	1380
Q Serve(g_s), s	2.6	3.1	0.0	23.1	6.2	18.7	7.7	7.3	23.3	18.5	18.8	1.3
Cycle Q Clear(g_c), s	2.6	3.1	0.0	23.1	6.2	18.7	7.7	7.3	23.3	18.5	18.8	1.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	54	130	110	757	478	678	110	701	1056	591	1191	533
V/C Ratio(X)	0.76	0.40	0.00	0.89	0.26	0.52	0.85	0.32	0.60	0.90	0.58	0.05
Avail Cap(c_a), veh/h	77	329	280	950	748	907	181	1128	1393	634	1583	708
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.0	46.9	0.0	38.4	28.7	18.5	47.9	30.6	17.4	41.8	25.8	20.4
Incr Delay (d2), s/veh	22.4	2.0	0.0	8.9	0.3	0.6	18.3	0.3	0.6	15.8	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	1.5	0.0	10.5	2.8	7.2	3.3	2.6	6.5	8.9	8.0	0.5
LnGrp Delay(d),s/veh	73.5	48.9	0.0	47.3	29.0	19.2	66.2	30.8	17.9	57.5	26.3	20.5
LnGrp LOS	E	D		D	C	B	E	C	B	E	C	C
Approach Vol, veh/h		93			1153			950			1249	
Approach Delay, s/veh		59.7			36.7			25.7			39.5	
Approach LOS		E			D			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.5	35.8	31.3	13.8	13.7	47.6	8.0	37.1
Change Period (Y+Rc), s	4.5	6.5	4.5	5.8	4.5	6.5	4.5	5.8
Max Green Setting (Gmax), s	22.5	47.2	33.7	20.3	15.1	54.6	5.0	49.0
Max Q Clear Time (g_c+I1), s	20.5	25.3	25.1	5.1	9.7	20.8	4.6	20.7
Green Ext Time (p_c), s	0.4	4.0	1.8	0.1	0.1	4.6	0.0	1.9

Intersection Summary	
HCM 2010 Ctrl Delay	35.3
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	30	169	610	115	317	76	179	463	434	606	23
Future Volume (veh/h)	24	30	169	627	115	330	76	179	514	470	606	23
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1727	1727	1727	1624	1624	1624	1338	1338	1338	1624	1624	1624
Adj Flow Rate, veh/h	41	52	0	674	124	355	94	221	635	534	689	26
Adj No. of Lanes	1	2	1	2	1	1	1	2	1	2	2	1
Peak Hour Factor	0.58	0.58	0.58	0.93	0.93	0.93	0.81	0.81	0.81	0.88	0.88	0.88
Percent Heavy Veh, %	10	10	10	17	17	17	42	42	42	17	17	17
Cap, veh/h	51	201	90	729	443	614	109	918	687	516	1381	618
Arrive On Green	0.03	0.06	0.00	0.24	0.27	0.27	0.09	0.36	0.36	0.17	0.45	0.45
Sat Flow, veh/h	1645	3282	1468	3000	1624	1380	1274	2542	1137	3000	3085	1380
Grp Volume(v), veh/h	41	52	0	674	124	355	94	221	635	534	689	26
Grp Sat Flow(s),veh/h/ln	1645	1641	1468	1500	1624	1380	1274	1271	1137	1500	1543	1380
Q Serve(g_s), s	3.2	2.0	0.0	28.7	7.9	25.1	9.5	8.0	47.2	22.5	20.8	1.4
Cycle Q Clear(g_c), s	3.2	2.0	0.0	28.7	7.9	25.1	9.5	8.0	47.2	22.5	20.8	1.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	51	201	90	729	443	614	109	918	687	516	1381	618
V/C Ratio(X)	0.80	0.26	0.00	0.92	0.28	0.58	0.86	0.24	0.92	1.03	0.50	0.04
Avail Cap(c_a), veh/h	63	484	217	796	609	755	147	918	687	516	1381	618
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	63.0	58.5	0.0	48.3	37.4	27.1	59.0	29.2	23.2	54.1	25.7	20.3
Incr Delay (d2), s/veh	43.8	0.7	0.0	15.8	0.3	0.9	30.0	0.1	18.4	48.7	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.9	0.0	13.5	3.6	9.7	4.3	2.8	23.9	12.7	8.9	0.5
LnGrp Delay(d),s/veh	106.7	59.2	0.0	64.1	37.7	28.0	89.0	29.4	41.6	102.9	26.0	20.4
LnGrp LOS	F	E		E	D	C	F	C	D	F	C	C
Approach Vol, veh/h		93			1153			950			1249	
Approach Delay, s/veh		80.2			50.1			43.5			58.7	
Approach LOS		F			D			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	27.0	53.7	36.3	13.8	15.7	65.0	8.6	41.5
Change Period (Y+Rc), s	4.5	6.5	4.5	5.8	4.5	6.5	4.5	5.8
Max Green Setting (Gmax), s	22.5	47.2	34.7	19.3	15.1	54.6	5.0	49.0
Max Q Clear Time (g_c+I1), s	24.5	49.2	30.7	4.0	11.5	22.8	5.2	27.1
Green Ext Time (p_c), s	0.0	0.0	1.1	0.1	0.1	4.5	0.0	1.8

Intersection Summary	
HCM 2010 Ctrl Delay	52.2
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	101	48	45	27	596	40	135	169	93	129	131	307
Future Volume (veh/h)	101	135	45	27	626	50	135	169	93	158	131	307
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1267	1267	1267	1827	1827	1827	1166	1166	1166	1667	1667	1667
Adj Flow Rate, veh/h	133	178	59	32	745	60	201	252	139	205	170	399
Adj No. of Lanes	1	1	1	1	2	1	1	1	1	1	1	1
Peak Hour Factor	0.76	0.76	0.76	0.84	0.84	0.84	0.67	0.67	0.67	0.77	0.77	0.77
Percent Heavy Veh, %	50	50	50	4	4	4	63	63	63	14	14	14
Cap, veh/h	132	427	363	50	890	398	185	362	308	201	451	539
Arrive On Green	0.11	0.34	0.34	0.03	0.26	0.26	0.17	0.31	0.31	0.13	0.27	0.27
Sat Flow, veh/h	1206	1267	1077	1740	3471	1553	1110	1166	991	1587	1667	1417
Grp Volume(v), veh/h	133	178	59	32	745	60	201	252	139	205	170	399
Grp Sat Flow(s),veh/h/ln	1206	1267	1077	1740	1736	1553	1110	1166	991	1587	1667	1417
Q Serve(g_s), s	11.5	11.4	4.0	1.9	21.3	3.1	17.5	19.9	11.8	13.3	8.7	25.5
Cycle Q Clear(g_c), s	11.5	11.4	4.0	1.9	21.3	3.1	17.5	19.9	11.8	13.3	8.7	25.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	132	427	363	50	890	398	185	362	308	201	451	539
V/C Ratio(X)	1.01	0.42	0.16	0.64	0.84	0.15	1.09	0.70	0.45	1.02	0.38	0.74
Avail Cap(c_a), veh/h	132	472	401	106	1125	503	185	396	336	201	499	579
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.7	26.8	24.4	50.4	36.9	30.2	43.7	31.8	29.0	45.8	31.1	28.0
Incr Delay (d2), s/veh	79.8	0.6	0.2	12.6	4.6	0.2	90.8	4.7	1.0	68.4	0.5	4.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.8	4.0	1.2	1.1	10.8	1.4	10.0	6.9	3.3	9.6	4.1	10.7
LnGrp Delay(d),s/veh	126.6	27.5	24.6	63.0	41.5	30.3	134.5	36.5	30.0	114.4	31.6	32.7
LnGrp LOS	F	C	C	E	D	C	F	D	C	F	C	C
Approach Vol, veh/h		370			837			592			774	
Approach Delay, s/veh		62.6			41.5			68.3			54.1	
Approach LOS		E			D			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.8	38.4	7.5	41.2	22.0	34.2	16.0	32.7
Change Period (Y+Rc), s	4.5	5.8	4.5	5.8	4.5	5.8	4.5	5.8
Max Green Setting (Gmax), s	13.3	35.6	6.4	39.1	17.5	31.4	11.5	34.0
Max Q Clear Time (g_c+I1), s	15.3	21.9	3.9	13.4	19.5	27.5	13.5	23.3
Green Ext Time (p_c), s	0.0	1.6	0.0	1.1	0.0	0.9	0.0	3.6

Intersection Summary	
HCM 2010 Ctrl Delay	54.5
HCM 2010 LOS	D

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	87	161	729	358	272	562
Future Volume (veh/h)	88	162	735	358	272	568
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1681	1681	1845	1845	1845	1845
Adj Flow Rate, veh/h	124	228	808	393	289	604
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.71	0.71	0.91	0.91	0.94	0.94
Percent Heavy Veh, %	13	13	3	3	3	3
Cap, veh/h	180	851	848	1424	428	540
Arrive On Green	0.11	0.11	0.48	0.77	0.23	0.23
Sat Flow, veh/h	1601	1429	1757	1845	1845	1568
Grp Volume(v), veh/h	124	228	808	393	289	604
Grp Sat Flow(s),veh/h/ln	1601	1429	1757	1845	1845	1568
Q Serve(g_s), s	5.8	6.0	34.4	4.8	11.1	18.1
Cycle Q Clear(g_c), s	5.8	6.0	34.4	4.8	11.1	18.1
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	180	851	848	1424	428	540
V/C Ratio(X)	0.69	0.27	0.95	0.28	0.68	1.12
Avail Cap(c_a), veh/h	369	1019	909	1488	428	540
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.3	7.6	19.3	2.6	27.3	22.7
Incr Delay (d2), s/veh	4.6	0.2	18.8	0.1	4.2	75.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	7.0	20.8	2.4	6.2	22.9
LnGrp Delay(d),s/veh	37.9	7.8	38.1	2.7	31.5	98.3
LnGrp LOS	D	A	D	A	C	F
Approach Vol, veh/h	352			1201	893	
Approach Delay, s/veh	18.4			26.5	76.7	
Approach LOS	B			C	E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		64.8		13.3	42.2	22.6		
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5		
Max Green Setting (Gmax), s		63.0		18.0	40.4	18.1		
Max Q Clear Time (g_c+I1), s		6.8		8.0	36.4	20.1		
Green Ext Time (p_c), s		2.6		0.8	1.3	0.0		

Intersection Summary		
HCM 2010 Ctrl Delay		43.7
HCM 2010 LOS		D

Intersection	
Int Delay, s/veh	16.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	674	15	6	335	7
Future Vol, veh/h	10	680	15	6	336	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	75	75	85	85
Heavy Vehicles, %	5	5	11	11	6	6
Mvmt Flow	11	782	20	8	395	8

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	822	24	0	0	28	0
Stage 1	24	-	-	-	-	-
Stage 2	798	-	-	-	-	-
Critical Hdwy	6.45	6.25	-	-	4.16	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	-	-	2.254	-
Pot Cap-1 Maneuver	340	1044	-	-	1560	-
Stage 1	991	-	-	-	-	-
Stage 2	438	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	254	1044	-	-	1560	-
Mov Cap-2 Maneuver	254	-	-	-	-	-
Stage 1	991	-	-	-	-	-
Stage 2	327	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	20.9	0	7.9
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	999	1560	-
HCM Lane V/C Ratio	-	-	0.794	0.253	-
HCM Control Delay (s)	-	-	20.9	8.1	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	8.6	1	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	132	118	178	169	54	138	186	31	61	278	12
Future Volume (veh/h)	9	132	118	178	171	54	139	186	31	61	278	15
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1776	1776	1900	1881	1881	1900	1810	1810	1900	1776	1776	1900
Adj Flow Rate, veh/h	11	157	140	202	194	61	164	219	36	69	316	17
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.84	0.84	0.84	0.88	0.88	0.88	0.85	0.85	0.85	0.88	0.88	0.88
Percent Heavy Veh, %	7	7	7	1	1	1	5	5	5	7	7	7
Cap, veh/h	24	189	169	249	472	148	205	440	72	96	381	20
Arrive On Green	0.01	0.22	0.22	0.14	0.34	0.34	0.12	0.29	0.29	0.06	0.23	0.23
Sat Flow, veh/h	1691	867	773	1792	1373	432	1723	1516	249	1691	1670	90
Grp Volume(v), veh/h	11	0	297	202	0	255	164	0	255	69	0	333
Grp Sat Flow(s),veh/h/ln	1691	0	1639	1792	0	1805	1723	0	1766	1691	0	1760
Q Serve(g_s), s	0.4	0.0	10.5	6.7	0.0	6.6	5.6	0.0	7.3	2.4	0.0	11.0
Cycle Q Clear(g_c), s	0.4	0.0	10.5	6.7	0.0	6.6	5.6	0.0	7.3	2.4	0.0	11.0
Prop In Lane	1.00		0.47	1.00		0.24	1.00		0.14	1.00		0.05
Lane Grp Cap(c), veh/h	24	0	358	249	0	620	205	0	512	96	0	401
V/C Ratio(X)	0.47	0.00	0.83	0.81	0.00	0.41	0.80	0.00	0.50	0.72	0.00	0.83
Avail Cap(c_a), veh/h	139	0	485	309	0	697	269	0	609	208	0	549
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.8	0.0	22.7	25.4	0.0	15.3	26.1	0.0	17.9	28.2	0.0	22.4
Incr Delay (d2), s/veh	13.7	0.0	8.7	12.3	0.0	0.4	12.1	0.0	0.7	9.8	0.0	7.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	5.6	4.1	0.0	3.3	3.4	0.0	3.6	1.4	0.0	6.1
LnGrp Delay(d),s/veh	43.4	0.0	31.4	37.7	0.0	15.7	38.2	0.0	18.7	38.0	0.0	30.0
LnGrp LOS	D		C	D		B	D		B	D		C
Approach Vol, veh/h		308			457			419			402	
Approach Delay, s/veh		31.8			25.4			26.3			31.4	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.9	22.2	13.0	17.8	11.7	18.4	5.3	25.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	7.5	21.0	10.5	18.0	9.5	19.0	5.0	23.5
Max Q Clear Time (g_c+I1), s	4.4	9.3	8.7	12.5	7.6	13.0	2.4	8.6
Green Ext Time (p_c), s	0.0	1.0	0.1	0.8	0.1	0.9	0.0	1.2

Intersection Summary	
HCM 2010 Ctrl Delay	28.4
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	388	70	857	859	84	39	109	413	35	198	63
Future Volume (veh/h)	40	388	72	860	859	84	39	109	414	35	199	63
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1696	1696	1696	1863	1863	1863	1881	1881	1881	1792	1792	1792
Adj Flow Rate, veh/h	43	422	0	1089	1087	0	60	168	0	50	284	0
Adj No. of Lanes	2	3	1	2	3	1	2	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.79	0.79	0.79	0.65	0.65	0.65	0.70	0.70	0.70
Percent Heavy Veh, %	12	12	12	2	2	2	1	1	1	6	6	6
Cap, veh/h	126	699	218	1302	2487	774	170	487	218	146	448	201
Arrive On Green	0.04	0.15	0.00	0.38	0.49	0.00	0.05	0.14	0.00	0.04	0.13	0.00
Sat Flow, veh/h	3134	4631	1442	3442	5085	1583	3476	3574	1599	3312	3406	1524
Grp Volume(v), veh/h	43	422	0	1089	1087	0	60	168	0	50	284	0
Grp Sat Flow(s),veh/h/ln	1567	1544	1442	1721	1695	1583	1738	1787	1599	1656	1703	1524
Q Serve(g_s), s	0.9	6.0	0.0	20.4	9.9	0.0	1.2	3.0	0.0	1.0	5.6	0.0
Cycle Q Clear(g_c), s	0.9	6.0	0.0	20.4	9.9	0.0	1.2	3.0	0.0	1.0	5.6	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	126	699	218	1302	2487	774	170	487	218	146	448	201
V/C Ratio(X)	0.34	0.60	0.00	0.84	0.44	0.00	0.35	0.34	0.00	0.34	0.63	0.00
Avail Cap(c_a), veh/h	252	2283	711	2254	5429	1690	245	2160	966	233	2058	921
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	33.2	28.2	0.0	20.1	11.8	0.0	32.7	27.8	0.0	32.9	29.2	0.0
Incr Delay (d2), s/veh	1.6	0.8	0.0	1.5	0.1	0.0	1.2	0.4	0.0	1.4	1.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	2.6	0.0	10.0	4.6	0.0	0.6	1.5	0.0	0.5	2.7	0.0
LnGrp Delay(d),s/veh	34.7	29.0	0.0	21.6	11.9	0.0	33.9	28.2	0.0	34.3	30.7	0.0
LnGrp LOS	C	C		C	B		C	C		C	C	
Approach Vol, veh/h		465			2176			228			334	
Approach Delay, s/veh		29.5			16.7			29.7			31.2	
Approach LOS		C			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.6	15.5	31.4	16.5	8.0	15.1	7.4	40.5
Change Period (Y+Rc), s	4.5	5.8	4.5	5.8	4.5	5.8	4.5	5.8
Max Green Setting (Gmax), s	5.0	42.9	46.5	35.0	5.0	42.9	5.7	75.8
Max Q Clear Time (g_c+I1), s	3.0	5.0	22.4	8.0	3.2	7.6	2.9	11.9
Green Ext Time (p_c), s	0.0	1.0	4.4	2.7	0.0	1.7	0.0	9.0

Intersection Summary	
HCM 2010 Ctrl Delay	21.0
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	2.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	0	0	0
Future Vol, veh/h	0	36	8	4	12	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	39	9	4	13	2

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	39	0	42	20
Stage 1	-	-	-	-	20	-
Stage 2	-	-	-	-	22	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1571	-	969	1058
Stage 1	-	-	-	-	1003	-
Stage 2	-	-	-	-	1001	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1571	-	963	1058
Mov Cap-2 Maneuver	-	-	-	-	963	-
Stage 1	-	-	-	-	1003	-
Stage 2	-	-	-	-	995	-

Approach	EB	WB	NB
HCM Control Delay, s	0	4.9	8.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	976	-	-	1571	-
HCM Lane V/C Ratio	0.016	-	-	0.006	-
HCM Control Delay (s)	8.7	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

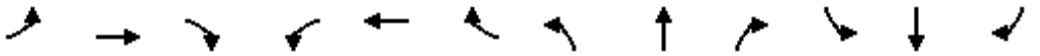
Intersection	
Int Delay, s/veh	1.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	0	0	0
Future Vol, veh/h	36	80	4	12	28	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	39	87	4	13	30	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	126	0	104	83
Stage 1	-	-	-	-	83	-
Stage 2	-	-	-	-	21	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1460	-	894	976
Stage 1	-	-	-	-	940	-
Stage 2	-	-	-	-	1002	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1460	-	891	976
Mov Cap-2 Maneuver	-	-	-	-	891	-
Stage 1	-	-	-	-	940	-
Stage 2	-	-	-	-	999	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.9	9.2
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	891	-	-	1460	-
HCM Lane V/C Ratio	0.034	-	-	0.003	-
HCM Control Delay (s)	9.2	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	41	56	81	618	32	762	46	442	463	542	211	25
v/c Ratio	0.12	0.35	0.28	0.81	0.09	1.20	0.37	0.63	0.30	1.06	0.22	0.05
Control Delay	47.5	56.4	2.5	45.7	32.5	127.8	60.9	42.2	1.4	100.0	26.8	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.5	56.4	2.5	45.7	32.5	127.8	60.9	42.2	1.4	100.0	26.8	0.2
Queue Length 50th (ft)	15	35	0	186	20	~660	29	142	0	~198	53	0
Queue Length 95th (ft)	#70	73	0	314	41	#613	85	218	21	#461	96	0
Internal Link Dist (ft)		1694			1451			380			1029	
Turn Bay Length (ft)	105			260		355	225		235	325		265
Base Capacity (vph)	337	254	354	997	681	634	160	1560	1747	510	1528	736
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.22	0.23	0.62	0.05	1.20	0.29	0.28	0.27	1.06	0.14	0.03

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	39	57	457	26	590	43	411	412	469	188	22
Future Volume (veh/h)	29	39	57	507	26	625	43	411	431	482	188	22
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1743	1743	1439	1439	1439	1727	1727	1727	1397	1397	1397
Adj Flow Rate, veh/h	41	56	0	618	32	762	46	442	463	542	211	25
Adj No. of Lanes	1	1	1	2	1	1	1	2	2	2	2	1
Peak Hour Factor	0.70	0.70	0.70	0.82	0.82	0.82	0.93	0.93	0.93	0.89	0.89	0.89
Percent Heavy Veh, %	9	9	9	32	32	32	10	10	10	36	36	36
Cap, veh/h	52	338	287	685	604	728	57	625	1156	453	879	393
Arrive On Green	0.03	0.19	0.00	0.26	0.42	0.42	0.03	0.19	0.19	0.18	0.33	0.33
Sat Flow, veh/h	1660	1743	1482	2659	1439	1223	1645	3282	2576	2581	2654	1188
Grp Volume(v), veh/h	41	56	0	618	32	762	46	442	463	542	211	25
Grp Sat Flow(s),veh/h/ln	1660	1743	1482	1330	1439	1223	1645	1641	1288	1291	1327	1188
Q Serve(g_s), s	2.9	3.1	0.0	26.2	1.5	49.0	3.2	14.7	14.1	20.5	6.7	1.7
Cycle Q Clear(g_c), s	2.9	3.1	0.0	26.2	1.5	49.0	3.2	14.7	14.1	20.5	6.7	1.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	52	338	287	685	604	728	57	625	1156	453	879	393
V/C Ratio(X)	0.78	0.17	0.00	0.90	0.05	1.05	0.80	0.71	0.40	1.20	0.24	0.06
Avail Cap(c_a), veh/h	71	338	287	886	604	728	142	1384	1751	453	1356	606
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.1	39.2	0.0	41.9	20.1	23.6	55.9	44.2	21.7	48.1	28.4	26.7
Incr Delay (d2), s/veh	31.7	0.2	0.0	10.3	0.0	46.1	21.8	1.5	0.2	107.7	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	1.5	0.0	10.6	0.6	32.6	1.8	6.8	5.0	14.0	2.5	0.6
LnGrp Delay(d),s/veh	87.8	39.4	0.0	52.2	20.1	69.7	77.7	45.7	21.9	155.8	28.5	26.7
LnGrp LOS	F	D		D	C	F	E	D	C	F	C	C
Approach Vol, veh/h		97			1412			951			778	
Approach Delay, s/veh		59.9			60.9			35.7			117.2	
Approach LOS		E			E			D			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.0	28.7	34.6	28.4	8.6	45.1	8.2	54.8
Change Period (Y+Rc), s	4.5	6.5	4.5	5.8	4.5	6.5	4.5	5.8
Max Green Setting (Gmax), s	20.5	49.2	38.9	15.1	10.1	59.6	5.0	49.0
Max Q Clear Time (g_c+I1), s	22.5	16.7	28.2	5.1	5.2	8.7	4.9	51.0
Green Ext Time (p_c), s	0.0	4.7	1.8	0.1	0.0	1.3	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	67.0
HCM 2010 LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	39	57	457	26	590	43	411	412	469	188	22
Future Volume (veh/h)	29	39	57	507	26	625	43	411	431	482	188	22
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1743	1743	1439	1439	1439	1727	1727	1727	1397	1397	1397
Adj Flow Rate, veh/h	41	56	0	618	32	762	46	442	463	542	211	25
Adj No. of Lanes	1	2	1	2	1	1	1	2	1	2	2	1
Peak Hour Factor	0.70	0.70	0.70	0.82	0.82	0.82	0.93	0.93	0.93	0.89	0.89	0.89
Percent Heavy Veh, %	9	9	9	32	32	32	10	10	10	36	36	36
Cap, veh/h	51	513	230	673	543	655	58	886	767	408	1042	466
Arrive On Green	0.03	0.16	0.00	0.25	0.38	0.38	0.04	0.27	0.27	0.16	0.39	0.39
Sat Flow, veh/h	1660	3312	1482	2659	1439	1223	1645	3282	1465	2581	2654	1188
Grp Volume(v), veh/h	41	56	0	618	32	762	46	442	463	542	211	25
Grp Sat Flow(s),veh/h/ln	1660	1656	1482	1330	1439	1223	1645	1641	1465	1291	1327	1188
Q Serve(g_s), s	3.2	1.9	0.0	29.4	1.8	49.0	3.6	14.8	28.6	20.5	6.8	1.7
Cycle Q Clear(g_c), s	3.2	1.9	0.0	29.4	1.8	49.0	3.6	14.8	28.6	20.5	6.8	1.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	51	513	230	673	543	655	58	886	767	408	1042	466
V/C Ratio(X)	0.80	0.11	0.00	0.92	0.06	1.16	0.80	0.50	0.60	1.33	0.20	0.05
Avail Cap(c_a), veh/h	64	513	230	797	543	655	128	1244	927	408	1218	545
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	62.5	47.1	0.0	47.2	25.7	30.2	62.2	40.0	21.6	54.7	26.0	24.5
Incr Delay (d2), s/veh	42.1	0.1	0.0	14.0	0.0	89.9	21.5	0.4	0.8	164.5	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.9	0.0	12.1	0.7	39.7	2.0	6.7	11.7	16.6	2.5	0.6
LnGrp Delay(d),s/veh	104.6	47.2	0.0	61.2	25.8	120.1	83.6	40.4	22.4	219.2	26.1	24.5
LnGrp LOS	F	D		E	C	F	F	D	C	F	C	C
Approach Vol, veh/h		97			1412			951			778	
Approach Delay, s/veh		71.5			92.2			33.7			160.6	
Approach LOS		E			F			C			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.0	41.5	37.4	25.9	9.1	57.5	8.5	54.8
Change Period (Y+Rc), s	4.5	6.5	4.5	5.8	4.5	6.5	4.5	5.8
Max Green Setting (Gmax), s	20.5	49.2	38.9	15.1	10.1	59.6	5.0	49.0
Max Q Clear Time (g_c+I1), s	22.5	30.6	31.4	3.9	5.6	8.8	5.2	51.0
Green Ext Time (p_c), s	0.0	4.0	1.5	0.1	0.0	1.3	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	90.8
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	272	384	138	102	71	135	29	128	45	49	170	113
Future Volume (veh/h)	272	416	138	102	156	162	29	128	45	61	170	113
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1652	1652	1652	1727	1727	1727	1624	1624	1624	1450	1450	1450
Adj Flow Rate, veh/h	363	555	184	132	203	210	31	136	48	68	189	126
Adj No. of Lanes	1	1	1	1	2	1	1	1	1	1	1	1
Peak Hour Factor	0.75	0.75	0.75	0.77	0.77	0.77	0.94	0.94	0.94	0.90	0.90	0.90
Percent Heavy Veh, %	15	15	15	10	10	10	17	17	17	31	31	31
Cap, veh/h	410	651	553	166	768	344	50	240	204	79	250	534
Arrive On Green	0.26	0.39	0.39	0.10	0.23	0.23	0.03	0.15	0.15	0.06	0.17	0.17
Sat Flow, veh/h	1573	1652	1404	1645	3282	1468	1547	1624	1380	1381	1450	1233
Grp Volume(v), veh/h	363	555	184	132	203	210	31	136	48	68	189	126
Grp Sat Flow(s),veh/h/ln	1573	1652	1404	1645	1641	1468	1547	1624	1380	1381	1450	1233
Q Serve(g_s), s	15.2	21.0	6.3	5.4	3.5	8.8	1.4	5.3	2.1	3.3	8.5	4.4
Cycle Q Clear(g_c), s	15.2	21.0	6.3	5.4	3.5	8.8	1.4	5.3	2.1	3.3	8.5	4.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	410	651	553	166	768	344	50	240	204	79	250	534
V/C Ratio(X)	0.88	0.85	0.33	0.80	0.26	0.61	0.62	0.57	0.24	0.86	0.76	0.24
Avail Cap(c_a), veh/h	571	1108	942	310	1627	728	113	573	487	228	645	870
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.4	19.0	14.5	30.1	21.4	23.5	32.7	27.2	25.8	32.0	27.0	12.3
Incr Delay (d2), s/veh	11.7	3.3	0.3	8.4	0.2	1.8	11.6	2.1	0.6	22.4	4.6	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.9	10.2	2.5	2.8	1.6	3.7	0.7	2.5	0.8	1.8	3.7	1.5
LnGrp Delay(d),s/veh	36.1	22.3	14.8	38.6	21.6	25.2	44.4	29.3	26.4	54.5	31.6	12.5
LnGrp LOS	D	C	B	D	C	C	D	C	C	D	C	B
Approach Vol, veh/h		1102			545			215			383	
Approach Delay, s/veh		25.6			27.1			30.8			29.4	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.4	15.9	11.4	32.8	6.7	17.6	22.4	21.8
Change Period (Y+Rc), s	4.5	5.8	4.5	5.8	4.5	5.8	4.5	5.8
Max Green Setting (Gmax), s	11.3	24.2	12.9	46.0	5.0	30.5	24.9	34.0
Max Q Clear Time (g_c+I1), s	5.3	7.3	7.4	23.0	3.4	10.5	17.2	10.8
Green Ext Time (p_c), s	0.1	0.7	0.1	4.0	0.0	1.3	0.7	1.8

Intersection Summary	
HCM 2010 Ctrl Delay	27.1
HCM 2010 LOS	C

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	449	822	253	177	250	128
Future Volume (veh/h)	456	829	255	177	250	130
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1863	1863	1881	1881
Adj Flow Rate, veh/h	563	1023	293	203	287	149
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.81	0.81	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	1	1	2	2	1	1
Cap, veh/h	762	993	348	837	359	985
Arrive On Green	0.43	0.43	0.20	0.45	0.19	0.19
Sat Flow, veh/h	1792	1599	1774	1863	1881	1599
Grp Volume(v), veh/h	563	1023	293	203	287	149
Grp Sat Flow(s),veh/h/ln	1792	1599	1774	1863	1881	1599
Q Serve(g_s), s	18.9	30.5	11.4	4.8	10.5	2.8
Cycle Q Clear(g_c), s	18.9	30.5	11.4	4.8	10.5	2.8
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	762	993	348	837	359	985
V/C Ratio(X)	0.74	1.03	0.84	0.24	0.80	0.15
Avail Cap(c_a), veh/h	762	993	655	1311	511	1114
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.3	13.6	27.8	12.2	27.7	5.8
Incr Delay (d2), s/veh	3.8	36.5	5.5	0.1	5.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.0	37.2	6.1	2.5	6.0	2.6
LnGrp Delay(d),s/veh	21.1	50.1	33.3	12.4	33.6	5.9
LnGrp LOS	C	F	C	B	C	A
Approach Vol, veh/h	1586			496	436	
Approach Delay, s/veh	39.8			24.7	24.2	
Approach LOS	D			C	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		36.8		35.0	18.6	18.2		
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5		
Max Green Setting (Gmax), s		50.5		30.5	26.5	19.5		
Max Q Clear Time (g_c+I1), s		6.8		32.5	13.4	12.5		
Green Ext Time (p_c), s		1.2		0.0	0.7	1.2		

Intersection Summary	
HCM 2010 Ctrl Delay	34.1
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	11.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	3	321	7	9	746	19
Future Vol, veh/h	3	323	7	9	753	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	81	81	45	45	80	80
Heavy Vehicles, %	2	2	2	2	1	1
Mvmt Flow	4	399	16	20	941	24

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1932	26	0	0	36	0
Stage 1	26	-	-	-	-	-
Stage 2	1906	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.11	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.209	-
Pot Cap-1 Maneuver	73	1050	-	-	1581	-
Stage 1	997	-	-	-	-	-
Stage 2	128	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	29	1050	-	-	1581	-
Mov Cap-2 Maneuver	29	-	-	-	-	-
Stage 1	997	-	-	-	-	-
Stage 2	51	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.1	0	10.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	793	1581	-
HCM Lane V/C Ratio	-	-	0.508	0.595	-
HCM Control Delay (s)	-	-	14.1	10.6	0
HCM Lane LOS	-	-	B	B	A
HCM 95th %tile Q(veh)	-	-	2.9	4.2	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	241	80	64	154	87	76	274	81	134	204	35
Future Volume (veh/h)	38	243	81	64	155	87	76	274	81	134	204	36
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1881	1881	1900	1881	1881	1900
Adj Flow Rate, veh/h	44	279	93	74	178	100	84	301	89	147	224	40
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	80	339	113	111	303	170	119	364	108	166	446	80
Arrive On Green	0.04	0.25	0.25	0.06	0.27	0.27	0.07	0.26	0.26	0.09	0.29	0.29
Sat Flow, veh/h	1792	1351	450	1792	1133	636	1792	1396	413	1792	1555	278
Grp Volume(v), veh/h	44	0	372	74	0	278	84	0	390	147	0	264
Grp Sat Flow(s),veh/h/ln	1792	0	1802	1792	0	1769	1792	0	1808	1792	0	1832
Q Serve(g_s), s	1.3	0.0	10.5	2.2	0.0	7.4	2.5	0.0	11.0	4.4	0.0	6.5
Cycle Q Clear(g_c), s	1.3	0.0	10.5	2.2	0.0	7.4	2.5	0.0	11.0	4.4	0.0	6.5
Prop In Lane	1.00		0.25	1.00		0.36	1.00		0.23	1.00		0.15
Lane Grp Cap(c), veh/h	80	0	451	111	0	474	119	0	471	166	0	526
V/C Ratio(X)	0.55	0.00	0.82	0.66	0.00	0.59	0.71	0.00	0.83	0.88	0.00	0.50
Avail Cap(c_a), veh/h	166	0	602	166	0	591	193	0	637	166	0	619
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.2	0.0	19.1	24.7	0.0	17.1	24.6	0.0	18.8	24.2	0.0	16.0
Incr Delay (d2), s/veh	5.7	0.0	6.9	6.6	0.0	1.2	7.4	0.0	6.6	38.9	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	6.0	1.3	0.0	3.7	1.5	0.0	6.3	4.0	0.0	3.3
LnGrp Delay(d),s/veh	30.9	0.0	26.0	31.4	0.0	18.3	32.1	0.0	25.4	63.0	0.0	16.7
LnGrp LOS	C		C	C		B	C		C	E		B
Approach Vol, veh/h		416			352			474			411	
Approach Delay, s/veh		26.5			21.0			26.6			33.3	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.5	18.6	7.8	18.0	8.1	20.0	6.9	18.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	19.0	5.0	18.0	5.8	18.2	5.0	18.0
Max Q Clear Time (g_c+I1), s	6.4	13.0	4.2	12.5	4.5	8.5	3.3	9.4
Green Ext Time (p_c), s	0.0	1.1	0.0	1.0	0.0	0.9	0.0	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	27.1
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	139	1439	116	266	486	82	42	114	272	61	123	27
Future Volume (veh/h)	139	1439	117	267	486	82	44	115	276	61	123	27
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1881	1881	1881	1900	1900	1900	1792	1792	1792
Adj Flow Rate, veh/h	151	1564	0	287	523	0	52	137	0	69	140	0
Adj No. of Lanes	2	3	1	2	3	1	2	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.84	0.84	0.84	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	1	1	1	0	0	0	6	6	6
Cap, veh/h	241	2153	670	337	2312	720	162	429	192	179	431	193
Arrive On Green	0.07	0.42	0.00	0.10	0.45	0.00	0.05	0.12	0.00	0.05	0.13	0.00
Sat Flow, veh/h	3442	5085	1583	3476	5136	1599	3510	3610	1615	3312	3406	1524
Grp Volume(v), veh/h	151	1564	0	287	523	0	52	137	0	69	140	0
Grp Sat Flow(s),veh/h/ln	1721	1695	1583	1738	1712	1599	1755	1805	1615	1656	1703	1524
Q Serve(g_s), s	2.9	17.2	0.0	5.5	4.2	0.0	1.0	2.3	0.0	1.4	2.5	0.0
Cycle Q Clear(g_c), s	2.9	17.2	0.0	5.5	4.2	0.0	1.0	2.3	0.0	1.4	2.5	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	241	2153	670	337	2312	720	162	429	192	179	431	193
V/C Ratio(X)	0.63	0.73	0.00	0.85	0.23	0.00	0.32	0.32	0.00	0.39	0.32	0.00
Avail Cap(c_a), veh/h	282	2652	826	337	2754	858	261	2307	1032	247	2177	974
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	30.4	16.1	0.0	29.8	11.3	0.0	31.0	27.1	0.0	30.7	26.7	0.0
Incr Delay (d2), s/veh	3.3	0.8	0.0	18.6	0.0	0.0	1.1	0.4	0.0	1.4	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	8.1	0.0	3.5	2.0	0.0	0.5	1.2	0.0	0.6	1.2	0.0
LnGrp Delay(d),s/veh	33.7	16.9	0.0	48.4	11.3	0.0	32.1	27.5	0.0	32.0	27.1	0.0
LnGrp LOS	C	B		D	B		C	C		C	C	
Approach Vol, veh/h		1715			810			189			209	
Approach Delay, s/veh		18.4			24.5			28.8			28.8	
Approach LOS		B			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.1	13.8	11.0	34.2	7.6	14.3	9.2	36.0
Change Period (Y+Rc), s	4.5	5.8	4.5	5.8	4.5	5.8	4.5	5.8
Max Green Setting (Gmax), s	5.6	42.9	6.5	35.0	5.0	42.9	5.5	36.0
Max Q Clear Time (g_c+I1), s	3.4	4.3	7.5	19.2	3.0	4.5	4.9	6.2
Green Ext Time (p_c), s	0.0	0.8	0.0	9.2	0.0	0.8	0.0	3.4

Intersection Summary		
HCM 2010 Ctrl Delay		21.5
HCM 2010 LOS		C

Intersection	
Int Delay, s/veh	6.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	0	0	0
Future Vol, veh/h	4	14	4	0	34	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	15	4	0	37	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	19	0	20	12
Stage 1	-	-	-	-	12	-
Stage 2	-	-	-	-	8	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1597	-	997	1069
Stage 1	-	-	-	-	1011	-
Stage 2	-	-	-	-	1015	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1597	-	994	1069
Mov Cap-2 Maneuver	-	-	-	-	994	-
Stage 1	-	-	-	-	1011	-
Stage 2	-	-	-	-	1012	-

Approach	EB	WB	NB
HCM Control Delay, s	0	7.3	8.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1010	-	-	1597	-
HCM Lane V/C Ratio	0.047	-	-	0.003	-
HCM Control Delay (s)	8.7	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	4.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	0	0	0
Future Vol, veh/h	14	30	0	34	78	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	15	33	0	37	85	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	48	0	69	32
Stage 1	-	-	-	-	32	-
Stage 2	-	-	-	-	37	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1559	-	936	1042
Stage 1	-	-	-	-	991	-
Stage 2	-	-	-	-	985	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1559	-	936	1042
Mov Cap-2 Maneuver	-	-	-	-	936	-
Stage 1	-	-	-	-	991	-
Stage 2	-	-	-	-	985	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9.2
HCM LOS			A

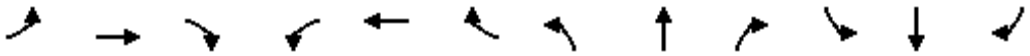
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	941	-	-	1559	-
HCM Lane V/C Ratio	0.095	-	-	-	-
HCM Control Delay (s)	9.2	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Appendix E ANALYSIS: CUMULATIVE NO PROJECT CONDITIONS

- LOS CALCULATION SHEETS & MITIGATED LOS
- SIGNAL WARRANTS

1: Patterson Pass Rd/International Pkwy & W Schulte Rd

Timing Plan: AM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	27	199	43	740	42	320	46	379	249	242	426	212
v/c Ratio	0.33	0.70	0.11	0.79	0.05	0.39	0.56	0.67	0.39	0.68	0.50	0.40
Control Delay	61.6	55.0	0.6	39.3	17.3	3.7	76.0	45.2	6.5	55.6	34.8	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.6	55.0	0.6	39.3	17.3	3.7	76.0	45.2	6.5	55.6	34.8	6.7
Queue Length 50th (ft)	18	126	0	227	16	0	31	125	0	81	131	0
Queue Length 95th (ft)	50	218	0	330	39	52	#93	179	35	#148	185	56
Internal Link Dist (ft)		1694			1451			380			1029	
Turn Bay Length (ft)	105			260		355	225		235	325		265
Base Capacity (vph)	82	337	426	1035	803	844	82	1441	1264	356	1676	846
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.59	0.10	0.71	0.05	0.38	0.56	0.26	0.20	0.68	0.25	0.25

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	183	40	681	39	294	42	349	229	223	392	195
Future Volume (veh/h)	25	183	40	681	39	294	42	349	229	223	392	195
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1727	1727	1727	1624	1624	1624	1583	1583	1583	1624	1624	1624
Adj Flow Rate, veh/h	27	199	0	740	42	320	46	379	249	242	426	212
Adj No. of Lanes	1	1	1	2	1	1	1	2	2	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	10	10	10	17	17	17	20	20	20	17	17	17
Cap, veh/h	47	250	212	870	659	560	61	558	440	321	778	348
Arrive On Green	0.03	0.14	0.00	0.29	0.41	0.41	0.04	0.19	0.19	0.11	0.25	0.25
Sat Flow, veh/h	1645	1727	1468	3000	1624	1380	1508	3008	2369	3000	3085	1380
Grp Volume(v), veh/h	27	199	0	740	42	320	46	379	249	242	426	212
Grp Sat Flow(s),veh/h/ln	1645	1727	1468	1500	1624	1380	1508	1504	1184	1500	1543	1380
Q Serve(g_s), s	1.3	8.7	0.0	18.1	1.2	14.0	2.4	9.2	7.5	6.1	9.3	10.6
Cycle Q Clear(g_c), s	1.3	8.7	0.0	18.1	1.2	14.0	2.4	9.2	7.5	6.1	9.3	10.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	47	250	212	870	659	560	61	558	440	321	778	348
V/C Ratio(X)	0.58	0.80	0.00	0.85	0.06	0.57	0.75	0.68	0.57	0.75	0.55	0.61
Avail Cap(c_a), veh/h	105	432	367	1327	1020	867	106	1844	1452	458	2145	959
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.4	32.3	0.0	26.1	14.1	17.9	37.0	29.6	28.9	33.8	25.3	25.8
Incr Delay (d2), s/veh	10.8	5.8	0.0	3.4	0.0	0.9	17.0	1.5	1.1	4.3	0.6	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	4.5	0.0	7.9	0.6	5.4	1.3	3.9	2.5	2.7	4.0	4.2
LnGrp Delay(d),s/veh	48.2	38.0	0.0	29.5	14.2	18.8	54.0	31.1	30.1	38.2	25.9	27.5
LnGrp LOS	D	D		C	B	B	D	C	C	D	C	C
Approach Vol, veh/h		226			1102			674			880	
Approach Delay, s/veh		39.2			25.8			32.2			29.7	
Approach LOS		D			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.8	21.0	27.1	17.1	7.7	26.2	6.7	37.5
Change Period (Y+Rc), s	4.5	6.5	4.5	5.8	4.5	6.5	4.5	5.8
Max Green Setting (Gmax), s	11.9	47.8	34.5	19.5	5.5	54.2	5.0	49.0
Max Q Clear Time (g_c+I1), s	8.1	11.2	20.1	10.7	4.4	12.6	3.3	16.0
Green Ext Time (p_c), s	0.3	3.3	2.5	0.6	0.0	3.3	0.0	1.3

Intersection Summary	
HCM 2010 Ctrl Delay	29.6
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	183	40	681	39	294	42	349	229	223	392	195
Future Volume (veh/h)	25	183	40	681	39	294	42	349	229	223	392	195
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1727	1727	1727	1624	1624	1624	1583	1583	1583	1624	1624	1624
Adj Flow Rate, veh/h	27	199	0	740	42	320	46	379	249	242	426	212
Adj No. of Lanes	1	2	1	2	1	1	1	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	10	10	10	17	17	17	20	20	20	17	17	17
Cap, veh/h	46	328	147	872	588	500	60	712	319	322	938	420
Arrive On Green	0.03	0.10	0.00	0.29	0.36	0.36	0.04	0.24	0.24	0.11	0.30	0.30
Sat Flow, veh/h	1645	3282	1468	3000	1624	1380	1508	3008	1346	3000	3085	1380
Grp Volume(v), veh/h	27	199	0	740	42	320	46	379	249	242	426	212
Grp Sat Flow(s),veh/h/ln	1645	1641	1468	1500	1624	1380	1508	1504	1346	1500	1543	1380
Q Serve(g_s), s	1.3	4.7	0.0	18.6	1.4	15.4	2.4	8.8	13.9	6.3	8.9	10.1
Cycle Q Clear(g_c), s	1.3	4.7	0.0	18.6	1.4	15.4	2.4	8.8	13.9	6.3	8.9	10.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	46	328	147	872	588	500	60	712	319	322	938	420
V/C Ratio(X)	0.58	0.61	0.00	0.85	0.07	0.64	0.76	0.53	0.78	0.75	0.45	0.51
Avail Cap(c_a), veh/h	103	610	273	1464	993	844	96	1726	772	513	2102	940
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.5	34.6	0.0	26.8	16.7	21.2	38.1	26.7	28.7	34.7	22.5	22.9
Incr Delay (d2), s/veh	11.0	1.8	0.0	2.5	0.1	1.4	17.8	0.6	4.2	3.6	0.3	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	2.2	0.0	8.0	0.6	6.1	1.3	3.7	5.5	2.7	3.8	3.9
LnGrp Delay(d),s/veh	49.5	36.4	0.0	29.3	16.8	22.6	55.9	27.3	32.8	38.3	22.9	23.9
LnGrp LOS	D	D		C	B	C	E	C	C	D	C	C
Approach Vol, veh/h		226			1102			674			880	
Approach Delay, s/veh		38.0			26.9			31.3			27.4	
Approach LOS		D			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.1	25.5	27.8	13.8	7.7	30.9	6.8	34.8
Change Period (Y+Rc), s	4.5	6.5	4.5	5.8	4.5	6.5	4.5	5.8
Max Green Setting (Gmax), s	13.7	46.0	39.1	14.9	5.1	54.6	5.0	49.0
Max Q Clear Time (g_c+I1), s	8.3	15.9	20.6	6.7	4.4	12.1	3.3	17.4
Green Ext Time (p_c), s	0.4	3.1	2.7	0.6	0.0	3.3	0.0	1.3

Intersection Summary	
HCM 2010 Ctrl Delay	28.9
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	180	140	30	100	560	180	70	200	50	60	120	60
Future Volume (veh/h)	180	140	30	100	560	180	70	200	50	60	120	60
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1583	1583	1583	1827	1827	1827	1583	1583	1900	1667	1667	1900
Adj Flow Rate, veh/h	196	152	33	109	609	196	76	217	54	65	130	65
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	20	20	20	4	4	4	20	20	20	14	14	14
Cap, veh/h	230	716	609	140	694	590	92	320	78	80	256	122
Arrive On Green	0.15	0.45	0.45	0.08	0.38	0.38	0.06	0.13	0.13	0.05	0.12	0.12
Sat Flow, veh/h	1508	1583	1346	1740	1827	1553	1508	2400	585	1587	2086	990
Grp Volume(v), veh/h	196	152	33	109	609	196	76	134	137	65	97	98
Grp Sat Flow(s),veh/h/ln	1508	1583	1346	1740	1827	1553	1508	1504	1480	1587	1583	1492
Q Serve(g_s), s	9.2	4.2	1.0	4.5	22.5	6.5	3.6	6.2	6.4	2.9	4.2	4.5
Cycle Q Clear(g_c), s	9.2	4.2	1.0	4.5	22.5	6.5	3.6	6.2	6.4	2.9	4.2	4.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.39	1.00		0.66
Lane Grp Cap(c), veh/h	230	716	609	140	694	590	92	200	197	80	194	183
V/C Ratio(X)	0.85	0.21	0.05	0.78	0.88	0.33	0.83	0.67	0.69	0.81	0.50	0.53
Avail Cap(c_a), veh/h	280	752	640	316	861	732	120	551	542	221	674	635
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.9	12.1	11.2	32.7	20.9	16.0	33.7	29.9	30.0	34.1	29.8	29.9
Incr Delay (d2), s/veh	18.5	0.1	0.0	8.9	8.7	0.3	29.3	3.8	4.3	17.6	2.0	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	1.8	0.4	2.5	13.0	2.8	2.2	2.8	2.9	1.7	1.9	2.0
LnGrp Delay(d),s/veh	48.4	12.2	11.2	41.7	29.6	16.3	63.0	33.8	34.4	51.7	31.7	32.3
LnGrp LOS	D	B	B	D	C	B	E	C	C	D	C	C
Approach Vol, veh/h		381			914			347			260	
Approach Delay, s/veh		30.7			28.2			40.4			36.9	
Approach LOS		C			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.2	15.5	10.3	38.6	8.9	14.7	15.6	33.4
Change Period (Y+Rc), s	4.5	5.8	4.5	5.8	4.5	5.8	4.5	5.8
Max Green Setting (Gmax), s	10.1	26.6	13.2	34.5	5.8	30.9	13.5	34.2
Max Q Clear Time (g_c+I1), s	11.2	8.4	6.5	6.2	5.6	6.5	11.2	24.5
Green Ext Time (p_c), s	0.0	1.3	0.1	0.9	0.0	1.0	0.1	3.1

Intersection Summary		
HCM 2010 Ctrl Delay		32.1
HCM 2010 LOS		C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	195	0	126	0	0	0	457	2338	0	0	1425	151
Future Volume (veh/h)	195	0	126	0	0	0	457	2338	0	0	1425	151
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1681	1681	1900	1863	1900	1845	1845	1863	1863	1845	1845
Adj Flow Rate, veh/h	212	0	137	0	0	0	497	2541	0	0	1549	164
Adj No. of Lanes	0	1	1	0	1	0	1	3	1	1	3	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	13	2	13	2	2	2	3	3	2	2	3	3
Cap, veh/h	249	0	223	0	2	0	540	3784	1190	2	2001	623
Arrive On Green	0.16	0.00	0.16	0.00	0.00	0.00	0.31	0.75	0.00	0.00	0.40	0.40
Sat Flow, veh/h	1601	0	1429	0	1863	0	1757	5036	1583	1774	5036	1568
Grp Volume(v), veh/h	212	0	137	0	0	0	497	2541	0	0	1549	164
Grp Sat Flow(s),veh/h/ln	1601	0	1429	0	1863	0	1757	1679	1583	1774	1679	1568
Q Serve(g_s), s	12.5	0.0	8.7	0.0	0.0	0.0	26.5	24.5	0.0	0.0	25.9	6.8
Cycle Q Clear(g_c), s	12.5	0.0	8.7	0.0	0.0	0.0	26.5	24.5	0.0	0.0	25.9	6.8
Prop In Lane	1.00		1.00	0.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	249	0	223	0	2	0	540	3784	1190	2	2001	623
V/C Ratio(X)	0.85	0.00	0.62	0.00	0.00	0.00	0.92	0.67	0.00	0.00	0.77	0.26
Avail Cap(c_a), veh/h	309	0	276	0	346	0	735	4176	1313	92	2330	725
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	39.8	0.0	38.2	0.0	0.0	0.0	32.4	6.0	0.0	0.0	25.4	19.6
Incr Delay (d2), s/veh	16.6	0.0	2.8	0.0	0.0	0.0	13.7	0.4	0.0	0.0	1.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.7	0.0	3.6	0.0	0.0	0.0	14.9	11.2	0.0	0.0	12.2	3.0
LnGrp Delay(d),s/veh	56.4	0.0	40.9	0.0	0.0	0.0	46.0	6.4	0.0	0.0	26.8	19.9
LnGrp LOS	E		D				D	A			C	B
Approach Vol, veh/h		349			0			3038			1713	
Approach Delay, s/veh		50.3			0.0			12.9			26.2	
Approach LOS		D						B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.0	77.2		19.6	34.3	43.0		0.0
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.5	80.3		18.7	40.5	44.8		18.0
Max Q Clear Time (g_c+I1), s	10.0	26.5		14.5	28.5	27.9		0.0
Green Ext Time (p_c), s	0.0	38.6		0.6	1.3	10.5		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	19.9
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	22	30	88	45	855	20	2012	127	262	1286	30
Future Volume (veh/h)	10	22	30	88	45	855	20	2012	127	262	1286	30
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1810	1812	1900	1863	1712	1712	1792	1794	1900
Adj Flow Rate, veh/h	11	24	33	96	49	929	22	2187	138	285	1398	33
Adj No. of Lanes	1	1	1	1	2	0	1	3	1	1	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	5	2	5	2	11	11	6	6	2
Cap, veh/h	22	334	284	117	405	362	36	2177	678	280	3002	71
Arrive On Green	0.01	0.18	0.18	0.07	0.24	0.24	0.02	0.47	0.47	0.16	0.61	0.61
Sat Flow, veh/h	1774	1863	1583	1723	1722	1540	1774	4673	1455	1707	4922	116
Grp Volume(v), veh/h	11	24	33	96	49	929	22	2187	138	285	927	504
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1723	1722	1540	1774	1558	1455	1707	1633	1774
Q Serve(g_s), s	0.9	1.6	2.6	8.1	3.3	34.5	1.8	68.4	8.2	24.1	22.7	22.7
Cycle Q Clear(g_c), s	0.9	1.6	2.6	8.1	3.3	34.5	1.8	68.4	8.2	24.1	22.7	22.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.07
Lane Grp Cap(c), veh/h	22	334	284	117	405	362	36	2177	678	280	1991	1082
V/C Ratio(X)	0.50	0.07	0.12	0.82	0.12	2.57	0.61	1.00	0.20	1.02	0.47	0.47
Avail Cap(c_a), veh/h	60	334	284	187	405	362	74	2177	678	280	1991	1082
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	72.1	50.1	50.5	67.5	44.2	56.2	71.4	39.2	23.1	61.4	15.6	15.6
Incr Delay (d2), s/veh	16.8	0.1	0.2	14.3	0.1	713.0	15.9	20.4	0.1	58.2	0.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.8	1.1	4.3	1.6	86.3	1.0	33.3	3.3	15.8	10.2	11.1
LnGrp Delay(d),s/veh	88.9	50.2	50.6	81.9	44.3	769.1	87.2	59.6	23.3	119.6	15.8	15.9
LnGrp LOS	F	D	D	F	D	F	F	F	C	F	B	B
Approach Vol, veh/h		68			1074			2347			1716	
Approach Delay, s/veh		56.7			674.6			57.7			33.1	
Approach LOS		E			F			E			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	28.6	72.9	14.5	30.9	7.5	94.0	6.3	39.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	24.1	68.4	15.9	23.6	6.1	86.4	5.0	34.5
Max Q Clear Time (g_c+I1), s	26.1	70.4	10.1	4.6	3.8	24.7	2.9	36.5
Green Ext Time (p_c), s	0.0	0.0	0.1	0.1	0.0	12.7	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	176.9
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	246	272	100	751	158	70	650	90	134	443	177
Future Volume (veh/h)	51	246	272	100	751	158	70	650	90	134	443	177
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1776	1776	1900	1881	1881	1881	1810	1810	1900	1776	1776	1776
Adj Flow Rate, veh/h	55	267	296	109	816	172	76	707	98	146	482	192
Adj No. of Lanes	1	1	0	1	1	1	1	2	0	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	7	7	7	1	1	1	5	5	5	7	7	7
Cap, veh/h	69	305	338	136	811	689	97	762	106	159	976	437
Arrive On Green	0.04	0.40	0.40	0.08	0.43	0.43	0.06	0.25	0.25	0.09	0.29	0.29
Sat Flow, veh/h	1691	771	854	1792	1881	1599	1723	3034	420	1691	3374	1509
Grp Volume(v), veh/h	55	0	563	109	816	172	76	400	405	146	482	192
Grp Sat Flow(s),veh/h/ln	1691	0	1625	1792	1881	1599	1723	1719	1735	1691	1687	1509
Q Serve(g_s), s	3.2	0.0	31.6	5.9	42.5	6.8	4.3	22.4	22.5	8.4	11.7	10.2
Cycle Q Clear(g_c), s	3.2	0.0	31.6	5.9	42.5	6.8	4.3	22.4	22.5	8.4	11.7	10.2
Prop In Lane	1.00		0.53	1.00		1.00	1.00		0.24	1.00		1.00
Lane Grp Cap(c), veh/h	69	0	643	136	811	689	97	432	436	159	976	437
V/C Ratio(X)	0.80	0.00	0.88	0.80	1.01	0.25	0.78	0.93	0.93	0.92	0.49	0.44
Avail Cap(c_a), veh/h	87	0	661	136	811	689	173	438	442	159	976	437
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.9	0.0	27.5	44.8	28.1	17.9	45.9	36.0	36.0	44.3	29.0	28.5
Incr Delay (d2), s/veh	31.5	0.0	12.4	27.7	33.2	0.2	12.9	25.7	25.8	47.2	0.4	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.0	16.3	4.0	29.3	3.0	2.4	13.8	13.9	6.0	5.5	4.4
LnGrp Delay(d),s/veh	78.4	0.0	39.9	72.5	61.2	18.1	58.8	61.7	61.8	91.5	29.4	29.2
LnGrp LOS	E		D	E	F	B	E	E	E	F	C	C
Approach Vol, veh/h		618			1097			881			820	
Approach Delay, s/veh		43.3			55.6			61.5			40.4	
Approach LOS		D			E			E			D	

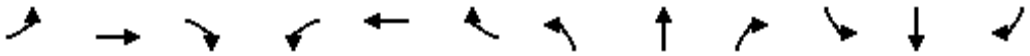
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.8	29.3	12.0	43.5	10.0	33.0	8.5	47.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	9.3	25.1	7.5	40.1	9.9	24.5	5.1	42.5
Max Q Clear Time (g_c+I1), s	10.4	24.5	7.9	33.6	6.3	13.7	5.2	44.5
Green Ext Time (p_c), s	0.0	0.3	0.0	2.0	0.0	2.8	0.0	0.0

Intersection Summary		
HCM 2010 Ctrl Delay		51.3
HCM 2010 LOS		D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	76	613	715	910	1516	140	806	284	965	142	320	130
Future Volume (veh/h)	76	613	715	910	1516	140	806	284	965	142	320	130
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1696	1696	1696	1863	1863	1863	1881	1881	1881	1792	1792	1792
Adj Flow Rate, veh/h	83	666	0	989	1648	0	876	309	0	154	348	0
Adj No. of Lanes	2	3	1	2	3	1	2	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	12	12	12	2	2	2	1	1	1	6	6	6
Cap, veh/h	134	1071	334	788	2123	661	731	1057	473	170	466	209
Arrive On Green	0.04	0.23	0.00	0.23	0.42	0.00	0.21	0.30	0.00	0.05	0.14	0.00
Sat Flow, veh/h	3134	4631	1442	3442	5085	1583	3476	3574	1599	3312	3406	1524
Grp Volume(v), veh/h	83	666	0	989	1648	0	876	309	0	154	348	0
Grp Sat Flow(s),veh/h/ln	1567	1544	1442	1721	1695	1583	1738	1787	1599	1656	1703	1524
Q Serve(g_s), s	2.8	13.8	0.0	24.5	29.9	0.0	22.5	7.1	0.0	5.0	10.5	0.0
Cycle Q Clear(g_c), s	2.8	13.8	0.0	24.5	29.9	0.0	22.5	7.1	0.0	5.0	10.5	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	134	1071	334	788	2123	661	731	1057	473	170	466	209
V/C Ratio(X)	0.62	0.62	0.00	1.26	0.78	0.00	1.20	0.29	0.00	0.90	0.75	0.00
Avail Cap(c_a), veh/h	179	1653	515	788	2690	838	731	2044	915	170	1407	629
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	50.4	36.9	0.0	41.2	26.9	0.0	42.2	29.0	0.0	50.5	44.4	0.0
Incr Delay (d2), s/veh	4.6	0.6	0.0	125.1	1.1	0.0	102.3	0.2	0.0	42.7	2.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	5.9	0.0	25.3	14.1	0.0	21.1	3.5	0.0	3.3	5.1	0.0
LnGrp Delay(d),s/veh	55.0	37.5	0.0	166.3	28.0	0.0	144.6	29.2	0.0	93.2	46.8	0.0
LnGrp LOS	D	D		F	C		F	C		F	D	
Approach Vol, veh/h		749			2637			1185			502	
Approach Delay, s/veh		39.4			79.9			114.5			61.0	
Approach LOS		D			E			F			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.0	37.5	29.0	30.5	27.0	20.5	9.1	50.5
Change Period (Y+Rc), s	4.5	5.8	4.5	5.8	4.5	5.8	4.5	5.8
Max Green Setting (Gmax), s	5.5	61.2	24.5	38.2	22.5	44.2	6.1	56.6
Max Q Clear Time (g_c+I1), s	7.0	9.1	26.5	15.8	24.5	12.5	4.8	31.9
Green Ext Time (p_c), s	0.0	1.9	0.0	4.3	0.0	2.1	0.0	12.8

Intersection Summary	
HCM 2010 Ctrl Delay	80.1
HCM 2010 LOS	F



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	57	490	89	440	260	122	45	482	441	278	478	81
v/c Ratio	0.47	0.86	0.15	0.85	0.36	0.18	0.51	0.72	0.51	0.83	0.56	0.17
Control Delay	68.3	55.1	0.5	65.4	26.3	4.4	78.3	51.9	5.7	74.4	40.8	2.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.3	55.1	0.5	65.4	26.3	4.4	78.3	51.9	5.7	74.4	40.8	2.3
Queue Length 50th (ft)	44	359	0	174	137	0	35	188	0	111	174	0
Queue Length 95th (ft)	71	383	0	#239	209	27	#88	247	45	#196	227	11
Internal Link Dist (ft)		1694			1451			380			1029	
Turn Bay Length (ft)	105			260		355	225		235	325		265
Base Capacity (vph)	147	572	595	519	714	670	91	1276	1260	336	1349	671
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.86	0.15	0.85	0.36	0.18	0.49	0.38	0.35	0.83	0.35	0.12

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	343	62	361	213	100	42	448	410	247	425	72
Future Volume (veh/h)	40	343	62	361	213	100	42	448	410	247	425	72
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1743	1743	1583	1583	1583	1727	1727	1727	1583	1583	1583
Adj Flow Rate, veh/h	57	490	0	440	260	122	45	482	441	278	478	81
Adj No. of Lanes	1	1	1	2	1	1	1	2	2	2	2	1
Peak Hour Factor	0.70	0.70	0.70	0.82	0.82	0.82	0.93	0.93	0.93	0.89	0.89	0.89
Percent Heavy Veh, %	9	9	9	20	20	20	10	10	10	20	20	20
Cap, veh/h	72	530	451	496	682	579	56	741	582	328	915	409
Arrive On Green	0.04	0.30	0.00	0.17	0.43	0.43	0.03	0.23	0.23	0.11	0.30	0.30
Sat Flow, veh/h	1660	1743	1482	2925	1583	1345	1645	3282	2577	2925	3008	1346
Grp Volume(v), veh/h	57	490	0	440	260	122	45	482	441	278	478	81
Grp Sat Flow(s),veh/h/ln	1660	1743	1482	1463	1583	1345	1645	1641	1289	1463	1504	1346
Q Serve(g_s), s	3.8	30.8	0.0	16.6	12.7	6.4	3.1	15.1	18.1	10.5	14.9	5.0
Cycle Q Clear(g_c), s	3.8	30.8	0.0	16.6	12.7	6.4	3.1	15.1	18.1	10.5	14.9	5.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	72	530	451	496	682	579	56	741	582	328	915	409
V/C Ratio(X)	0.79	0.92	0.00	0.89	0.38	0.21	0.80	0.65	0.76	0.85	0.52	0.20
Avail Cap(c_a), veh/h	160	619	526	564	715	607	99	1380	1084	365	1460	653
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.6	38.1	0.0	45.9	22.0	20.2	54.3	39.8	40.9	49.3	32.6	29.2
Incr Delay (d2), s/veh	17.4	18.1	0.0	14.6	0.4	0.2	22.7	1.0	2.1	15.5	0.5	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	17.5	0.0	7.7	5.6	2.4	1.8	6.9	6.6	5.0	6.2	1.9
LnGrp Delay(d),s/veh	71.0	56.2	0.0	60.6	22.3	20.4	77.0	40.7	43.0	64.8	33.0	29.4
LnGrp LOS	E	E		E	C	C	E	D	D	E	C	C
Approach Vol, veh/h		547			822			968			837	
Approach Delay, s/veh		57.7			42.5			43.4			43.2	
Approach LOS		E			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.2	32.0	23.7	40.2	8.3	40.9	9.4	54.5
Change Period (Y+Rc), s	4.5	6.5	4.5	5.8	4.5	6.5	4.5	5.8
Max Green Setting (Gmax), s	14.1	47.6	21.8	40.2	6.8	54.9	10.9	51.1
Max Q Clear Time (g_c+I1), s	12.5	20.1	18.6	32.8	5.1	16.9	5.8	14.7
Green Ext Time (p_c), s	0.2	4.8	0.5	1.7	0.0	3.2	0.0	1.9

Intersection Summary	
HCM 2010 Ctrl Delay	45.6
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	343	62	361	213	100	42	448	410	247	425	72
Future Volume (veh/h)	40	343	62	361	213	100	42	448	410	247	425	72
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1743	1743	1583	1583	1583	1727	1727	1727	1583	1583	1583
Adj Flow Rate, veh/h	57	490	0	440	260	122	45	482	441	278	478	81
Adj No. of Lanes	1	2	1	2	1	1	1	2	1	2	2	1
Peak Hour Factor	0.70	0.70	0.70	0.82	0.82	0.82	0.93	0.93	0.93	0.89	0.89	0.89
Percent Heavy Veh, %	9	9	9	20	20	20	10	10	10	20	20	20
Cap, veh/h	71	593	265	511	492	418	56	1112	497	329	1255	562
Arrive On Green	0.04	0.18	0.00	0.17	0.31	0.31	0.03	0.34	0.34	0.11	0.42	0.42
Sat Flow, veh/h	1660	3312	1482	2925	1583	1345	1645	3282	1466	2925	3008	1346
Grp Volume(v), veh/h	57	490	0	440	260	122	45	482	441	278	478	81
Grp Sat Flow(s),veh/h/ln	1660	1656	1482	1463	1583	1345	1645	1641	1466	1463	1504	1346
Q Serve(g_s), s	3.7	15.6	0.0	16.0	14.8	7.5	3.0	12.4	31.1	10.2	12.0	4.1
Cycle Q Clear(g_c), s	3.7	15.6	0.0	16.0	14.8	7.5	3.0	12.4	31.1	10.2	12.0	4.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	71	593	265	511	492	418	56	1112	497	329	1255	562
V/C Ratio(X)	0.80	0.83	0.00	0.86	0.53	0.29	0.80	0.43	0.89	0.85	0.38	0.14
Avail Cap(c_a), veh/h	79	812	363	734	710	603	75	1391	621	353	1500	671
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.8	43.2	0.0	43.8	31.1	28.6	52.4	28.0	34.2	47.6	22.1	19.7
Incr Delay (d2), s/veh	39.1	5.1	0.0	7.3	0.9	0.4	34.7	0.3	12.5	16.2	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	7.6	0.0	6.9	6.6	2.8	1.9	5.7	14.3	4.9	5.0	1.5
LnGrp Delay(d),s/veh	90.9	48.4	0.0	51.1	31.9	28.9	87.1	28.3	46.7	63.7	22.2	19.9
LnGrp LOS	F	D		D	C	C	F	C	D	E	C	B
Approach Vol, veh/h		547			822			968			837	
Approach Delay, s/veh		52.8			41.7			39.4			35.8	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.8	43.5	23.6	25.4	8.2	52.1	9.2	39.7
Change Period (Y+Rc), s	4.5	6.5	4.5	5.8	4.5	6.5	4.5	5.8
Max Green Setting (Gmax), s	13.2	46.3	27.4	26.8	5.0	54.5	5.2	49.0
Max Q Clear Time (g_c+I1), s	12.2	33.1	18.0	17.6	5.0	14.0	5.7	16.8
Green Ext Time (p_c), s	0.1	3.7	1.1	2.0	0.0	3.2	0.0	1.8

Intersection Summary	
HCM 2010 Ctrl Delay	41.4
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	480	170	50	330	70	180	560	80	250	580	220
Future Volume (veh/h)	70	480	170	50	330	70	180	560	80	250	580	220
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1652	1652	1652	1727	1727	1727	1624	1624	1900	1583	1583	1900
Adj Flow Rate, veh/h	93	640	227	65	429	91	191	596	85	278	644	244
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.75	0.75	0.75	0.77	0.77	0.77	0.94	0.94	0.94	0.90	0.90	0.90
Percent Heavy Veh, %	15	15	15	10	10	10	17	17	17	20	20	20
Cap, veh/h	106	639	543	72	627	533	189	635	90	276	630	238
Arrive On Green	0.07	0.39	0.39	0.04	0.36	0.36	0.12	0.23	0.23	0.18	0.29	0.29
Sat Flow, veh/h	1573	1652	1404	1645	1727	1468	1547	2713	386	1508	2136	809
Grp Volume(v), veh/h	93	640	227	65	429	91	191	338	343	278	453	435
Grp Sat Flow(s),veh/h/ln	1573	1652	1404	1645	1727	1468	1547	1543	1556	1508	1504	1441
Q Serve(g_s), s	7.9	52.2	16.0	5.3	28.4	5.7	16.5	29.1	29.2	24.7	39.8	39.8
Cycle Q Clear(g_c), s	7.9	52.2	16.0	5.3	28.4	5.7	16.5	29.1	29.2	24.7	39.8	39.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.25	1.00		0.56
Lane Grp Cap(c), veh/h	106	639	543	72	627	533	189	361	364	276	443	425
V/C Ratio(X)	0.88	1.00	0.42	0.90	0.68	0.17	1.01	0.94	0.94	1.01	1.02	1.02
Avail Cap(c_a), veh/h	106	639	543	72	627	533	189	361	364	276	443	425
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	62.4	41.4	30.3	64.3	36.4	29.2	59.3	50.7	50.8	55.2	47.6	47.6
Incr Delay (d2), s/veh	50.8	36.1	0.5	73.9	3.1	0.2	68.2	31.6	32.2	56.1	48.6	49.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	30.2	6.2	3.9	14.1	2.3	10.6	15.6	15.8	14.6	22.5	21.7
LnGrp Delay(d),s/veh	113.2	77.5	30.8	138.2	39.5	29.4	127.5	82.4	83.0	111.3	96.2	97.3
LnGrp LOS	F	F	C	F	D	C	F	F	F	F	F	F
Approach Vol, veh/h		960			585			872			1166	
Approach Delay, s/veh		69.9			48.9			92.5			100.2	
Approach LOS		E			D			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	29.2	37.4	10.4	58.0	21.0	45.6	13.6	54.8
Change Period (Y+Rc), s	4.5	5.8	4.5	5.8	4.5	5.8	4.5	5.8
Max Green Setting (Gmax), s	24.7	31.6	5.9	52.2	16.5	39.8	9.1	49.0
Max Q Clear Time (g_c+I1), s	26.7	31.2	7.3	54.2	18.5	41.8	9.9	30.4
Green Ext Time (p_c), s	0.0	0.2	0.0	0.0	0.0	0.0	0.0	2.5

Intersection Summary	
HCM 2010 Ctrl Delay	81.8
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	224	0	1017	0	0	0	298	2121	0	0	2498	40
Future Volume (veh/h)	224	0	1017	0	0	0	298	2121	0	0	2498	40
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1881	1881	1900	1863	1900	1863	1863	1863	1863	1881	1881
Adj Flow Rate, veh/h	277	0	0	0	0	0	343	2438	0	0	2871	46
Adj No. of Lanes	0	1	1	0	1	0	1	3	1	1	3	1
Peak Hour Factor	0.81	0.92	0.81	0.92	0.92	0.92	0.87	0.87	0.92	0.92	0.87	0.87
Percent Heavy Veh, %	1	2	1	2	2	2	2	2	2	2	1	1
Cap, veh/h	329	0	294	0	2	0	288	3701	1152	2	2677	833
Arrive On Green	0.18	0.00	0.00	0.00	0.00	0.00	0.16	0.73	0.00	0.00	0.52	0.52
Sat Flow, veh/h	1792	0	1599	0	1863	0	1774	5085	1583	1774	5136	1599
Grp Volume(v), veh/h	277	0	0	0	0	0	343	2438	0	0	2871	46
Grp Sat Flow(s),veh/h/ln	1792	0	1599	0	1863	0	1774	1695	1583	1774	1712	1599
Q Serve(g_s), s	15.2	0.0	0.0	0.0	0.0	0.0	16.5	25.5	0.0	0.0	53.0	1.4
Cycle Q Clear(g_c), s	15.2	0.0	0.0	0.0	0.0	0.0	16.5	25.5	0.0	0.0	53.0	1.4
Prop In Lane	1.00		1.00	0.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	329	0	294	0	2	0	288	3701	1152	2	2677	833
V/C Ratio(X)	0.84	0.00	0.00	0.00	0.00	0.00	1.19	0.66	0.00	0.00	1.07	0.06
Avail Cap(c_a), veh/h	784	0	700	0	330	0	288	3701	1152	87	2677	833
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	40.1	0.0	0.0	0.0	0.0	0.0	42.6	7.2	0.0	0.0	24.3	12.0
Incr Delay (d2), s/veh	5.8	0.0	0.0	0.0	0.0	0.0	115.3	0.4	0.0	0.0	40.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.0	0.0	0.0	0.0	0.0	0.0	17.2	11.9	0.0	0.0	34.9	0.6
LnGrp Delay(d),s/veh	45.9	0.0	0.0	0.0	0.0	0.0	157.8	7.7	0.0	0.0	65.0	12.0
LnGrp LOS	D						F	A			F	B
Approach Vol, veh/h		277			0			2781			2917	
Approach Delay, s/veh		45.9			0.0			26.2			64.1	
Approach LOS		D						C			E	

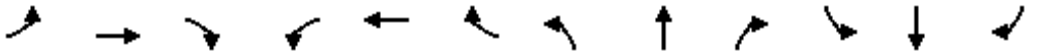
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	0.0	78.5		23.2	21.0	57.5		0.0
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.0	64.5		44.5	16.5	53.0		18.0
Max Q Clear Time (g_c+I1), s	0.0	27.5		17.2	18.5	55.0		0.0
Green Ext Time (p_c), s	0.0	27.9		1.5	0.0	0.0		0.0

Intersection Summary		
HCM 2010 Ctrl Delay		45.6
HCM 2010 LOS		D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	84	230	274	97	404	80	2152	132	792	2737	10
Future Volume (veh/h)	10	84	230	274	97	404	80	2152	132	792	2737	10
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1881	1881	1900
Adj Flow Rate, veh/h	11	91	250	338	105	499	87	4782	293	990	3421	11
Adj No. of Lanes	1	1	1	1	2	0	1	3	1	1	3	0
Peak Hour Factor	0.92	0.92	0.92	0.81	0.92	0.81	0.92	0.45	0.45	0.80	0.80	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	1	1	2
Cap, veh/h	22	224	190	160	350	313	65	2238	697	412	3347	11
Arrive On Green	0.01	0.12	0.12	0.09	0.20	0.20	0.04	0.44	0.44	0.23	0.63	0.63
Sat Flow, veh/h	1774	1863	1583	1774	1770	1583	1774	5085	1583	1792	5285	17
Grp Volume(v), veh/h	11	91	250	338	105	499	87	4782	293	990	2215	1217
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1770	1583	1774	1695	1583	1792	1712	1878
Q Serve(g_s), s	0.9	6.8	18.0	13.5	7.6	29.7	5.5	66.0	19.1	34.5	95.0	95.0
Cycle Q Clear(g_c), s	0.9	6.8	18.0	13.5	7.6	29.7	5.5	66.0	19.1	34.5	95.0	95.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	22	224	190	160	350	313	65	2238	697	412	2168	1189
V/C Ratio(X)	0.51	0.41	1.32	2.12	0.30	1.59	1.34	2.14	0.42	2.40	1.02	1.02
Avail Cap(c_a), veh/h	59	224	190	160	350	313	65	2238	697	412	2168	1189
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	73.6	61.1	66.0	68.2	51.3	60.2	72.2	42.0	28.9	57.7	27.5	27.5
Incr Delay (d2), s/veh	17.0	1.2	174.3	523.2	0.5	281.8	225.7	513.2	0.4	638.5	25.0	32.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	3.6	17.1	29.8	3.8	37.5	6.8	137.2	8.4	90.1	52.1	59.5
LnGrp Delay(d),s/veh	90.6	62.3	240.3	591.4	51.8	342.0	297.9	555.2	29.3	696.3	52.5	59.6
LnGrp LOS	F	E	F	F	D	F	F	F	C	F	F	F
Approach Vol, veh/h		352			942			5162			4422	
Approach Delay, s/veh		189.6			399.1			521.0			198.6	
Approach LOS		F			F			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	39.0	70.5	18.0	22.5	10.0	99.5	6.3	34.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	34.5	66.0	13.5	18.0	5.5	95.0	5.0	26.5
Max Q Clear Time (g_c+I1), s	36.5	68.0	15.5	20.0	7.5	97.0	2.9	31.7
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	368.7
HCM 2010 LOS	F



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	925	209	64	648	331	80	915	108	369	774	127
Future Volume (veh/h)	70	925	209	64	648	331	80	915	108	369	774	127
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1881	1881	1881	1900	1881	1881	1881
Adj Flow Rate, veh/h	80	1063	240	74	745	380	88	1005	119	405	851	140
Adj No. of Lanes	1	1	0	1	1	1	1	2	0	1	2	1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	92	669	151	66	819	696	108	805	95	257	1190	532
Arrive On Green	0.05	0.45	0.45	0.04	0.44	0.44	0.06	0.25	0.25	0.14	0.33	0.33
Sat Flow, veh/h	1792	1486	336	1792	1881	1599	1792	3220	381	1792	3574	1599
Grp Volume(v), veh/h	80	0	1303	74	745	380	88	558	566	405	851	140
Grp Sat Flow(s),veh/h/ln	1792	0	1822	1792	1881	1599	1792	1787	1814	1792	1787	1599
Q Serve(g_s), s	6.7	0.0	67.5	5.5	55.5	26.4	7.3	37.5	37.5	21.5	31.3	9.6
Cycle Q Clear(g_c), s	6.7	0.0	67.5	5.5	55.5	26.4	7.3	37.5	37.5	21.5	31.3	9.6
Prop In Lane	1.00		0.18	1.00		1.00	1.00		0.21	1.00		1.00
Lane Grp Cap(c), veh/h	92	0	820	66	819	696	108	447	453	257	1190	532
V/C Ratio(X)	0.87	0.00	1.59	1.13	0.91	0.55	0.81	1.25	1.25	1.58	0.72	0.26
Avail Cap(c_a), veh/h	92	0	820	66	819	696	129	447	453	257	1190	532
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	70.7	0.0	41.3	72.3	39.6	31.4	69.6	56.3	56.3	64.2	43.8	36.6
Incr Delay (d2), s/veh	54.1	0.0	271.0	149.7	14.1	0.9	27.3	129.1	129.3	277.6	2.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	0.0	95.6	5.5	32.0	11.9	4.4	34.5	35.1	30.4	15.8	4.3
LnGrp Delay(d),s/veh	124.8	0.0	312.2	222.2	53.7	32.3	97.0	185.4	185.6	341.9	45.9	36.8
LnGrp LOS	F		F	F	D	C	F	F	F	F	D	D
Approach Vol, veh/h		1383			1199			1212			1396	
Approach Delay, s/veh		301.4			57.3			179.0			130.8	
Approach LOS		F			E			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	26.0	42.0	10.0	72.0	13.6	54.4	12.2	69.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	21.5	37.5	5.5	67.5	10.8	48.2	7.7	65.3
Max Q Clear Time (g_c+I1), s	23.5	39.5	7.5	69.5	9.3	33.3	8.7	57.5
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	5.3	0.0	3.9

Intersection Summary		
HCM 2010 Ctrl Delay		170.6
HCM 2010 LOS		F

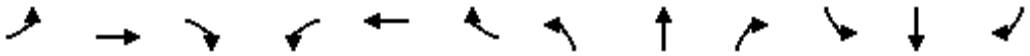
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	230	1667	834	690	958	70	586	458	1302	283	528	145
Future Volume (veh/h)	230	1667	834	690	958	70	586	458	1302	283	528	145
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1881	1881	1881	1900	1900	1900	1792	1792	1792
Adj Flow Rate, veh/h	250	1812	0	742	1030	0	698	545	0	322	600	0
Adj No. of Lanes	2	3	1	2	3	1	2	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.84	0.84	0.84	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	1	1	1	0	0	0	6	6	6
Cap, veh/h	306	1552	483	365	1652	514	758	1338	599	193	726	325
Arrive On Green	0.09	0.31	0.00	0.11	0.32	0.00	0.22	0.37	0.00	0.06	0.21	0.00
Sat Flow, veh/h	3442	5085	1583	3476	5136	1599	3510	3610	1615	3312	3406	1524
Grp Volume(v), veh/h	250	1812	0	742	1030	0	698	545	0	322	600	0
Grp Sat Flow(s),veh/h/ln	1721	1695	1583	1738	1712	1599	1755	1805	1615	1656	1703	1524
Q Serve(g_s), s	9.2	39.2	0.0	13.5	21.9	0.0	25.0	14.4	0.0	7.5	21.6	0.0
Cycle Q Clear(g_c), s	9.2	39.2	0.0	13.5	21.9	0.0	25.0	14.4	0.0	7.5	21.6	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	306	1552	483	365	1652	514	758	1338	599	193	726	325
V/C Ratio(X)	0.82	1.17	0.00	2.03	0.62	0.00	0.92	0.41	0.00	1.66	0.83	0.00
Avail Cap(c_a), veh/h	381	1552	483	365	1652	514	807	1946	870	193	1252	560
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	57.5	44.6	0.0	57.5	37.0	0.0	49.3	29.9	0.0	60.5	48.3	0.0
Incr Delay (d2), s/veh	10.8	82.6	0.0	473.2	0.7	0.0	15.2	0.2	0.0	320.8	2.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	30.1	0.0	30.5	10.4	0.0	13.7	7.2	0.0	12.0	10.4	0.0
LnGrp Delay(d),s/veh	68.3	127.2	0.0	530.7	37.7	0.0	64.5	30.1	0.0	381.2	50.7	0.0
LnGrp LOS	E	F		F	D		E	C		F	D	
Approach Vol, veh/h		2062			1772			1243			922	
Approach Delay, s/veh		120.1			244.1			49.4			166.2	
Approach LOS		F			F			D			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.0	53.4	18.0	45.0	32.2	33.2	15.9	47.1
Change Period (Y+Rc), s	4.5	5.8	4.5	5.8	4.5	5.8	4.5	5.8
Max Green Setting (Gmax), s	7.5	69.2	13.5	39.2	29.5	47.2	14.2	38.5
Max Q Clear Time (g_c+I1), s	9.5	16.4	15.5	41.2	27.0	23.6	11.2	23.9
Green Ext Time (p_c), s	0.0	3.7	0.0	0.0	0.8	3.8	0.2	5.7

Intersection Summary	
HCM 2010 Ctrl Delay	149.2
HCM 2010 LOS	F

1: Patterson Pass Rd/International Pkwy & W Schulte Rd

Timing Plan: AM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	27	199	43	740	42	320	46	379	249	242	426	212
v/c Ratio	0.30	0.50	0.13	0.79	0.06	0.41	0.44	0.64	0.37	0.60	0.47	0.38
Control Delay	58.1	45.5	0.8	37.3	18.8	4.1	61.6	41.0	6.3	48.2	31.5	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.1	45.5	0.8	37.3	18.8	4.1	61.6	41.0	6.3	48.2	31.5	6.5
Queue Length 50th (ft)	16	60	0	210	16	0	27	111	0	71	113	0
Queue Length 95th (ft)	51	110	0	319	40	53	#85	182	36	133	186	56
Internal Link Dist (ft)		1694			1451			380			1029	
Turn Bay Length (ft)	105		200	260		355	225		235	325		265
Base Capacity (vph)	89	566	397	1249	869	887	106	1518	1319	441	1793	891
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.35	0.11	0.59	0.05	0.36	0.43	0.25	0.19	0.55	0.24	0.24

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	183	40	681	39	294	42	349	229	223	392	195
Future Volume (veh/h)	25	183	40	681	39	294	42	349	229	223	392	195
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1727	1727	1727	1624	1624	1624	1583	1583	1583	1624	1624	1624
Adj Flow Rate, veh/h	27	199	0	740	42	320	46	379	249	242	426	212
Adj No. of Lanes	1	2	1	2	1	1	1	2	2	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	10	10	10	17	17	17	20	20	20	17	17	17
Cap, veh/h	48	362	162	887	612	520	63	572	450	330	797	357
Arrive On Green	0.03	0.11	0.00	0.30	0.38	0.38	0.04	0.19	0.19	0.11	0.26	0.26
Sat Flow, veh/h	1645	3282	1468	3000	1624	1380	1508	3008	2369	3000	3085	1380
Grp Volume(v), veh/h	27	199	0	740	42	320	46	379	249	242	426	212
Grp Sat Flow(s),veh/h/ln	1645	1641	1468	1500	1624	1380	1508	1504	1184	1500	1543	1380
Q Serve(g_s), s	1.2	4.2	0.0	16.7	1.2	13.6	2.2	8.5	6.9	5.7	8.6	9.7
Cycle Q Clear(g_c), s	1.2	4.2	0.0	16.7	1.2	13.6	2.2	8.5	6.9	5.7	8.6	9.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	48	362	162	887	612	520	63	572	450	330	797	357
V/C Ratio(X)	0.57	0.55	0.00	0.83	0.07	0.61	0.73	0.66	0.55	0.73	0.53	0.59
Avail Cap(c_a), veh/h	114	716	320	1582	1098	934	135	1918	1510	559	2266	1014
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.7	30.5	0.0	23.9	14.4	18.3	34.3	27.2	26.6	31.2	23.1	23.5
Incr Delay (d2), s/veh	10.2	1.3	0.0	2.2	0.0	1.2	15.0	1.3	1.1	3.1	0.6	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	1.9	0.0	7.2	0.5	5.3	1.2	3.6	2.3	2.5	3.7	3.9
LnGrp Delay(d),s/veh	44.9	31.8	0.0	26.0	14.5	19.5	49.4	28.5	27.6	34.4	23.7	25.1
LnGrp LOS	D	C		C	B	B	D	C	C	C	C	C
Approach Vol, veh/h		226			1102			674			880	
Approach Delay, s/veh		33.4			23.7			29.6			27.0	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.5	20.3	25.9	13.8	7.5	25.2	6.6	33.1
Change Period (Y+Rc), s	4.5	6.5	4.5	5.8	4.5	6.5	4.5	5.8
Max Green Setting (Gmax), s	13.5	46.2	38.2	15.8	6.5	53.2	5.0	49.0
Max Q Clear Time (g_c+I1), s	7.7	10.5	18.7	6.2	4.2	11.7	3.2	15.6
Green Ext Time (p_c), s	0.4	3.3	2.7	0.7	0.0	3.3	0.0	1.3

Intersection Summary	
HCM 2010 Ctrl Delay	26.8
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	183	40	681	39	294	42	349	229	223	392	195
Future Volume (veh/h)	25	183	40	681	39	294	42	349	229	223	392	195
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1727	1727	1727	1624	1624	1624	1583	1583	1583	1624	1624	1624
Adj Flow Rate, veh/h	27	199	0	740	42	320	46	379	249	242	426	212
Adj No. of Lanes	1	2	1	2	1	1	1	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	10	10	10	17	17	17	20	20	20	17	17	17
Cap, veh/h	46	328	147	872	588	500	60	712	319	322	938	420
Arrive On Green	0.03	0.10	0.00	0.29	0.36	0.36	0.04	0.24	0.24	0.11	0.30	0.30
Sat Flow, veh/h	1645	3282	1468	3000	1624	1380	1508	3008	1346	3000	3085	1380
Grp Volume(v), veh/h	27	199	0	740	42	320	46	379	249	242	426	212
Grp Sat Flow(s),veh/h/ln	1645	1641	1468	1500	1624	1380	1508	1504	1346	1500	1543	1380
Q Serve(g_s), s	1.3	4.7	0.0	18.6	1.4	15.4	2.4	8.8	13.9	6.3	8.9	10.1
Cycle Q Clear(g_c), s	1.3	4.7	0.0	18.6	1.4	15.4	2.4	8.8	13.9	6.3	8.9	10.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	46	328	147	872	588	500	60	712	319	322	938	420
V/C Ratio(X)	0.58	0.61	0.00	0.85	0.07	0.64	0.76	0.53	0.78	0.75	0.45	0.51
Avail Cap(c_a), veh/h	103	610	273	1464	993	844	96	1726	772	513	2102	940
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.5	34.6	0.0	26.8	16.7	21.2	38.1	26.7	28.7	34.7	22.5	22.9
Incr Delay (d2), s/veh	11.0	1.8	0.0	2.5	0.1	1.4	17.8	0.6	4.2	3.6	0.3	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	2.2	0.0	8.0	0.6	6.1	1.3	3.7	5.5	2.7	3.8	3.9
LnGrp Delay(d),s/veh	49.5	36.4	0.0	29.3	16.8	22.6	55.9	27.3	32.8	38.3	22.9	23.9
LnGrp LOS	D	D		C	B	C	E	C	C	D	C	C
Approach Vol, veh/h		226			1102			674			880	
Approach Delay, s/veh		38.0			26.9			31.3			27.4	
Approach LOS		D			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.1	25.5	27.8	13.8	7.7	30.9	6.8	34.8
Change Period (Y+Rc), s	4.5	6.5	4.5	5.8	4.5	6.5	4.5	5.8
Max Green Setting (Gmax), s	13.7	46.0	39.1	14.9	5.1	54.6	5.0	49.0
Max Q Clear Time (g_c+I1), s	8.3	15.9	20.6	6.7	4.4	12.1	3.3	17.4
Green Ext Time (p_c), s	0.4	3.1	2.7	0.6	0.0	3.3	0.0	1.3

Intersection Summary	
HCM 2010 Ctrl Delay	28.9
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	180	140	30	100	560	180	70	200	50	60	120	60
Future Volume (veh/h)	180	140	30	100	560	180	70	200	50	60	120	60
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1583	1583	1583	1827	1827	1827	1583	1583	1900	1667	1667	1667
Adj Flow Rate, veh/h	196	152	33	109	609	196	76	217	54	65	130	65
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	20	20	20	4	4	4	20	20	20	14	14	14
Cap, veh/h	238	1045	468	141	940	421	93	354	86	90	451	202
Arrive On Green	0.16	0.35	0.35	0.08	0.27	0.27	0.06	0.15	0.15	0.06	0.14	0.14
Sat Flow, veh/h	1508	3008	1346	1740	3471	1553	1508	2400	585	1587	3167	1417
Grp Volume(v), veh/h	196	152	33	109	609	196	76	134	137	65	130	65
Grp Sat Flow(s),veh/h/ln	1508	1504	1346	1740	1736	1553	1508	1504	1480	1587	1583	1417
Q Serve(g_s), s	7.1	1.9	0.9	3.4	8.7	5.9	2.8	4.7	4.9	2.3	2.1	2.3
Cycle Q Clear(g_c), s	7.1	1.9	0.9	3.4	8.7	5.9	2.8	4.7	4.9	2.3	2.1	2.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.39	1.00		1.00
Lane Grp Cap(c), veh/h	238	1045	468	141	940	421	93	222	218	90	451	202
V/C Ratio(X)	0.82	0.15	0.07	0.77	0.65	0.47	0.81	0.60	0.63	0.72	0.29	0.32
Avail Cap(c_a), veh/h	376	1865	835	409	2103	941	161	697	686	294	1715	767
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.9	12.6	12.3	25.3	18.1	17.1	26.0	22.4	22.5	26.0	21.5	21.6
Incr Delay (d2), s/veh	8.0	0.1	0.1	8.6	0.8	0.8	15.5	2.6	2.9	10.3	0.3	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	0.8	0.3	2.0	4.2	2.6	1.6	2.1	2.2	1.3	0.9	1.0
LnGrp Delay(d),s/veh	30.9	12.7	12.3	33.9	18.8	17.9	41.5	25.0	25.4	36.4	21.9	22.5
LnGrp LOS	C	B	B	C	B	B	D	C	C	D	C	C
Approach Vol, veh/h		381			914			347			260	
Approach Delay, s/veh		22.0			20.4			28.8			25.7	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.7	14.1	9.1	25.3	8.0	13.8	13.3	21.0
Change Period (Y+Rc), s	4.5	5.8	4.5	5.8	4.5	5.8	4.5	5.8
Max Green Setting (Gmax), s	10.4	26.0	13.2	34.8	6.0	30.4	14.0	34.0
Max Q Clear Time (g_c+I1), s	4.3	6.9	5.4	3.9	4.8	4.3	9.1	10.7
Green Ext Time (p_c), s	0.0	1.3	0.1	1.0	0.0	0.9	0.2	4.5

Intersection Summary	
HCM 2010 Ctrl Delay	23.0
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	195	0	126	0	0	0	457	2338	0	0	1425	151
Future Volume (veh/h)	195	0	126	0	0	0	457	2338	0	0	1425	151
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1681	1681	1900	1863	1900	1845	1845	1863	1863	1845	1845
Adj Flow Rate, veh/h	212	0	0	0	0	0	497	2541	0	0	1549	164
Adj No. of Lanes	0	1	1	0	1	0	1	3	1	1	3	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	13	2	13	2	2	2	3	3	2	2	3	3
Cap, veh/h	246	0	659	0	2	0	541	3793	1192	2	2007	865
Arrive On Green	0.15	0.00	0.00	0.00	0.00	0.00	0.31	0.75	0.00	0.00	0.40	0.40
Sat Flow, veh/h	1601	0	1429	0	1863	0	1757	5036	1583	1774	5036	1568
Grp Volume(v), veh/h	212	0	0	0	0	0	497	2541	0	0	1549	164
Grp Sat Flow(s),veh/h/ln	1601	0	1429	0	1863	0	1757	1679	1583	1774	1679	1568
Q Serve(g_s), s	12.4	0.0	0.0	0.0	0.0	0.0	26.3	24.2	0.0	0.0	25.7	5.0
Cycle Q Clear(g_c), s	12.4	0.0	0.0	0.0	0.0	0.0	26.3	24.2	0.0	0.0	25.7	5.0
Prop In Lane	1.00		1.00	0.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	246	0	659	0	2	0	541	3793	1192	2	2007	865
V/C Ratio(X)	0.86	0.00	0.00	0.00	0.00	0.00	0.92	0.67	0.00	0.00	0.77	0.19
Avail Cap(c_a), veh/h	311	0	718	0	349	0	740	4204	1322	92	2345	971
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	39.7	0.0	0.0	0.0	0.0	0.0	32.1	5.9	0.0	0.0	25.1	10.8
Incr Delay (d2), s/veh	17.9	0.0	0.0	0.0	0.0	0.0	13.4	0.4	0.0	0.0	1.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.7	0.0	0.0	0.0	0.0	0.0	14.7	11.2	0.0	0.0	12.2	2.9
LnGrp Delay(d),s/veh	57.7	0.0	0.0	0.0	0.0	0.0	45.6	6.3	0.0	0.0	26.5	10.9
LnGrp LOS	E						D	A			C	B
Approach Vol, veh/h		212			0			3038			1713	
Approach Delay, s/veh		57.7			0.0			12.7			25.0	
Approach LOS		E						B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	0.0	76.9		19.3	34.1	42.8		0.0
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.0	80.3		18.7	40.5	44.8		18.0
Max Q Clear Time (g_c+I1), s	0.0	26.2		14.4	28.3	27.7		0.0
Green Ext Time (p_c), s	0.0	38.8		0.4	1.3	10.6		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	18.9
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	22	30	88	45	855	20	2012	127	262	1286	30
Future Volume (veh/h)	10	22	30	88	45	855	20	2012	127	262	1286	30
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1810	1863	1810	1863	1712	1712	1792	1794	1900
Adj Flow Rate, veh/h	11	24	33	96	49	929	22	2187	138	285	1398	33
Adj No. of Lanes	1	1	1	1	1	2	1	3	1	2	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	5	2	5	2	11	11	6	6	2
Cap, veh/h	24	281	239	113	378	839	41	2273	708	354	2807	66
Arrive On Green	0.01	0.15	0.15	0.07	0.20	0.20	0.02	0.49	0.49	0.11	0.57	0.57
Sat Flow, veh/h	1774	1863	1583	1723	1863	2707	1774	4673	1455	3312	4922	116
Grp Volume(v), veh/h	11	24	33	96	49	929	22	2187	138	285	927	504
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1723	1863	1354	1774	1558	1455	1656	1633	1774
Q Serve(g_s), s	0.6	1.0	1.7	5.2	2.0	19.2	1.2	42.7	5.1	8.0	16.1	16.1
Cycle Q Clear(g_c), s	0.6	1.0	1.7	5.2	2.0	19.2	1.2	42.7	5.1	8.0	16.1	16.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.07
Lane Grp Cap(c), veh/h	24	281	239	113	378	839	41	2273	708	354	1862	1011
V/C Ratio(X)	0.47	0.09	0.14	0.85	0.13	1.11	0.53	0.96	0.19	0.80	0.50	0.50
Avail Cap(c_a), veh/h	94	354	301	113	378	839	103	2277	709	410	1862	1011
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.3	34.6	34.8	43.7	30.9	32.6	45.7	23.4	13.8	41.3	12.2	12.2
Incr Delay (d2), s/veh	13.7	0.1	0.3	42.4	0.2	64.7	10.3	11.3	0.1	9.8	0.2	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.6	0.8	3.8	1.1	18.4	0.7	20.6	2.0	4.1	7.3	7.9
LnGrp Delay(d),s/veh	60.0	34.7	35.1	86.1	31.0	97.3	56.0	34.8	13.9	51.1	12.4	12.6
LnGrp LOS	E	C	D	F	C	F	E	C	B	D	B	B
Approach Vol, veh/h		68			1074			2347			1716	
Approach Delay, s/veh		39.0			93.3			33.7			18.9	
Approach LOS		D			F			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.6	50.5	10.7	18.8	6.7	58.4	5.8	23.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	11.7	46.1	6.2	18.0	5.5	52.3	5.0	19.2
Max Q Clear Time (g_c+I1), s	10.0	44.7	7.2	3.7	3.2	18.1	2.6	21.2
Green Ext Time (p_c), s	0.2	1.3	0.0	0.1	0.0	11.4	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	41.2
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	246	272	100	751	158	70	650	90	134	443	177
Future Volume (veh/h)	51	246	272	100	751	158	70	650	90	134	443	177
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1776	1776	1900	1881	1881	1881	1810	1810	1900	1776	1776	1776
Adj Flow Rate, veh/h	55	267	296	109	816	172	76	707	98	146	482	192
Adj No. of Lanes	1	1	0	1	1	1	1	2	0	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	7	7	7	1	1	1	5	5	5	7	7	7
Cap, veh/h	69	305	338	136	811	689	97	762	106	159	976	437
Arrive On Green	0.04	0.40	0.40	0.08	0.43	0.43	0.06	0.25	0.25	0.09	0.29	0.29
Sat Flow, veh/h	1691	771	854	1792	1881	1599	1723	3034	420	1691	3374	1509
Grp Volume(v), veh/h	55	0	563	109	816	172	76	400	405	146	482	192
Grp Sat Flow(s),veh/h/ln	1691	0	1625	1792	1881	1599	1723	1719	1735	1691	1687	1509
Q Serve(g_s), s	3.2	0.0	31.6	5.9	42.5	6.8	4.3	22.4	22.5	8.4	11.7	10.2
Cycle Q Clear(g_c), s	3.2	0.0	31.6	5.9	42.5	6.8	4.3	22.4	22.5	8.4	11.7	10.2
Prop In Lane	1.00		0.53	1.00		1.00	1.00		0.24	1.00		1.00
Lane Grp Cap(c), veh/h	69	0	643	136	811	689	97	432	436	159	976	437
V/C Ratio(X)	0.80	0.00	0.88	0.80	1.01	0.25	0.78	0.93	0.93	0.92	0.49	0.44
Avail Cap(c_a), veh/h	87	0	661	136	811	689	173	438	442	159	976	437
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.9	0.0	27.5	44.8	28.1	17.9	45.9	36.0	36.0	44.3	29.0	28.5
Incr Delay (d2), s/veh	31.5	0.0	12.4	27.7	33.2	0.2	12.9	25.7	25.8	47.2	0.4	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.0	16.3	4.0	29.3	3.0	2.4	13.8	13.9	6.0	5.5	4.4
LnGrp Delay(d),s/veh	78.4	0.0	39.9	72.5	61.2	18.1	58.8	61.7	61.8	91.5	29.4	29.2
LnGrp LOS	E		D	E	F	B	E	E	E	F	C	C
Approach Vol, veh/h		618			1097			881			820	
Approach Delay, s/veh		43.3			55.6			61.5			40.4	
Approach LOS		D			E			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.8	29.3	12.0	43.5	10.0	33.0	8.5	47.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	9.3	25.1	7.5	40.1	9.9	24.5	5.1	42.5
Max Q Clear Time (g_c+I1), s	10.4	24.5	7.9	33.6	6.3	13.7	5.2	44.5
Green Ext Time (p_c), s	0.0	0.3	0.0	2.0	0.0	2.8	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	51.3
HCM 2010 LOS	D

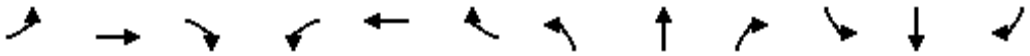
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	76	613	715	910	1516	140	806	284	965	142	320	130
Future Volume (veh/h)	76	613	715	910	1516	140	806	284	965	142	320	130
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1696	1696	1696	1863	1863	1863	1881	1881	1881	1792	1792	1792
Adj Flow Rate, veh/h	83	666	0	989	1648	0	876	309	0	154	348	0
Adj No. of Lanes	2	3	1	2	3	1	2	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	12	12	12	2	2	2	1	1	1	6	6	6
Cap, veh/h	133	943	606	872	2110	657	753	1029	866	216	464	208
Arrive On Green	0.04	0.20	0.00	0.25	0.41	0.00	0.22	0.29	0.00	0.07	0.14	0.00
Sat Flow, veh/h	3134	4631	1442	3442	5085	1583	3476	3574	1599	3312	3406	1524
Grp Volume(v), veh/h	83	666	0	989	1648	0	876	309	0	154	348	0
Grp Sat Flow(s),veh/h/ln	1567	1544	1442	1721	1695	1583	1738	1787	1599	1656	1703	1524
Q Serve(g_s), s	2.8	14.5	0.0	27.5	30.4	0.0	23.5	7.3	0.0	4.9	10.7	0.0
Cycle Q Clear(g_c), s	2.8	14.5	0.0	27.5	30.4	0.0	23.5	7.3	0.0	4.9	10.7	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	133	943	606	872	2110	657	753	1029	866	216	464	208
V/C Ratio(X)	0.63	0.71	0.00	1.13	0.78	0.00	1.16	0.30	0.00	0.71	0.75	0.00
Avail Cap(c_a), veh/h	176	1494	777	872	2643	823	753	1802	1211	372	1362	609
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	51.1	40.2	0.0	40.5	27.5	0.0	42.5	30.1	0.0	49.7	45.1	0.0
Incr Delay (d2), s/veh	4.8	1.0	0.0	74.4	1.2	0.0	87.9	0.2	0.0	4.4	2.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	6.3	0.0	22.0	14.4	0.0	20.4	3.6	0.0	2.4	5.2	0.0
LnGrp Delay(d),s/veh	55.9	41.2	0.0	114.8	28.7	0.0	130.4	30.3	0.0	54.1	47.5	0.0
LnGrp LOS	E	D		F	C		F	C		D	D	
Approach Vol, veh/h		749			2637			1185			502	
Approach Delay, s/veh		42.8			61.0			104.3			49.5	
Approach LOS		D			E			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.6	37.0	32.0	27.9	28.0	20.6	9.1	50.8
Change Period (Y+Rc), s	4.5	5.8	4.5	5.8	4.5	5.8	4.5	5.8
Max Green Setting (Gmax), s	12.2	54.7	27.5	35.0	23.5	43.4	6.1	56.4
Max Q Clear Time (g_c+I1), s	6.9	9.3	29.5	16.5	25.5	12.7	4.8	32.4
Green Ext Time (p_c), s	0.2	1.9	0.0	4.0	0.0	2.1	0.0	12.6

Intersection Summary	
HCM 2010 Ctrl Delay	67.3
HCM 2010 LOS	E

1: Patterson Pass Rd/International Pkwy & W Schulte Rd

Timing Plan: PM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	57	490	89	440	260	122	45	482	441	278	478	81
v/c Ratio	0.62	0.70	0.20	0.73	0.45	0.21	0.54	0.65	0.48	0.70	0.48	0.15
Control Delay	78.7	42.8	1.0	46.0	27.1	3.9	73.9	40.1	5.2	53.9	29.8	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	78.7	42.8	1.0	46.0	27.1	3.9	73.9	40.1	5.2	53.9	29.8	1.4
Queue Length 50th (ft)	36	151	0	133	121	0	28	146	0	88	130	0
Queue Length 95th (ft)	#81	173	0	200	190	21	#97	226	43	#182	203	6
Internal Link Dist (ft)		1694			1451			380			1029	
Turn Bay Length (ft)	105		200	260		355	225		235	325		265
Base Capacity (vph)	92	1029	580	737	803	742	84	1568	1447	399	1692	815
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.48	0.15	0.60	0.32	0.16	0.54	0.31	0.30	0.70	0.28	0.10

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	343	62	361	213	100	42	448	410	247	425	72
Future Volume (veh/h)	40	343	62	361	213	100	42	448	410	247	425	72
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1743	1743	1583	1583	1583	1727	1727	1727	1583	1583	1583
Adj Flow Rate, veh/h	57	490	0	440	260	122	45	482	441	278	478	81
Adj No. of Lanes	1	2	1	2	1	1	1	2	2	2	2	1
Peak Hour Factor	0.70	0.70	0.70	0.82	0.82	0.82	0.93	0.93	0.93	0.89	0.89	0.89
Percent Heavy Veh, %	9	9	9	20	20	20	10	10	10	20	20	20
Cap, veh/h	73	648	290	535	530	450	64	806	633	351	983	440
Arrive On Green	0.04	0.20	0.00	0.18	0.33	0.33	0.04	0.25	0.25	0.12	0.33	0.33
Sat Flow, veh/h	1660	3312	1482	2925	1583	1345	1645	3282	2578	2925	3008	1346
Grp Volume(v), veh/h	57	490	0	440	260	122	45	482	441	278	478	81
Grp Sat Flow(s),veh/h/ln	1660	1656	1482	1463	1583	1345	1645	1641	1289	1463	1504	1346
Q Serve(g_s), s	2.8	11.6	0.0	12.0	10.9	5.5	2.3	10.8	13.0	7.7	10.6	3.6
Cycle Q Clear(g_c), s	2.8	11.6	0.0	12.0	10.9	5.5	2.3	10.8	13.0	7.7	10.6	3.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	73	648	290	535	530	450	64	806	633	351	983	440
V/C Ratio(X)	0.78	0.76	0.00	0.82	0.49	0.27	0.70	0.60	0.70	0.79	0.49	0.18
Avail Cap(c_a), veh/h	108	1194	534	857	932	791	99	1817	1427	464	1962	878
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.4	31.6	0.0	32.7	22.1	20.3	39.5	27.8	28.6	35.6	22.4	20.1
Incr Delay (d2), s/veh	19.2	1.8	0.0	3.5	0.7	0.3	13.2	0.7	1.4	6.8	0.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	5.5	0.0	5.1	4.9	2.1	1.3	5.0	4.7	3.4	4.4	1.4
LnGrp Delay(d),s/veh	58.6	33.4	0.0	36.2	22.8	20.6	52.7	28.5	30.0	42.4	22.8	20.3
LnGrp LOS	E	C		D	C	C	D	C	C	D	C	C
Approach Vol, veh/h		547			822			968			837	
Approach Delay, s/veh		36.1			29.7			30.3			29.1	
Approach LOS		D			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.5	27.0	19.7	22.1	7.7	33.7	8.2	33.6
Change Period (Y+Rc), s	4.5	6.5	4.5	5.8	4.5	6.5	4.5	5.8
Max Green Setting (Gmax), s	13.2	46.1	24.4	30.0	5.0	54.3	5.4	49.0
Max Q Clear Time (g_c+I1), s	9.7	15.0	14.0	13.6	4.3	12.6	4.8	12.9
Green Ext Time (p_c), s	0.3	4.9	1.2	2.7	0.0	3.2	0.0	1.9

Intersection Summary	
HCM 2010 Ctrl Delay	30.8
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	343	62	361	213	100	42	448	410	247	425	72
Future Volume (veh/h)	40	343	62	361	213	100	42	448	410	247	425	72
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1743	1743	1583	1583	1583	1727	1727	1727	1583	1583	1583
Adj Flow Rate, veh/h	57	490	0	440	260	122	45	482	441	278	478	81
Adj No. of Lanes	1	2	1	2	1	1	1	2	1	2	2	1
Peak Hour Factor	0.70	0.70	0.70	0.82	0.82	0.82	0.93	0.93	0.93	0.89	0.89	0.89
Percent Heavy Veh, %	9	9	9	20	20	20	10	10	10	20	20	20
Cap, veh/h	71	593	265	511	492	418	56	1112	497	329	1255	562
Arrive On Green	0.04	0.18	0.00	0.17	0.31	0.31	0.03	0.34	0.34	0.11	0.42	0.42
Sat Flow, veh/h	1660	3312	1482	2925	1583	1345	1645	3282	1466	2925	3008	1346
Grp Volume(v), veh/h	57	490	0	440	260	122	45	482	441	278	478	81
Grp Sat Flow(s),veh/h/ln	1660	1656	1482	1463	1583	1345	1645	1641	1466	1463	1504	1346
Q Serve(g_s), s	3.7	15.6	0.0	16.0	14.8	7.5	3.0	12.4	31.1	10.2	12.0	4.1
Cycle Q Clear(g_c), s	3.7	15.6	0.0	16.0	14.8	7.5	3.0	12.4	31.1	10.2	12.0	4.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	71	593	265	511	492	418	56	1112	497	329	1255	562
V/C Ratio(X)	0.80	0.83	0.00	0.86	0.53	0.29	0.80	0.43	0.89	0.85	0.38	0.14
Avail Cap(c_a), veh/h	79	812	363	734	710	603	75	1391	621	353	1500	671
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.8	43.2	0.0	43.8	31.1	28.6	52.4	28.0	34.2	47.6	22.1	19.7
Incr Delay (d2), s/veh	39.1	5.1	0.0	7.3	0.9	0.4	34.7	0.3	12.5	16.2	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	7.6	0.0	6.9	6.6	2.8	1.9	5.7	14.3	4.9	5.0	1.5
LnGrp Delay(d),s/veh	90.9	48.4	0.0	51.1	31.9	28.9	87.1	28.3	46.7	63.7	22.2	19.9
LnGrp LOS	F	D		D	C	C	F	C	D	E	C	B
Approach Vol, veh/h		547			822			968			837	
Approach Delay, s/veh		52.8			41.7			39.4			35.8	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.8	43.5	23.6	25.4	8.2	52.1	9.2	39.7
Change Period (Y+Rc), s	4.5	6.5	4.5	5.8	4.5	6.5	4.5	5.8
Max Green Setting (Gmax), s	13.2	46.3	27.4	26.8	5.0	54.5	5.2	49.0
Max Q Clear Time (g_c+I1), s	12.2	33.1	18.0	17.6	5.0	14.0	5.7	16.8
Green Ext Time (p_c), s	0.1	3.7	1.1	2.0	0.0	3.2	0.0	1.8

Intersection Summary	
HCM 2010 Ctrl Delay	41.4
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	480	170	50	330	70	180	560	80	250	580	220
Future Volume (veh/h)	70	480	170	50	330	70	180	560	80	250	580	220
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1652	1652	1652	1727	1727	1727	1624	1624	1900	1583	1583	1583
Adj Flow Rate, veh/h	93	640	227	65	429	91	191	596	85	278	644	244
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	1	2	1
Peak Hour Factor	0.75	0.75	0.75	0.77	0.77	0.77	0.94	0.94	0.94	0.90	0.90	0.90
Percent Heavy Veh, %	15	15	15	10	10	10	17	17	17	20	20	20
Cap, veh/h	114	809	362	81	770	344	221	678	96	309	938	419
Arrive On Green	0.07	0.26	0.26	0.05	0.23	0.23	0.14	0.25	0.25	0.20	0.31	0.31
Sat Flow, veh/h	1573	3139	1404	1645	3282	1468	1547	2713	386	1508	3008	1346
Grp Volume(v), veh/h	93	640	227	65	429	91	191	338	343	278	644	244
Grp Sat Flow(s),veh/h/ln	1573	1570	1404	1645	1641	1468	1547	1543	1556	1508	1504	1346
Q Serve(g_s), s	5.0	16.4	12.4	3.4	10.0	4.4	10.4	18.2	18.3	15.6	16.2	13.2
Cycle Q Clear(g_c), s	5.0	16.4	12.4	3.4	10.0	4.4	10.4	18.2	18.3	15.6	16.2	13.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.25	1.00		1.00
Lane Grp Cap(c), veh/h	114	809	362	81	770	344	221	385	389	309	938	419
V/C Ratio(X)	0.81	0.79	0.63	0.80	0.56	0.26	0.86	0.88	0.88	0.90	0.69	0.58
Avail Cap(c_a), veh/h	125	1118	500	192	1290	577	238	424	428	343	1050	470
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.5	29.9	28.4	40.7	29.2	27.0	36.3	31.2	31.2	33.5	26.1	25.0
Incr Delay (d2), s/veh	30.0	2.7	1.8	16.0	0.6	0.4	25.3	17.4	17.7	24.1	1.6	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	7.4	5.0	1.9	4.6	1.8	6.0	9.6	9.7	8.6	6.9	5.0
LnGrp Delay(d),s/veh	69.6	32.6	30.2	56.7	29.8	27.4	61.6	48.6	48.9	57.6	27.7	26.5
LnGrp LOS	E	C	C	E	C	C	E	D	D	E	C	C
Approach Vol, veh/h		960			585			872			1166	
Approach Delay, s/veh		35.6			32.4			51.6			34.6	
Approach LOS		D			C			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.2	27.4	8.8	28.1	16.9	32.8	10.8	26.1
Change Period (Y+Rc), s	4.5	5.8	4.5	5.8	4.5	5.8	4.5	5.8
Max Green Setting (Gmax), s	19.7	23.8	10.1	30.8	13.3	30.2	6.9	34.0
Max Q Clear Time (g_c+I1), s	17.6	20.3	5.4	18.4	12.4	18.2	7.0	12.0
Green Ext Time (p_c), s	0.2	1.3	0.0	3.9	0.0	3.9	0.0	2.8

Intersection Summary	
HCM 2010 Ctrl Delay	38.6
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	224	0	1017	0	0	0	298	2121	0	0	2498	40
Future Volume (veh/h)	224	0	1017	0	0	0	298	2121	0	0	2498	40
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1881	1881	1900	1863	1900	1863	1863	1863	1863	1881	1881
Adj Flow Rate, veh/h	277	0	0	0	0	0	343	2438	0	0	2871	46
Adj No. of Lanes	0	1	1	0	1	0	1	3	1	1	3	1
Peak Hour Factor	0.81	0.92	0.81	0.92	0.92	0.92	0.87	0.87	0.92	0.92	0.87	0.87
Percent Heavy Veh, %	1	2	1	2	2	2	2	2	2	2	1	1
Cap, veh/h	329	0	553	0	2	0	288	3701	1152	2	2677	1127
Arrive On Green	0.18	0.00	0.00	0.00	0.00	0.00	0.16	0.73	0.00	0.00	0.52	0.52
Sat Flow, veh/h	1792	0	1599	0	1863	0	1774	5085	1583	1774	5136	1599
Grp Volume(v), veh/h	277	0	0	0	0	0	343	2438	0	0	2871	46
Grp Sat Flow(s),veh/h/ln	1792	0	1599	0	1863	0	1774	1695	1583	1774	1712	1599
Q Serve(g_s), s	15.2	0.0	0.0	0.0	0.0	0.0	16.5	25.5	0.0	0.0	53.0	0.9
Cycle Q Clear(g_c), s	15.2	0.0	0.0	0.0	0.0	0.0	16.5	25.5	0.0	0.0	53.0	0.9
Prop In Lane	1.00		1.00	0.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	329	0	553	0	2	0	288	3701	1152	2	2677	1127
V/C Ratio(X)	0.84	0.00	0.00	0.00	0.00	0.00	1.19	0.66	0.00	0.00	1.07	0.04
Avail Cap(c_a), veh/h	784	0	959	0	330	0	288	3701	1152	87	2677	1127
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	40.1	0.0	0.0	0.0	0.0	0.0	42.6	7.2	0.0	0.0	24.3	4.6
Incr Delay (d2), s/veh	5.8	0.0	0.0	0.0	0.0	0.0	115.3	0.4	0.0	0.0	40.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.0	0.0	0.0	0.0	0.0	0.0	17.2	11.9	0.0	0.0	34.9	0.6
LnGrp Delay(d),s/veh	45.9	0.0	0.0	0.0	0.0	0.0	157.8	7.7	0.0	0.0	65.0	4.6
LnGrp LOS	D						F	A			F	A
Approach Vol, veh/h		277			0			2781			2917	
Approach Delay, s/veh		45.9			0.0			26.2			64.0	
Approach LOS		D						C			E	

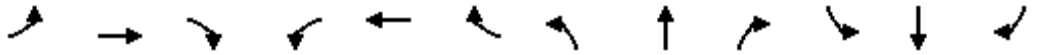
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	0.0	78.5		23.2	21.0	57.5		0.0
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.0	64.5		44.5	16.5	53.0		18.0
Max Q Clear Time (g_c+I1), s	0.0	27.5		17.2	18.5	55.0		0.0
Green Ext Time (p_c), s	0.0	27.9		1.5	0.0	0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	45.6
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	84	230	274	97	404	80	2152	132	792	2737	10
Future Volume (veh/h)	10	84	230	274	97	404	80	2152	132	792	2737	10
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1881	1881	1900
Adj Flow Rate, veh/h	11	91	250	338	105	499	87	4782	293	990	3421	11
Adj No. of Lanes	1	1	1	1	1	2	1	3	1	2	3	0
Peak Hour Factor	0.92	0.92	0.92	0.81	0.92	0.81	0.92	0.45	0.45	0.80	0.80	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	1	1	2
Cap, veh/h	22	224	248	183	393	1006	65	2577	802	521	3277	11
Arrive On Green	0.01	0.12	0.12	0.10	0.21	0.21	0.04	0.51	0.51	0.15	0.62	0.62
Sat Flow, veh/h	1774	1863	1583	1774	1863	2787	1774	5085	1583	3476	5285	17
Grp Volume(v), veh/h	11	91	250	338	105	499	87	4782	293	990	2215	1217
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1393	1774	1695	1583	1738	1712	1878
Q Serve(g_s), s	0.9	6.8	18.0	15.5	7.1	20.9	5.5	76.0	16.8	22.5	93.0	93.0
Cycle Q Clear(g_c), s	0.9	6.8	18.0	15.5	7.1	20.9	5.5	76.0	16.8	22.5	93.0	93.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	22	224	248	183	393	1006	65	2577	802	521	2123	1164
V/C Ratio(X)	0.51	0.41	1.01	1.84	0.27	0.50	1.34	1.86	0.37	1.90	1.04	1.05
Avail Cap(c_a), veh/h	59	224	248	183	393	1006	65	2577	802	521	2123	1164
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	73.6	61.1	63.3	67.3	49.5	37.3	72.2	37.0	22.4	63.7	28.5	28.5
Incr Delay (d2), s/veh	17.0	1.2	59.2	400.1	0.4	0.4	225.7	386.7	0.3	411.7	32.0	39.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	3.6	14.4	28.0	3.7	8.1	6.8	127.6	7.4	40.6	53.1	60.5
LnGrp Delay(d),s/veh	90.6	62.3	122.4	467.3	49.8	37.7	297.9	423.7	22.7	475.4	60.5	67.5
LnGrp LOS	F	E	F	F	D	D	F	F	C	F	F	F
Approach Vol, veh/h		352			942			5162			4422	
Approach Delay, s/veh		105.9			193.2			398.8			155.3	
Approach LOS		F			F			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	27.0	80.5	20.0	22.5	10.0	97.5	6.3	36.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	22.5	76.0	15.5	18.0	5.5	93.0	5.0	28.5
Max Q Clear Time (g_c+I1), s	24.5	78.0	17.5	20.0	7.5	95.0	2.9	22.9
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3

Intersection Summary	
HCM 2010 Ctrl Delay	272.5
HCM 2010 LOS	F



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	925	209	64	648	331	80	915	108	369	774	127
Future Volume (veh/h)	70	925	209	64	648	331	80	915	108	369	774	127
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1881	1881	1881	1900	1881	1881	1881
Adj Flow Rate, veh/h	80	1063	240	74	745	380	88	1005	119	405	851	140
Adj No. of Lanes	1	1	0	1	1	1	1	2	0	1	2	1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	92	669	151	66	819	696	108	805	95	257	1190	532
Arrive On Green	0.05	0.45	0.45	0.04	0.44	0.44	0.06	0.25	0.25	0.14	0.33	0.33
Sat Flow, veh/h	1792	1486	336	1792	1881	1599	1792	3220	381	1792	3574	1599
Grp Volume(v), veh/h	80	0	1303	74	745	380	88	558	566	405	851	140
Grp Sat Flow(s),veh/h/ln	1792	0	1822	1792	1881	1599	1792	1787	1814	1792	1787	1599
Q Serve(g_s), s	6.7	0.0	67.5	5.5	55.5	26.4	7.3	37.5	37.5	21.5	31.3	9.6
Cycle Q Clear(g_c), s	6.7	0.0	67.5	5.5	55.5	26.4	7.3	37.5	37.5	21.5	31.3	9.6
Prop In Lane	1.00		0.18	1.00		1.00	1.00		0.21	1.00		1.00
Lane Grp Cap(c), veh/h	92	0	820	66	819	696	108	447	453	257	1190	532
V/C Ratio(X)	0.87	0.00	1.59	1.13	0.91	0.55	0.81	1.25	1.25	1.58	0.72	0.26
Avail Cap(c_a), veh/h	92	0	820	66	819	696	129	447	453	257	1190	532
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	70.7	0.0	41.3	72.3	39.6	31.4	69.6	56.3	56.3	64.2	43.8	36.6
Incr Delay (d2), s/veh	54.1	0.0	271.0	149.7	14.1	0.9	27.3	129.1	129.3	277.6	2.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	0.0	95.6	5.5	32.0	11.9	4.4	34.5	35.1	30.4	15.8	4.3
LnGrp Delay(d),s/veh	124.8	0.0	312.2	222.2	53.7	32.3	97.0	185.4	185.6	341.9	45.9	36.8
LnGrp LOS	F		F	F	D	C	F	F	F	F	D	D
Approach Vol, veh/h		1383			1199			1212			1396	
Approach Delay, s/veh		301.4			57.3			179.0			130.8	
Approach LOS		F			E			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	26.0	42.0	10.0	72.0	13.6	54.4	12.2	69.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	21.5	37.5	5.5	67.5	10.8	48.2	7.7	65.3
Max Q Clear Time (g_c+I1), s	23.5	39.5	7.5	69.5	9.3	33.3	8.7	57.5
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	5.3	0.0	3.9

Intersection Summary	
HCM 2010 Ctrl Delay	170.6
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	230	1667	834	690	958	70	586	458	1302	283	528	145
Future Volume (veh/h)	230	1667	834	690	958	70	586	458	1302	283	528	145
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1881	1881	1881	1900	1900	1900	1792	1792	1792
Adj Flow Rate, veh/h	250	1812	0	742	1030	0	698	545	0	322	600	0
Adj No. of Lanes	2	3	1	2	3	1	2	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.84	0.84	0.84	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	1	1	1	0	0	0	6	6	6
Cap, veh/h	307	1602	705	661	2137	665	459	975	744	235	716	321
Arrive On Green	0.09	0.31	0.00	0.19	0.42	0.00	0.13	0.27	0.00	0.07	0.21	0.00
Sat Flow, veh/h	3442	5085	1583	3476	5136	1599	3510	3610	1615	3312	3406	1524
Grp Volume(v), veh/h	250	1812	0	742	1030	0	698	545	0	322	600	0
Grp Sat Flow(s),veh/h/ln	1721	1695	1583	1738	1712	1599	1755	1805	1615	1656	1703	1524
Q Serve(g_s), s	9.6	42.2	0.0	25.5	19.6	0.0	17.5	17.4	0.0	9.5	22.6	0.0
Cycle Q Clear(g_c), s	9.6	42.2	0.0	25.5	19.6	0.0	17.5	17.4	0.0	9.5	22.6	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	307	1602	705	661	2137	665	459	975	744	235	716	321
V/C Ratio(X)	0.81	1.13	0.00	1.12	0.48	0.00	1.52	0.56	0.00	1.37	0.84	0.00
Avail Cap(c_a), veh/h	444	1602	705	661	2137	665	459	1406	937	235	1123	503
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	59.9	45.9	0.0	54.2	28.6	0.0	58.2	42.0	0.0	62.2	50.7	0.0
Incr Delay (d2), s/veh	7.4	67.6	0.0	73.5	0.2	0.0	246.0	0.5	0.0	191.8	3.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	29.7	0.0	19.0	9.3	0.0	24.1	8.8	0.0	10.6	11.0	0.0
LnGrp Delay(d),s/veh	67.4	113.5	0.0	127.7	28.7	0.0	304.2	42.5	0.0	254.0	54.0	0.0
LnGrp LOS	E	F		F	C		F	D		F	D	
Approach Vol, veh/h		2062			1772			1243			922	
Approach Delay, s/veh		107.9			70.2			189.5			123.9	
Approach LOS		F			E			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	42.0	30.0	48.0	22.0	34.0	16.5	61.5
Change Period (Y+Rc), s	4.5	5.8	4.5	5.8	4.5	5.8	4.5	5.8
Max Green Setting (Gmax), s	9.5	52.2	25.5	42.2	17.5	44.2	17.3	50.4
Max Q Clear Time (g_c+I1), s	11.5	19.4	27.5	44.2	19.5	24.6	11.6	21.6
Green Ext Time (p_c), s	0.0	3.5	0.0	0.0	0.0	3.6	0.4	7.5

Intersection Summary	
HCM 2010 Ctrl Delay	116.1
HCM 2010 LOS	F

14800 W. Schulte Rd Traffic Impact Study

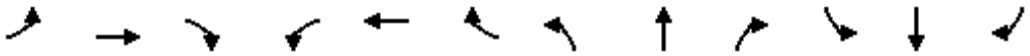
Caltrans Peak Hour Warrant Summary

ID	Intersection	Existing Control	Ex. Peak Hr		EPAP		EPAP+P		Cumulative NP		Cumulative + P	
			AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
			Warrant Met?		Warrant Met?		Warrant Met?		Warrant Met?		Warrant Met?	
3	Schulte Road and Lammers Road	AWS	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
4	Valpico Road and Lammers Road	OWS	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
5	Valpico Road and Corral Hollow Road	AWS	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note:
OWS - One Way Stop control
AWS - All Way Stop control

Appendix F ANALYSIS: CUMULATIVE PLUS PROJECT CONDITIONS

- LOS CALCULATION SHEETS & MITIGATED LOS
- SIGNAL WARRANTS
- PROJECT FAIR SHARE CALCULATIONS



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	27	199	43	759	42	334	46	379	304	282	426	212
v/c Ratio	0.34	0.71	0.11	0.80	0.06	0.40	0.62	0.68	0.44	0.72	0.48	0.39
Control Delay	63.7	57.8	0.6	41.1	18.0	3.8	86.8	47.0	6.4	56.6	34.1	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.7	57.8	0.6	41.1	18.0	3.8	86.8	47.0	6.4	56.6	34.1	6.4
Queue Length 50th (ft)	19	131	0	245	16	0	32	131	0	98	134	0
Queue Length 95th (ft)	51	#239	0	346	41	54	#98	182	39	#170	183	55
Internal Link Dist (ft)		1694			1451			380			1029	
Turn Bay Length (ft)	105			260		355	225		235	325		265
Base Capacity (vph)	79	314	409	1020	784	838	74	1340	1224	397	1631	829
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.63	0.11	0.74	0.05	0.40	0.62	0.28	0.25	0.71	0.26	0.26

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	183	40	681	39	294	42	349	229	223	392	195
Future Volume (veh/h)	25	183	40	698	39	307	42	349	280	259	392	195
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1727	1727	1727	1624	1624	1624	1583	1583	1583	1624	1624	1624
Adj Flow Rate, veh/h	27	199	0	759	42	334	46	379	304	282	426	212
Adj No. of Lanes	1	1	1	2	1	1	1	2	2	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	10	10	10	17	17	17	20	20	20	17	17	17
Cap, veh/h	46	246	209	881	662	563	59	562	443	359	824	369
Arrive On Green	0.03	0.14	0.00	0.29	0.41	0.41	0.04	0.19	0.19	0.12	0.27	0.27
Sat Flow, veh/h	1645	1727	1468	3000	1624	1380	1508	3008	2369	3000	3085	1380
Grp Volume(v), veh/h	27	199	0	759	42	334	46	379	304	282	426	212
Grp Sat Flow(s),veh/h/ln	1645	1727	1468	1500	1624	1380	1508	1504	1184	1500	1543	1380
Q Serve(g_s), s	1.3	9.2	0.0	19.8	1.3	15.6	2.5	9.7	9.9	7.5	9.7	11.0
Cycle Q Clear(g_c), s	1.3	9.2	0.0	19.8	1.3	15.6	2.5	9.7	9.9	7.5	9.7	11.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	46	246	209	881	662	563	59	562	443	359	824	369
V/C Ratio(X)	0.59	0.81	0.00	0.86	0.06	0.59	0.77	0.67	0.69	0.79	0.52	0.58
Avail Cap(c_a), veh/h	100	393	334	1278	963	818	93	1674	1318	497	2038	912
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.7	34.4	0.0	27.6	14.9	19.1	39.3	31.3	31.4	35.4	25.8	26.2
Incr Delay (d2), s/veh	11.3	6.6	0.0	4.3	0.0	1.0	18.8	1.4	1.9	5.6	0.5	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	4.9	0.0	8.6	0.6	6.1	1.3	4.1	3.3	3.4	4.2	4.3
LnGrp Delay(d),s/veh	51.0	41.0	0.0	31.9	14.9	20.1	58.2	32.7	33.3	40.9	26.3	27.6
LnGrp LOS	D	D		C	B	C	E	C	C	D	C	C
Approach Vol, veh/h		226			1135			729			920	
Approach Delay, s/veh		42.2			27.8			34.5			31.1	
Approach LOS		D			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.4	21.9	28.8	17.6	7.8	28.6	6.8	39.5
Change Period (Y+Rc), s	4.5	6.5	4.5	5.8	4.5	6.5	4.5	5.8
Max Green Setting (Gmax), s	13.7	46.0	35.2	18.8	5.1	54.6	5.0	49.0
Max Q Clear Time (g_c+I1), s	9.5	11.9	21.8	11.2	4.5	13.0	3.3	17.6
Green Ext Time (p_c), s	0.4	3.5	2.5	0.5	0.0	3.3	0.0	1.4

Intersection Summary	
HCM 2010 Ctrl Delay	31.5
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	183	40	681	39	294	42	349	229	223	392	195
Future Volume (veh/h)	25	183	40	698	39	307	42	349	280	259	392	195
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1727	1727	1727	1624	1624	1624	1583	1583	1583	1624	1624	1624
Adj Flow Rate, veh/h	27	199	0	759	42	334	46	379	304	282	426	212
Adj No. of Lanes	1	2	1	2	1	1	1	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	10	10	10	17	17	17	20	20	20	17	17	17
Cap, veh/h	45	289	129	873	571	485	57	813	364	351	1078	482
Arrive On Green	0.03	0.09	0.00	0.29	0.35	0.35	0.04	0.27	0.27	0.12	0.35	0.35
Sat Flow, veh/h	1645	3282	1468	3000	1624	1380	1508	3008	1346	3000	3085	1380
Grp Volume(v), veh/h	27	199	0	759	42	334	46	379	304	282	426	212
Grp Sat Flow(s),veh/h/ln	1645	1641	1468	1500	1624	1380	1508	1504	1346	1500	1543	1380
Q Serve(g_s), s	1.5	5.4	0.0	21.8	1.6	18.8	2.8	9.6	19.4	8.3	9.5	10.7
Cycle Q Clear(g_c), s	1.5	5.4	0.0	21.8	1.6	18.8	2.8	9.6	19.4	8.3	9.5	10.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	45	289	129	873	571	485	57	813	364	351	1078	482
V/C Ratio(X)	0.60	0.69	0.00	0.87	0.07	0.69	0.81	0.47	0.84	0.80	0.40	0.44
Avail Cap(c_a), veh/h	90	538	240	1290	875	744	85	1521	681	452	1852	828
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.8	40.3	0.0	30.6	19.6	25.2	43.4	27.7	31.3	39.2	22.3	22.8
Incr Delay (d2), s/veh	12.4	2.9	0.0	4.5	0.1	1.7	28.5	0.4	5.1	7.9	0.2	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	2.5	0.0	9.6	0.7	7.4	1.6	4.0	7.7	3.8	4.1	4.2
LnGrp Delay(d),s/veh	56.2	43.2	0.0	35.2	19.7	27.0	71.9	28.1	36.4	47.1	22.6	23.4
LnGrp LOS	E	D		D	B	C	E	C	D	D	C	C
Approach Vol, veh/h		226			1135			729			920	
Approach Delay, s/veh		44.8			32.2			34.3			30.3	
Approach LOS		D			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.1	31.1	31.0	13.8	7.9	38.3	7.0	37.8
Change Period (Y+Rc), s	4.5	6.5	4.5	5.8	4.5	6.5	4.5	5.8
Max Green Setting (Gmax), s	13.7	46.0	39.1	14.9	5.1	54.6	5.0	49.0
Max Q Clear Time (g_c+I1), s	10.3	21.4	23.8	7.4	4.8	12.7	3.5	20.8
Green Ext Time (p_c), s	0.3	3.2	2.6	0.6	0.0	3.3	0.0	1.4

Intersection Summary	
HCM 2010 Ctrl Delay	33.1
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	180	140	30	100	560	180	70	200	50	60	120	60
Future Volume (veh/h)	180	227	30	100	590	190	70	200	50	89	120	60
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1583	1583	1583	1827	1827	1827	1583	1583	1900	1667	1667	1900
Adj Flow Rate, veh/h	196	247	33	109	641	207	76	217	54	97	130	65
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	20	20	20	4	4	4	20	20	20	14	14	14
Cap, veh/h	227	723	614	139	705	599	92	310	76	120	301	143
Arrive On Green	0.15	0.46	0.46	0.08	0.39	0.39	0.06	0.13	0.13	0.08	0.14	0.14
Sat Flow, veh/h	1508	1583	1346	1740	1827	1553	1508	2400	585	1587	2086	990
Grp Volume(v), veh/h	196	247	33	109	641	207	76	134	137	97	97	98
Grp Sat Flow(s),veh/h/ln	1508	1583	1346	1740	1827	1553	1508	1504	1480	1587	1583	1492
Q Serve(g_s), s	10.1	8.0	1.1	4.9	26.5	7.5	4.0	6.8	7.1	4.8	4.5	4.8
Cycle Q Clear(g_c), s	10.1	8.0	1.1	4.9	26.5	7.5	4.0	6.8	7.1	4.8	4.5	4.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.39	1.00		0.66
Lane Grp Cap(c), veh/h	227	723	614	139	705	599	92	195	191	120	228	215
V/C Ratio(X)	0.86	0.34	0.05	0.78	0.91	0.35	0.83	0.69	0.71	0.81	0.42	0.46
Avail Cap(c_a), veh/h	255	723	614	288	783	666	110	501	493	201	613	578
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.1	14.0	12.1	36.0	23.2	17.4	37.0	33.2	33.3	36.3	31.1	31.3
Incr Delay (d2), s/veh	22.9	0.3	0.0	9.2	13.7	0.3	33.7	4.3	4.9	11.8	1.3	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	3.6	0.4	2.7	16.0	3.3	2.5	3.1	3.1	2.5	2.0	2.1
LnGrp Delay(d),s/veh	56.0	14.2	12.1	45.2	36.9	17.7	70.8	37.5	38.2	48.1	32.4	32.8
LnGrp LOS	E	B	B	D	D	B	E	D	D	D	C	C
Approach Vol, veh/h		476			957			347			292	
Approach Delay, s/veh		31.3			33.7			45.1			37.7	
Approach LOS		C			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.6	16.1	10.9	42.2	9.4	17.3	16.5	36.6
Change Period (Y+Rc), s	4.5	5.8	4.5	5.8	4.5	5.8	4.5	5.8
Max Green Setting (Gmax), s	10.1	26.6	13.2	34.5	5.8	30.9	13.5	34.2
Max Q Clear Time (g_c+I1), s	6.8	9.1	6.9	10.0	6.0	6.8	12.1	28.5
Green Ext Time (p_c), s	0.1	1.2	0.1	1.4	0.0	1.0	0.1	2.3

Intersection Summary	
HCM 2010 Ctrl Delay	35.6
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	195	0	126	0	0	0	457	2338	0	0	1425	151
Future Volume (veh/h)	196	0	127	0	0	0	463	2338	0	0	1425	157
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1681	1681	1900	1863	1900	1845	1845	1863	1863	1845	1845
Adj Flow Rate, veh/h	213	0	138	0	0	0	503	2541	0	0	1549	171
Adj No. of Lanes	0	1	1	0	1	0	1	3	1	1	3	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	13	2	13	2	2	2	3	3	2	2	3	3
Cap, veh/h	250	0	223	0	2	0	546	3787	1191	2	1992	620
Arrive On Green	0.16	0.00	0.16	0.00	0.00	0.00	0.31	0.75	0.00	0.00	0.40	0.40
Sat Flow, veh/h	1601	0	1429	0	1863	0	1757	5036	1583	1774	5036	1568
Grp Volume(v), veh/h	213	0	138	0	0	0	503	2541	0	0	1549	171
Grp Sat Flow(s),veh/h/ln	1601	0	1429	0	1863	0	1757	1679	1583	1774	1679	1568
Q Serve(g_s), s	12.7	0.0	8.8	0.0	0.0	0.0	27.1	24.7	0.0	0.0	26.3	7.2
Cycle Q Clear(g_c), s	12.7	0.0	8.8	0.0	0.0	0.0	27.1	24.7	0.0	0.0	26.3	7.2
Prop In Lane	1.00		1.00	0.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	250	0	223	0	2	0	546	3787	1191	2	1992	620
V/C Ratio(X)	0.85	0.00	0.62	0.00	0.00	0.00	0.92	0.67	0.00	0.00	0.78	0.28
Avail Cap(c_a), veh/h	306	0	273	0	343	0	727	4134	1300	91	2306	718
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	40.2	0.0	38.6	0.0	0.0	0.0	32.6	6.1	0.0	0.0	25.8	20.1
Incr Delay (d2), s/veh	17.3	0.0	2.9	0.0	0.0	0.0	14.3	0.4	0.0	0.0	1.5	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.8	0.0	3.7	0.0	0.0	0.0	15.3	11.4	0.0	0.0	12.5	3.2
LnGrp Delay(d),s/veh	57.5	0.0	41.5	0.0	0.0	0.0	46.9	6.5	0.0	0.0	27.3	20.3
LnGrp LOS	E		D				D	A			C	C
Approach Vol, veh/h		351			0			3044			1720	
Approach Delay, s/veh		51.2			0.0			13.1			26.6	
Approach LOS		D						B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	0.0	78.1		19.8	34.9	43.2		0.0
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.0	80.3		18.7	40.5	44.8		18.0
Max Q Clear Time (g_c+I1), s	0.0	26.7		14.7	29.1	28.3		0.0
Green Ext Time (p_c), s	0.0	38.5		0.6	1.3	10.4		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	20.3
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	22	30	88	45	855	20	2012	127	262	1286	30
Future Volume (veh/h)	10	22	30	88	45	861	20	2012	127	263	1286	30
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1810	1812	1900	1863	1712	1712	1792	1794	1900
Adj Flow Rate, veh/h	11	24	33	96	49	936	22	2187	138	286	1398	33
Adj No. of Lanes	1	1	1	1	2	0	1	3	1	1	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	5	2	5	2	11	11	6	6	2
Cap, veh/h	22	334	284	117	405	362	36	2177	678	280	3002	71
Arrive On Green	0.01	0.18	0.18	0.07	0.24	0.24	0.02	0.47	0.47	0.16	0.61	0.61
Sat Flow, veh/h	1774	1863	1583	1723	1721	1540	1774	4673	1455	1707	4922	116
Grp Volume(v), veh/h	11	24	33	96	49	936	22	2187	138	286	927	504
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1723	1721	1540	1774	1558	1455	1707	1633	1774
Q Serve(g_s), s	0.9	1.6	2.6	8.1	3.3	34.5	1.8	68.4	8.2	24.1	22.7	22.7
Cycle Q Clear(g_c), s	0.9	1.6	2.6	8.1	3.3	34.5	1.8	68.4	8.2	24.1	22.7	22.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.07
Lane Grp Cap(c), veh/h	22	334	284	117	405	362	36	2177	678	280	1991	1082
V/C Ratio(X)	0.50	0.07	0.12	0.82	0.12	2.59	0.61	1.00	0.20	1.02	0.47	0.47
Avail Cap(c_a), veh/h	60	334	284	187	405	362	74	2177	678	280	1991	1082
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	72.1	50.1	50.5	67.5	44.2	56.2	71.4	39.2	23.1	61.4	15.6	15.6
Incr Delay (d2), s/veh	16.8	0.1	0.2	14.3	0.1	721.7	15.9	20.4	0.1	59.1	0.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.8	1.1	4.3	1.6	87.1	1.0	33.3	3.3	15.9	10.2	11.1
LnGrp Delay(d),s/veh	88.9	50.2	50.6	81.9	44.3	777.8	87.2	59.6	23.3	120.6	15.8	15.9
LnGrp LOS	F	D	D	F	D	F	F	F	C	F	B	B
Approach Vol, veh/h		68			1081			2347			1717	
Approach Delay, s/veh		56.7			682.8			57.7			33.3	
Approach LOS		E			F			E			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	28.6	72.9	14.5	30.9	7.5	94.0	6.3	39.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	24.1	68.4	15.9	23.6	6.1	86.4	5.0	34.5
Max Q Clear Time (g_c+I1), s	26.1	70.4	10.1	4.6	3.8	24.7	2.9	36.5
Green Ext Time (p_c), s	0.0	0.0	0.1	0.1	0.0	12.7	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	179.3
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	246	272	100	751	158	70	650	90	134	443	177
Future Volume (veh/h)	52	246	272	100	753	158	71	650	90	134	443	180
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1776	1776	1900	1881	1881	1881	1810	1810	1900	1776	1776	1776
Adj Flow Rate, veh/h	57	267	296	109	818	172	77	707	98	146	482	196
Adj No. of Lanes	1	1	0	1	1	1	1	2	0	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	7	7	7	1	1	1	5	5	5	7	7	7
Cap, veh/h	72	308	341	136	815	692	98	755	105	159	965	432
Arrive On Green	0.04	0.40	0.40	0.08	0.43	0.43	0.06	0.25	0.25	0.09	0.29	0.29
Sat Flow, veh/h	1691	771	854	1792	1881	1599	1723	3034	420	1691	3374	1509
Grp Volume(v), veh/h	57	0	563	109	818	172	77	400	405	146	482	196
Grp Sat Flow(s),veh/h/ln	1691	0	1625	1792	1881	1599	1723	1719	1735	1691	1687	1509
Q Serve(g_s), s	3.3	0.0	31.5	5.9	42.9	6.8	4.4	22.6	22.6	8.5	11.8	10.6
Cycle Q Clear(g_c), s	3.3	0.0	31.5	5.9	42.9	6.8	4.4	22.6	22.6	8.5	11.8	10.6
Prop In Lane	1.00		0.53	1.00		1.00	1.00		0.24	1.00		1.00
Lane Grp Cap(c), veh/h	72	0	649	136	815	692	98	428	432	159	965	432
V/C Ratio(X)	0.79	0.00	0.87	0.80	1.00	0.25	0.78	0.94	0.94	0.92	0.50	0.45
Avail Cap(c_a), veh/h	87	0	656	145	815	692	176	429	433	159	965	432
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.0	0.0	27.3	45.0	28.1	17.8	46.1	36.4	36.4	44.5	29.5	29.0
Incr Delay (d2), s/veh	32.8	0.0	11.8	25.3	32.5	0.2	12.8	27.9	27.9	48.5	0.4	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	16.2	3.9	29.5	3.0	2.4	14.0	14.1	6.1	5.5	4.5
LnGrp Delay(d),s/veh	79.8	0.0	39.1	70.3	60.6	18.0	58.9	64.3	64.4	93.0	29.9	29.8
LnGrp LOS	E		D	E	F	B	E	E	E	F	C	C
Approach Vol, veh/h		620			1099			882			824	
Approach Delay, s/veh		42.9			54.9			63.9			41.0	
Approach LOS		D			D			E			D	

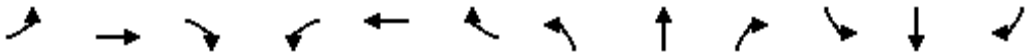
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.8	29.2	12.0	44.1	10.1	32.8	8.7	47.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	9.3	24.7	8.0	40.0	10.1	23.9	5.1	42.9
Max Q Clear Time (g_c+I1), s	10.5	24.6	7.9	33.5	6.4	13.8	5.3	44.9
Green Ext Time (p_c), s	0.0	0.0	0.0	1.9	0.0	2.7	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	51.7
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	76	613	715	910	1516	140	806	284	965	142	320	130
Future Volume (veh/h)	76	613	717	913	1516	140	806	284	966	142	321	130
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1696	1696	1696	1863	1863	1863	1881	1881	1881	1792	1792	1792
Adj Flow Rate, veh/h	83	666	0	992	1648	0	876	309	0	154	349	0
Adj No. of Lanes	2	3	1	2	3	1	2	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	12	12	12	2	2	2	1	1	1	6	6	6
Cap, veh/h	134	1071	334	788	2123	661	730	1058	473	170	467	209
Arrive On Green	0.04	0.23	0.00	0.23	0.42	0.00	0.21	0.30	0.00	0.05	0.14	0.00
Sat Flow, veh/h	3134	4631	1442	3442	5085	1583	3476	3574	1599	3312	3406	1524
Grp Volume(v), veh/h	83	666	0	992	1648	0	876	309	0	154	349	0
Grp Sat Flow(s),veh/h/ln	1567	1544	1442	1721	1695	1583	1738	1787	1599	1656	1703	1524
Q Serve(g_s), s	2.8	13.8	0.0	24.5	29.9	0.0	22.5	7.1	0.0	5.0	10.5	0.0
Cycle Q Clear(g_c), s	2.8	13.8	0.0	24.5	29.9	0.0	22.5	7.1	0.0	5.0	10.5	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	134	1071	334	788	2123	661	730	1058	473	170	467	209
V/C Ratio(X)	0.62	0.62	0.00	1.26	0.78	0.00	1.20	0.29	0.00	0.91	0.75	0.00
Avail Cap(c_a), veh/h	179	1653	515	788	2689	837	730	2043	914	170	1406	629
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	50.4	36.9	0.0	41.3	26.9	0.0	42.3	29.0	0.0	50.5	44.4	0.0
Incr Delay (d2), s/veh	4.6	0.6	0.0	127.0	1.1	0.0	102.6	0.2	0.0	42.9	2.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	5.9	0.0	25.5	14.1	0.0	21.2	3.5	0.0	3.3	5.1	0.0
LnGrp Delay(d),s/veh	55.0	37.5	0.0	168.3	28.0	0.0	144.9	29.2	0.0	93.4	46.8	0.0
LnGrp LOS	D	D		F	C		F	C		F	D	
Approach Vol, veh/h		749			2640			1185			503	
Approach Delay, s/veh		39.5			80.7			114.7			61.1	
Approach LOS		D			F			F			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.0	37.5	29.0	30.6	27.0	20.5	9.1	50.5
Change Period (Y+Rc), s	4.5	5.8	4.5	5.8	4.5	5.8	4.5	5.8
Max Green Setting (Gmax), s	5.5	61.2	24.5	38.2	22.5	44.2	6.1	56.6
Max Q Clear Time (g_c+I1), s	7.0	9.1	26.5	15.8	24.5	12.5	4.8	31.9
Green Ext Time (p_c), s	0.0	1.9	0.0	4.3	0.0	2.1	0.0	12.8

Intersection Summary	
HCM 2010 Ctrl Delay	80.6
HCM 2010 LOS	F



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	57	490	89	501	260	165	45	482	461	292	478	81
v/c Ratio	0.47	0.90	0.16	0.90	0.37	0.24	0.51	0.72	0.52	0.85	0.56	0.17
Control Delay	68.4	62.5	0.6	68.7	26.6	4.6	78.4	52.0	5.7	75.7	40.4	2.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.4	62.5	0.6	68.7	26.6	4.6	78.4	52.0	5.7	75.7	40.4	2.3
Queue Length 50th (ft)	44	369	0	201	138	0	35	188	0	118	174	0
Queue Length 95th (ft)	71	393	0	#277	210	33	#88	248	46	#207	226	11
Internal Link Dist (ft)		1694			1451			380			1029	
Turn Bay Length (ft)	105			260		355	225		235	325		265
Base Capacity (vph)	147	543	573	559	710	686	91	1272	1270	345	1355	674
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.90	0.16	0.90	0.37	0.24	0.49	0.38	0.36	0.85	0.35	0.12

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	343	62	361	213	100	42	448	410	247	425	72
Future Volume (veh/h)	40	343	62	411	213	135	42	448	429	260	425	72
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1743	1743	1583	1583	1583	1727	1727	1727	1583	1583	1583
Adj Flow Rate, veh/h	57	490	0	501	260	165	45	482	461	292	478	81
Adj No. of Lanes	1	1	1	2	1	1	1	2	2	2	2	1
Peak Hour Factor	0.70	0.70	0.70	0.82	0.82	0.82	0.93	0.93	0.93	0.89	0.89	0.89
Percent Heavy Veh, %	9	9	9	20	20	20	10	10	10	20	20	20
Cap, veh/h	72	517	440	544	696	591	56	750	589	336	931	416
Arrive On Green	0.04	0.30	0.00	0.19	0.44	0.44	0.03	0.23	0.23	0.11	0.31	0.31
Sat Flow, veh/h	1660	1743	1482	2925	1583	1345	1645	3282	2577	2925	3008	1346
Grp Volume(v), veh/h	57	490	0	501	260	165	45	482	461	292	478	81
Grp Sat Flow(s),veh/h/ln	1660	1743	1482	1463	1583	1345	1645	1641	1289	1463	1504	1346
Q Serve(g_s), s	4.2	33.7	0.0	20.6	13.5	9.6	3.3	16.3	20.6	12.0	16.0	5.4
Cycle Q Clear(g_c), s	4.2	33.7	0.0	20.6	13.5	9.6	3.3	16.3	20.6	12.0	16.0	5.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	72	517	440	544	696	591	56	750	589	336	931	416
V/C Ratio(X)	0.79	0.95	0.00	0.92	0.37	0.28	0.80	0.64	0.78	0.87	0.51	0.19
Avail Cap(c_a), veh/h	147	543	461	560	696	591	91	1270	997	346	1353	605
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.2	42.2	0.0	49.1	23.1	22.0	58.9	42.8	44.5	53.4	34.8	31.1
Incr Delay (d2), s/veh	17.4	25.5	0.0	20.3	0.3	0.3	22.4	0.9	2.3	20.1	0.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	19.9	0.0	9.9	6.0	3.6	1.9	7.5	7.5	5.8	6.7	2.0
LnGrp Delay(d),s/veh	75.6	67.7	0.0	69.4	23.4	22.2	81.2	43.7	46.8	73.5	35.2	31.4
LnGrp LOS	E	E		E	C	C	F	D	D	E	D	C
Approach Vol, veh/h		547			926			988			851	
Approach Delay, s/veh		68.5			48.1			46.9			48.0	
Approach LOS		E			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.6	34.6	27.3	42.2	8.7	44.5	9.8	59.8
Change Period (Y+Rc), s	4.5	6.5	4.5	5.8	4.5	6.5	4.5	5.8
Max Green Setting (Gmax), s	14.5	47.5	23.5	38.2	6.8	55.2	10.9	50.8
Max Q Clear Time (g_c+I1), s	14.0	22.6	22.6	35.7	5.3	18.0	6.2	15.5
Green Ext Time (p_c), s	0.1	4.8	0.2	0.7	0.0	3.2	0.0	2.0

Intersection Summary	
HCM 2010 Ctrl Delay	51.1
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	343	62	361	213	100	42	448	410	247	425	72
Future Volume (veh/h)	40	343	62	411	213	135	42	448	429	260	425	72
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1743	1743	1583	1583	1583	1727	1727	1727	1583	1583	1583
Adj Flow Rate, veh/h	57	490	0	501	260	165	45	482	461	292	478	81
Adj No. of Lanes	1	2	1	2	1	1	1	2	1	2	2	1
Peak Hour Factor	0.70	0.70	0.70	0.82	0.82	0.82	0.93	0.93	0.93	0.89	0.89	0.89
Percent Heavy Veh, %	9	9	9	20	20	20	10	10	10	20	20	20
Cap, veh/h	72	579	259	561	512	435	56	1129	504	324	1265	566
Arrive On Green	0.04	0.17	0.00	0.19	0.32	0.32	0.03	0.34	0.34	0.11	0.42	0.42
Sat Flow, veh/h	1660	3312	1482	2925	1583	1345	1645	3282	1466	2925	3008	1346
Grp Volume(v), veh/h	57	490	0	501	260	165	45	482	461	292	478	81
Grp Sat Flow(s),veh/h/ln	1660	1656	1482	1463	1583	1345	1645	1641	1466	1463	1504	1346
Q Serve(g_s), s	4.1	17.1	0.0	19.9	15.8	11.3	3.2	13.5	35.9	11.8	13.0	4.4
Cycle Q Clear(g_c), s	4.1	17.1	0.0	19.9	15.8	11.3	3.2	13.5	35.9	11.8	13.0	4.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	72	579	259	561	512	435	56	1129	504	324	1265	566
V/C Ratio(X)	0.80	0.85	0.00	0.89	0.51	0.38	0.80	0.43	0.91	0.90	0.38	0.14
Avail Cap(c_a), veh/h	72	745	333	672	651	553	69	1275	569	324	1375	615
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.5	47.6	0.0	47.0	32.6	31.1	57.2	30.1	37.4	52.4	23.8	21.3
Incr Delay (d2), s/veh	44.2	7.2	0.0	12.7	0.8	0.5	40.9	0.3	18.2	26.8	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	8.4	0.0	9.1	7.0	4.3	2.1	6.1	17.0	5.9	5.4	1.7
LnGrp Delay(d),s/veh	100.7	54.8	0.0	59.7	33.4	31.6	98.1	30.3	55.6	79.1	24.0	21.4
LnGrp LOS	F	D		E	C	C	F	C	E	E	C	C
Approach Vol, veh/h		547			926			988			851	
Approach Delay, s/veh		59.6			47.3			45.2			42.7	
Approach LOS		E			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.7	47.5	27.4	26.6	8.6	56.6	9.6	44.4
Change Period (Y+Rc), s	4.5	6.5	4.5	5.8	4.5	6.5	4.5	5.8
Max Green Setting (Gmax), s	13.2	46.3	27.4	26.8	5.0	54.5	5.2	49.0
Max Q Clear Time (g_c+I1), s	13.8	37.9	21.9	19.1	5.2	15.0	6.1	17.8
Green Ext Time (p_c), s	0.0	2.9	1.0	1.8	0.0	3.2	0.0	2.0

Intersection Summary	
HCM 2010 Ctrl Delay	47.5
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	480	170	50	330	70	180	560	80	250	580	220
Future Volume (veh/h)	70	512	170	50	415	97	180	560	80	262	580	220
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1652	1652	1652	1727	1727	1727	1624	1624	1900	1583	1583	1900
Adj Flow Rate, veh/h	93	683	227	65	539	126	191	596	85	291	644	244
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.75	0.75	0.75	0.77	0.77	0.77	0.94	0.94	0.94	0.90	0.90	0.90
Percent Heavy Veh, %	15	15	15	10	10	10	17	17	17	20	20	20
Cap, veh/h	106	639	543	72	627	533	189	635	90	276	630	238
Arrive On Green	0.07	0.39	0.39	0.04	0.36	0.36	0.12	0.23	0.23	0.18	0.29	0.29
Sat Flow, veh/h	1573	1652	1404	1645	1727	1468	1547	2713	386	1508	2136	809
Grp Volume(v), veh/h	93	683	227	65	539	126	191	338	343	291	453	435
Grp Sat Flow(s),veh/h/ln	1573	1652	1404	1645	1727	1468	1547	1543	1556	1508	1504	1441
Q Serve(g_s), s	7.9	52.2	16.0	5.3	39.0	8.1	16.5	29.1	29.2	24.7	39.8	39.8
Cycle Q Clear(g_c), s	7.9	52.2	16.0	5.3	39.0	8.1	16.5	29.1	29.2	24.7	39.8	39.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.25	1.00		0.56
Lane Grp Cap(c), veh/h	106	639	543	72	627	533	189	361	364	276	443	425
V/C Ratio(X)	0.88	1.07	0.42	0.90	0.86	0.24	1.01	0.94	0.94	1.05	1.02	1.02
Avail Cap(c_a), veh/h	106	639	543	72	627	533	189	361	364	276	443	425
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	62.4	41.4	30.3	64.3	39.8	30.0	59.3	50.7	50.8	55.2	47.6	47.6
Incr Delay (d2), s/veh	50.8	55.5	0.5	73.9	11.6	0.2	68.2	31.6	32.2	69.3	48.6	49.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	33.6	6.2	3.9	20.6	3.3	10.6	15.6	15.8	15.6	22.5	21.7
LnGrp Delay(d),s/veh	113.2	96.9	30.8	138.2	51.4	30.2	127.5	82.4	83.0	124.5	96.2	97.3
LnGrp LOS	F	F	C	F	D	C	F	F	F	F	F	F
Approach Vol, veh/h		1003			730			872			1179	
Approach Delay, s/veh		83.5			55.5			92.5			103.6	
Approach LOS		F			E			F			F	

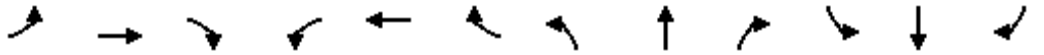
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	29.2	37.4	10.4	58.0	21.0	45.6	13.6	54.8
Change Period (Y+Rc), s	4.5	5.8	4.5	5.8	4.5	5.8	4.5	5.8
Max Green Setting (Gmax), s	24.7	31.6	5.9	52.2	16.5	39.8	9.1	49.0
Max Q Clear Time (g_c+I1), s	26.7	31.2	7.3	54.2	18.5	41.8	9.9	41.0
Green Ext Time (p_c), s	0.0	0.2	0.0	0.0	0.0	0.0	0.0	2.3

Intersection Summary	
HCM 2010 Ctrl Delay	86.4
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	224	0	1017	0	0	0	298	2121	0	0	2498	40
Future Volume (veh/h)	231	0	1024	0	0	0	300	2121	0	0	2498	42
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1881	1881	1900	1863	1900	1863	1863	1863	1863	1881	1881
Adj Flow Rate, veh/h	285	0	0	0	0	0	345	2438	0	0	2871	48
Adj No. of Lanes	0	1	1	0	1	0	1	3	1	1	3	1
Peak Hour Factor	0.81	0.92	0.81	0.92	0.92	0.92	0.87	0.87	0.92	0.92	0.87	0.87
Percent Heavy Veh, %	1	2	1	2	2	2	2	2	2	2	1	1
Cap, veh/h	337	0	301	0	2	0	286	3680	1146	2	2662	829
Arrive On Green	0.19	0.00	0.00	0.00	0.00	0.00	0.16	0.72	0.00	0.00	0.52	0.52
Sat Flow, veh/h	1792	0	1599	0	1863	0	1774	5085	1583	1774	5136	1599
Grp Volume(v), veh/h	285	0	0	0	0	0	345	2438	0	0	2871	48
Grp Sat Flow(s),veh/h/ln	1792	0	1599	0	1863	0	1774	1695	1583	1774	1712	1599
Q Serve(g_s), s	15.7	0.0	0.0	0.0	0.0	0.0	16.5	26.0	0.0	0.0	53.0	1.5
Cycle Q Clear(g_c), s	15.7	0.0	0.0	0.0	0.0	0.0	16.5	26.0	0.0	0.0	53.0	1.5
Prop In Lane	1.00		1.00	0.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	337	0	301	0	2	0	286	3680	1146	2	2662	829
V/C Ratio(X)	0.84	0.00	0.00	0.00	0.00	0.00	1.21	0.66	0.00	0.00	1.08	0.06
Avail Cap(c_a), veh/h	780	0	696	0	328	0	286	3680	1146	87	2662	829
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	40.1	0.0	0.0	0.0	0.0	0.0	42.9	7.5	0.0	0.0	24.6	12.2
Incr Delay (d2), s/veh	5.8	0.0	0.0	0.0	0.0	0.0	120.6	0.5	0.0	0.0	43.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.3	0.0	0.0	0.0	0.0	0.0	17.6	12.1	0.0	0.0	35.5	0.7
LnGrp Delay(d),s/veh	45.9	0.0	0.0	0.0	0.0	0.0	163.5	7.9	0.0	0.0	67.6	12.3
LnGrp LOS	D						F	A			F	B
Approach Vol, veh/h		285			0			2783			2919	
Approach Delay, s/veh		45.9			0.0			27.2			66.7	
Approach LOS		D						C			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	0.0	78.5		23.7	21.0	57.5		0.0
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.0	64.5		44.5	16.5	53.0		18.0
Max Q Clear Time (g_c+I1), s	0.0	28.0		17.7	18.5	55.0		0.0
Green Ext Time (p_c), s	0.0	27.6		1.6	0.0	0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	47.3
HCM 2010 LOS	D



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	84	230	274	97	404	80	2152	132	792	2737	10
Future Volume (veh/h)	10	84	230	274	97	406	80	2152	132	799	2737	10
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1881	1881	1900
Adj Flow Rate, veh/h	11	91	250	338	105	501	87	4782	293	999	3421	11
Adj No. of Lanes	1	1	1	1	2	0	1	3	1	1	3	0
Peak Hour Factor	0.92	0.92	0.92	0.81	0.92	0.81	0.92	0.45	0.45	0.80	0.80	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	1	1	2
Cap, veh/h	22	224	190	160	350	313	65	2238	697	412	3347	11
Arrive On Green	0.01	0.12	0.12	0.09	0.20	0.20	0.04	0.44	0.44	0.23	0.63	0.63
Sat Flow, veh/h	1774	1863	1583	1774	1770	1583	1774	5085	1583	1792	5285	17
Grp Volume(v), veh/h	11	91	250	338	105	501	87	4782	293	999	2215	1217
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1770	1583	1774	1695	1583	1792	1712	1878
Q Serve(g_s), s	0.9	6.8	18.0	13.5	7.6	29.7	5.5	66.0	19.1	34.5	95.0	95.0
Cycle Q Clear(g_c), s	0.9	6.8	18.0	13.5	7.6	29.7	5.5	66.0	19.1	34.5	95.0	95.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	22	224	190	160	350	313	65	2238	697	412	2168	1189
V/C Ratio(X)	0.51	0.41	1.32	2.12	0.30	1.60	1.34	2.14	0.42	2.42	1.02	1.02
Avail Cap(c_a), veh/h	59	224	190	160	350	313	65	2238	697	412	2168	1189
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	73.6	61.1	66.0	68.2	51.3	60.2	72.2	42.0	28.9	57.7	27.5	27.5
Incr Delay (d2), s/veh	17.0	1.2	174.3	523.2	0.5	284.6	225.7	513.2	0.4	648.3	25.0	32.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	3.6	17.1	29.8	3.8	37.7	6.8	137.2	8.4	91.3	52.1	59.5
LnGrp Delay(d),s/veh	90.6	62.3	240.3	591.4	51.8	344.8	297.9	555.2	29.3	706.1	52.5	59.6
LnGrp LOS	F	E	F	F	D	F	F	F	C	F	F	F
Approach Vol, veh/h		352			944			5162			4431	
Approach Delay, s/veh		189.6			400.5			521.0			201.8	
Approach LOS		F			F			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	39.0	70.5	18.0	22.5	10.0	99.5	6.3	34.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	34.5	66.0	13.5	18.0	5.5	95.0	5.0	26.5
Max Q Clear Time (g_c+I1), s	36.5	68.0	15.5	20.0	7.5	97.0	2.9	31.7
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	370.0
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	925	209	64	648	331	80	915	108	369	774	127
Future Volume (veh/h)	74	927	210	64	649	331	80	915	108	369	774	128
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1881	1881	1881	1900	1881	1881	1881
Adj Flow Rate, veh/h	85	1066	241	74	746	380	88	1005	119	405	851	141
Adj No. of Lanes	1	1	0	1	1	1	1	2	0	1	2	1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	97	669	151	66	814	692	108	805	95	257	1190	532
Arrive On Green	0.05	0.45	0.45	0.04	0.43	0.43	0.06	0.25	0.25	0.14	0.33	0.33
Sat Flow, veh/h	1792	1486	336	1792	1881	1599	1792	3220	381	1792	3574	1599
Grp Volume(v), veh/h	85	0	1307	74	746	380	88	558	566	405	851	141
Grp Sat Flow(s),veh/h/ln	1792	0	1822	1792	1881	1599	1792	1787	1814	1792	1787	1599
Q Serve(g_s), s	7.1	0.0	67.5	5.5	55.9	26.5	7.3	37.5	37.5	21.5	31.3	9.7
Cycle Q Clear(g_c), s	7.1	0.0	67.5	5.5	55.9	26.5	7.3	37.5	37.5	21.5	31.3	9.7
Prop In Lane	1.00		0.18	1.00		1.00	1.00		0.21	1.00		1.00
Lane Grp Cap(c), veh/h	97	0	820	66	814	692	108	447	453	257	1190	532
V/C Ratio(X)	0.88	0.00	1.59	1.13	0.92	0.55	0.81	1.25	1.25	1.58	0.72	0.26
Avail Cap(c_a), veh/h	97	0	820	66	814	692	129	447	453	257	1190	532
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	70.5	0.0	41.3	72.3	40.0	31.7	69.6	56.3	56.3	64.2	43.8	36.6
Incr Delay (d2), s/veh	54.5	0.0	273.1	149.7	15.1	0.9	27.3	129.1	129.3	277.6	2.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	0.0	96.1	5.5	32.4	11.9	4.4	34.5	35.1	30.4	15.8	4.3
LnGrp Delay(d),s/veh	125.0	0.0	314.4	222.2	55.1	32.6	97.0	185.4	185.6	341.9	45.9	36.9
LnGrp LOS	F		F	F	E	C	F	F	F	F	D	D
Approach Vol, veh/h		1392			1200			1212			1397	
Approach Delay, s/veh		302.8			58.3			179.0			130.8	
Approach LOS		F			E			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	26.0	42.0	10.0	72.0	13.6	54.4	12.6	69.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	21.5	37.5	5.5	67.5	10.8	48.2	8.1	64.9
Max Q Clear Time (g_c+I1), s	23.5	39.5	7.5	69.5	9.3	33.3	9.1	57.9
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	5.3	0.0	3.6

Intersection Summary	
HCM 2010 Ctrl Delay	171.3
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	230	1667	834	690	958	70	586	458	1302	283	528	145
Future Volume (veh/h)	230	1667	835	691	958	70	588	459	1306	283	528	145
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1881	1881	1881	1900	1900	1900	1792	1792	1792
Adj Flow Rate, veh/h	250	1812	0	743	1030	0	700	546	0	322	600	0
Adj No. of Lanes	2	3	1	2	3	1	2	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.84	0.84	0.84	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	1	1	1	0	0	0	6	6	6
Cap, veh/h	306	1551	483	365	1651	514	760	1340	599	193	726	325
Arrive On Green	0.09	0.31	0.00	0.11	0.32	0.00	0.22	0.37	0.00	0.06	0.21	0.00
Sat Flow, veh/h	3442	5085	1583	3476	5136	1599	3510	3610	1615	3312	3406	1524
Grp Volume(v), veh/h	250	1812	0	743	1030	0	700	546	0	322	600	0
Grp Sat Flow(s),veh/h/ln	1721	1695	1583	1738	1712	1599	1755	1805	1615	1656	1703	1524
Q Serve(g_s), s	9.2	39.2	0.0	13.5	21.9	0.0	25.1	14.4	0.0	7.5	21.6	0.0
Cycle Q Clear(g_c), s	9.2	39.2	0.0	13.5	21.9	0.0	25.1	14.4	0.0	7.5	21.6	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	306	1551	483	365	1651	514	760	1340	599	193	726	325
V/C Ratio(X)	0.82	1.17	0.00	2.03	0.62	0.00	0.92	0.41	0.00	1.67	0.83	0.00
Avail Cap(c_a), veh/h	380	1551	483	365	1651	514	806	1944	870	193	1251	560
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	57.5	44.6	0.0	57.5	37.0	0.0	49.3	29.9	0.0	60.5	48.3	0.0
Incr Delay (d2), s/veh	10.8	82.9	0.0	475.1	0.7	0.0	15.4	0.2	0.0	321.3	2.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	30.2	0.0	30.5	10.4	0.0	13.8	7.2	0.0	12.0	10.4	0.0
LnGrp Delay(d),s/veh	68.4	127.6	0.0	532.6	37.7	0.0	64.6	30.1	0.0	381.8	50.8	0.0
LnGrp LOS	E	F		F	D		E	C		F	D	
Approach Vol, veh/h		2062			1773			1246			922	
Approach Delay, s/veh		120.4			245.1			49.5			166.4	
Approach LOS		F			F			D			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.0	53.5	18.0	45.0	32.3	33.2	15.9	47.1
Change Period (Y+Rc), s	4.5	5.8	4.5	5.8	4.5	5.8	4.5	5.8
Max Green Setting (Gmax), s	7.5	69.2	13.5	39.2	29.5	47.2	14.2	38.5
Max Q Clear Time (g_c+I1), s	9.5	16.4	15.5	41.2	27.1	23.6	11.2	23.9
Green Ext Time (p_c), s	0.0	3.7	0.0	0.0	0.7	3.8	0.2	5.7

Intersection Summary	
HCM 2010 Ctrl Delay	149.6
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	183	40	681	39	294	42	349	229	223	392	195
Future Volume (veh/h)	25	183	40	698	39	307	42	349	280	259	392	195
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1727	1727	1727	1624	1624	1624	1583	1583	1583	1624	1624	1624
Adj Flow Rate, veh/h	27	199	0	759	42	334	46	379	304	282	426	212
Adj No. of Lanes	1	2	1	2	1	1	1	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	10	10	10	17	17	17	20	20	20	17	17	17
Cap, veh/h	45	289	129	873	571	485	57	813	364	351	1078	482
Arrive On Green	0.03	0.09	0.00	0.29	0.35	0.35	0.04	0.27	0.27	0.12	0.35	0.35
Sat Flow, veh/h	1645	3282	1468	3000	1624	1380	1508	3008	1346	3000	3085	1380
Grp Volume(v), veh/h	27	199	0	759	42	334	46	379	304	282	426	212
Grp Sat Flow(s),veh/h/ln	1645	1641	1468	1500	1624	1380	1508	1504	1346	1500	1543	1380
Q Serve(g_s), s	1.5	5.4	0.0	21.8	1.6	18.8	2.8	9.6	19.4	8.3	9.5	10.7
Cycle Q Clear(g_c), s	1.5	5.4	0.0	21.8	1.6	18.8	2.8	9.6	19.4	8.3	9.5	10.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	45	289	129	873	571	485	57	813	364	351	1078	482
V/C Ratio(X)	0.60	0.69	0.00	0.87	0.07	0.69	0.81	0.47	0.84	0.80	0.40	0.44
Avail Cap(c_a), veh/h	90	538	240	1290	875	744	85	1521	681	452	1852	828
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.8	40.3	0.0	30.6	19.6	25.2	43.4	27.7	31.3	39.2	22.3	22.8
Incr Delay (d2), s/veh	12.4	2.9	0.0	4.5	0.1	1.7	28.5	0.4	5.1	7.9	0.2	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	2.5	0.0	9.6	0.7	7.4	1.6	4.0	7.7	3.8	4.1	4.2
LnGrp Delay(d),s/veh	56.2	43.2	0.0	35.2	19.7	27.0	71.9	28.1	36.4	47.1	22.6	23.4
LnGrp LOS	E	D		D	B	C	E	C	D	D	C	C
Approach Vol, veh/h		226			1135			729			920	
Approach Delay, s/veh		44.8			32.2			34.3			30.3	
Approach LOS		D			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.1	31.1	31.0	13.8	7.9	38.3	7.0	37.8
Change Period (Y+Rc), s	4.5	6.5	4.5	5.8	4.5	6.5	4.5	5.8
Max Green Setting (Gmax), s	13.7	46.0	39.1	14.9	5.1	54.6	5.0	49.0
Max Q Clear Time (g_c+I1), s	10.3	21.4	23.8	7.4	4.8	12.7	3.5	20.8
Green Ext Time (p_c), s	0.3	3.2	2.6	0.6	0.0	3.3	0.0	1.4

Intersection Summary	
HCM 2010 Ctrl Delay	33.1
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	180	140	30	100	560	180	70	200	50	60	120	60
Future Volume (veh/h)	180	227	30	100	590	190	70	200	50	89	120	60
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1583	1583	1583	1827	1827	1827	1583	1583	1900	1667	1667	1667
Adj Flow Rate, veh/h	196	247	33	109	641	207	76	217	54	97	130	65
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	20	20	20	4	4	4	20	20	20	14	14	14
Cap, veh/h	236	1061	475	141	962	430	91	342	83	120	501	224
Arrive On Green	0.16	0.35	0.35	0.08	0.28	0.28	0.06	0.14	0.14	0.08	0.16	0.16
Sat Flow, veh/h	1508	3008	1346	1740	3471	1553	1508	2400	585	1587	3167	1417
Grp Volume(v), veh/h	196	247	33	109	641	207	76	134	137	97	130	65
Grp Sat Flow(s),veh/h/ln	1508	1504	1346	1740	1736	1553	1508	1504	1480	1587	1583	1417
Q Serve(g_s), s	7.5	3.4	1.0	3.6	9.7	6.6	3.0	5.0	5.2	3.6	2.1	2.4
Cycle Q Clear(g_c), s	7.5	3.4	1.0	3.6	9.7	6.6	3.0	5.0	5.2	3.6	2.1	2.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.39	1.00		1.00
Lane Grp Cap(c), veh/h	236	1061	475	141	962	430	91	215	211	120	501	224
V/C Ratio(X)	0.83	0.23	0.07	0.77	0.67	0.48	0.84	0.63	0.65	0.81	0.26	0.29
Avail Cap(c_a), veh/h	356	1766	790	387	1991	891	153	660	649	278	1624	727
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.2	13.5	12.7	26.7	19.0	17.9	27.6	23.9	24.0	27.0	21.9	22.0
Incr Delay (d2), s/veh	9.7	0.1	0.1	8.6	0.8	0.8	17.7	3.0	3.3	11.8	0.3	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	1.4	0.4	2.1	4.7	2.9	1.7	2.2	2.3	2.0	0.9	1.0
LnGrp Delay(d),s/veh	33.9	13.6	12.8	35.3	19.8	18.7	45.3	26.9	27.3	38.7	22.2	22.7
LnGrp LOS	C	B	B	D	B	B	D	C	C	D	C	C
Approach Vol, veh/h		476			957			347			292	
Approach Delay, s/veh		21.9			21.3			31.1			27.8	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.0	14.3	9.3	26.7	8.1	15.2	13.8	22.2
Change Period (Y+Rc), s	4.5	5.8	4.5	5.8	4.5	5.8	4.5	5.8
Max Green Setting (Gmax), s	10.4	26.0	13.2	34.8	6.0	30.4	14.0	34.0
Max Q Clear Time (g_c+I1), s	5.6	7.2	5.6	5.4	5.0	4.4	9.5	11.7
Green Ext Time (p_c), s	0.1	1.3	0.1	1.6	0.0	0.9	0.2	4.7

Intersection Summary	
HCM 2010 Ctrl Delay	24.0
HCM 2010 LOS	C

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	195	126	457	2338	1425	151
Future Volume (veh/h)	196	127	463	2338	1425	157
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1681	1681	1845	1845	1845	1845
Adj Flow Rate, veh/h	213	138	503	2541	1549	171
Adj No. of Lanes	1	2	1	3	3	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	13	13	3	3	3	3
Cap, veh/h	258	1186	546	3661	1814	565
Arrive On Green	0.16	0.16	0.31	0.73	0.36	0.36
Sat Flow, veh/h	1601	2515	1757	5202	5202	1568
Grp Volume(v), veh/h	213	138	503	2541	1549	171
Grp Sat Flow(s),veh/h/ln	1601	1258	1757	1679	1679	1568
Q Serve(g_s), s	10.3	2.5	22.2	22.3	22.8	6.3
Cycle Q Clear(g_c), s	10.3	2.5	22.2	22.3	22.8	6.3
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	258	1186	546	3661	1814	565
V/C Ratio(X)	0.83	0.12	0.92	0.69	0.85	0.30
Avail Cap(c_a), veh/h	359	1346	624	3955	1883	586
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.6	11.8	26.7	6.0	23.7	18.4
Incr Delay (d2), s/veh	10.6	0.0	17.9	0.5	4.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	2.4	13.5	10.3	11.1	2.8
LnGrp Delay(d),s/veh	43.2	11.9	44.6	6.5	27.7	18.7
LnGrp LOS	D	B	D	A	C	B
Approach Vol, veh/h	351			3044	1720	
Approach Delay, s/veh	30.9			12.8	26.8	
Approach LOS	C			B	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		62.8		17.4	29.4	33.4		
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5		
Max Green Setting (Gmax), s		63.0		18.0	28.5	30.0		
Max Q Clear Time (g_c+I1), s		24.3		12.3	24.2	24.8		
Green Ext Time (p_c), s		30.2		0.6	0.7	4.1		

Intersection Summary	
HCM 2010 Ctrl Delay	18.8
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	22	30	88	45	855	20	2012	127	262	1286	30
Future Volume (veh/h)	10	22	30	88	45	861	20	2012	127	263	1286	30
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1810	1863	1810	1863	1712	1712	1792	1794	1900
Adj Flow Rate, veh/h	11	24	33	96	49	936	22	2187	138	286	1398	33
Adj No. of Lanes	1	1	1	1	1	2	1	3	1	2	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	5	2	5	2	11	11	6	6	2
Cap, veh/h	24	281	239	113	378	840	41	2272	708	355	2808	66
Arrive On Green	0.01	0.15	0.15	0.07	0.20	0.20	0.02	0.49	0.49	0.11	0.57	0.57
Sat Flow, veh/h	1774	1863	1583	1723	1863	2707	1774	4673	1455	3312	4922	116
Grp Volume(v), veh/h	11	24	33	96	49	936	22	2187	138	286	927	504
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1723	1863	1354	1774	1558	1455	1656	1633	1774
Q Serve(g_s), s	0.6	1.0	1.7	5.2	2.0	19.2	1.2	42.8	5.1	8.0	16.1	16.1
Cycle Q Clear(g_c), s	0.6	1.0	1.7	5.2	2.0	19.2	1.2	42.8	5.1	8.0	16.1	16.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.07
Lane Grp Cap(c), veh/h	24	281	239	113	378	840	41	2272	708	355	1862	1012
V/C Ratio(X)	0.47	0.09	0.14	0.85	0.13	1.11	0.53	0.96	0.20	0.80	0.50	0.50
Avail Cap(c_a), veh/h	94	354	301	113	378	840	103	2277	709	409	1862	1012
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.4	34.6	34.9	43.8	30.9	32.6	45.7	23.5	13.8	41.3	12.2	12.2
Incr Delay (d2), s/veh	13.7	0.1	0.3	42.5	0.2	67.5	10.3	11.4	0.1	9.9	0.2	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.6	0.8	3.8	1.1	18.8	0.7	20.6	2.0	4.1	7.3	7.9
LnGrp Delay(d),s/veh	60.1	34.7	35.1	86.2	31.0	100.1	56.0	34.8	13.9	51.2	12.4	12.6
LnGrp LOS	E	C	D	F	C	F	E	C	B	D	B	B
Approach Vol, veh/h		68			1081			2347			1717	
Approach Delay, s/veh		39.0			95.8			33.8			18.9	
Approach LOS		D			F			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.7	50.5	10.7	18.8	6.7	58.5	5.8	23.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	11.7	46.1	6.2	18.0	5.5	52.3	5.0	19.2
Max Q Clear Time (g_c+I1), s	10.0	44.8	7.2	3.7	3.2	18.1	2.6	21.2
Green Ext Time (p_c), s	0.2	1.3	0.0	0.1	0.0	11.4	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	41.8
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	246	272	100	751	158	70	650	90	134	443	177
Future Volume (veh/h)	52	246	272	100	753	158	71	650	90	134	443	180
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1776	1776	1776	1881	1881	1881	1810	1810	1900	1776	1776	1900
Adj Flow Rate, veh/h	57	267	296	109	818	172	77	707	98	146	482	196
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	2	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	7	7	7	1	1	1	5	5	5	7	7	7
Cap, veh/h	87	868	388	140	1014	454	105	850	118	254	696	281
Arrive On Green	0.05	0.26	0.26	0.08	0.28	0.28	0.06	0.28	0.28	0.08	0.30	0.30
Sat Flow, veh/h	1691	3374	1509	1792	3574	1599	1723	3034	420	3281	2347	948
Grp Volume(v), veh/h	57	267	296	109	818	172	77	400	405	146	346	332
Grp Sat Flow(s),veh/h/ln	1691	1687	1509	1792	1787	1599	1723	1719	1735	1640	1687	1608
Q Serve(g_s), s	1.9	3.7	10.6	3.5	12.5	5.1	2.6	12.8	12.8	2.5	10.6	10.7
Cycle Q Clear(g_c), s	1.9	3.7	10.6	3.5	12.5	5.1	2.6	12.8	12.8	2.5	10.6	10.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.24	1.00		0.59
Lane Grp Cap(c), veh/h	87	868	388	140	1014	454	105	482	486	254	500	477
V/C Ratio(X)	0.65	0.31	0.76	0.78	0.81	0.38	0.73	0.83	0.83	0.57	0.69	0.70
Avail Cap(c_a), veh/h	144	1036	464	168	1128	505	147	543	548	280	533	508
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.3	17.6	20.1	26.5	19.5	16.8	27.0	19.8	19.8	26.1	18.2	18.3
Incr Delay (d2), s/veh	8.0	0.2	6.1	17.5	4.0	0.5	10.9	9.6	9.6	2.4	3.5	3.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	1.8	5.1	2.4	6.7	2.3	1.5	7.3	7.4	1.2	5.4	5.2
LnGrp Delay(d),s/veh	35.3	17.7	26.2	44.0	23.5	17.4	38.0	29.4	29.4	28.5	21.8	22.1
LnGrp LOS	D	B	C	D	C	B	D	C	C	C	C	C
Approach Vol, veh/h		620			1099			882			824	
Approach Delay, s/veh		23.4			24.6			30.2			23.1	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.0	20.9	9.1	19.6	8.1	21.9	7.5	21.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	18.5	5.5	18.0	5.0	18.5	5.0	18.5
Max Q Clear Time (g_c+I1), s	4.5	14.8	5.5	12.6	4.6	12.7	3.9	14.5
Green Ext Time (p_c), s	0.0	1.6	0.0	1.3	0.0	2.0	0.0	2.2

Intersection Summary	
HCM 2010 Ctrl Delay	25.4
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	76	613	715	910	1516	140	806	284	965	142	320	130
Future Volume (veh/h)	76	613	717	913	1516	140	806	284	966	142	321	130
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1696	1696	1696	1863	1863	1863	1881	1881	1881	1792	1792	1792
Adj Flow Rate, veh/h	83	666	0	992	1648	0	876	309	0	154	349	0
Adj No. of Lanes	2	3	1	2	3	1	2	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	12	12	12	2	2	2	1	1	1	6	6	6
Cap, veh/h	133	944	606	872	2109	657	752	1030	866	216	465	208
Arrive On Green	0.04	0.20	0.00	0.25	0.41	0.00	0.22	0.29	0.00	0.07	0.14	0.00
Sat Flow, veh/h	3134	4631	1442	3442	5085	1583	3476	3574	1599	3312	3406	1524
Grp Volume(v), veh/h	83	666	0	992	1648	0	876	309	0	154	349	0
Grp Sat Flow(s),veh/h/ln	1567	1544	1442	1721	1695	1583	1738	1787	1599	1656	1703	1524
Q Serve(g_s), s	2.8	14.5	0.0	27.5	30.5	0.0	23.5	7.3	0.0	4.9	10.7	0.0
Cycle Q Clear(g_c), s	2.8	14.5	0.0	27.5	30.5	0.0	23.5	7.3	0.0	4.9	10.7	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	133	944	606	872	2109	657	752	1030	866	216	465	208
V/C Ratio(X)	0.63	0.71	0.00	1.14	0.78	0.00	1.16	0.30	0.00	0.71	0.75	0.00
Avail Cap(c_a), veh/h	176	1493	777	872	2642	823	752	1801	1211	372	1362	609
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	51.1	40.2	0.0	40.5	27.5	0.0	42.5	30.1	0.0	49.8	45.1	0.0
Incr Delay (d2), s/veh	4.8	1.0	0.0	75.9	1.2	0.0	88.1	0.2	0.0	4.4	2.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	6.3	0.0	22.2	14.4	0.0	20.4	3.6	0.0	2.4	5.2	0.0
LnGrp Delay(d),s/veh	55.9	41.2	0.0	116.5	28.7	0.0	130.7	30.3	0.0	54.1	47.5	0.0
LnGrp LOS	E	D		F	C		F	C		D	D	
Approach Vol, veh/h		749			2640			1185			503	
Approach Delay, s/veh		42.8			61.7			104.5			49.5	
Approach LOS		D			E			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.6	37.1	32.0	27.9	28.0	20.6	9.1	50.8
Change Period (Y+Rc), s	4.5	5.8	4.5	5.8	4.5	5.8	4.5	5.8
Max Green Setting (Gmax), s	12.2	54.7	27.5	35.0	23.5	43.4	6.1	56.4
Max Q Clear Time (g_c+I1), s	6.9	9.3	29.5	16.5	25.5	12.7	4.8	32.5
Green Ext Time (p_c), s	0.2	1.9	0.0	4.0	0.0	2.1	0.0	12.6

Intersection Summary	
HCM 2010 Ctrl Delay	67.7
HCM 2010 LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	343	62	361	213	100	42	448	410	247	425	72
Future Volume (veh/h)	40	343	62	411	213	135	42	448	429	260	425	72
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1743	1743	1583	1583	1583	1727	1727	1727	1583	1583	1583
Adj Flow Rate, veh/h	57	490	0	501	260	165	45	482	461	292	478	81
Adj No. of Lanes	1	2	1	2	1	1	1	2	1	2	2	1
Peak Hour Factor	0.70	0.70	0.70	0.82	0.82	0.82	0.93	0.93	0.93	0.89	0.89	0.89
Percent Heavy Veh, %	9	9	9	20	20	20	10	10	10	20	20	20
Cap, veh/h	72	579	259	561	512	435	56	1129	504	324	1265	566
Arrive On Green	0.04	0.17	0.00	0.19	0.32	0.32	0.03	0.34	0.34	0.11	0.42	0.42
Sat Flow, veh/h	1660	3312	1482	2925	1583	1345	1645	3282	1466	2925	3008	1346
Grp Volume(v), veh/h	57	490	0	501	260	165	45	482	461	292	478	81
Grp Sat Flow(s),veh/h/ln	1660	1656	1482	1463	1583	1345	1645	1641	1466	1463	1504	1346
Q Serve(g_s), s	4.1	17.1	0.0	19.9	15.8	11.3	3.2	13.5	35.9	11.8	13.0	4.4
Cycle Q Clear(g_c), s	4.1	17.1	0.0	19.9	15.8	11.3	3.2	13.5	35.9	11.8	13.0	4.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	72	579	259	561	512	435	56	1129	504	324	1265	566
V/C Ratio(X)	0.80	0.85	0.00	0.89	0.51	0.38	0.80	0.43	0.91	0.90	0.38	0.14
Avail Cap(c_a), veh/h	72	745	333	672	651	553	69	1275	569	324	1375	615
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.5	47.6	0.0	47.0	32.6	31.1	57.2	30.1	37.4	52.4	23.8	21.3
Incr Delay (d2), s/veh	44.2	7.2	0.0	12.7	0.8	0.5	40.9	0.3	18.2	26.8	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	8.4	0.0	9.1	7.0	4.3	2.1	6.1	17.0	5.9	5.4	1.7
LnGrp Delay(d),s/veh	100.7	54.8	0.0	59.7	33.4	31.6	98.1	30.3	55.6	79.1	24.0	21.4
LnGrp LOS	F	D		E	C	C	F	C	E	E	C	C
Approach Vol, veh/h		547			926			988			851	
Approach Delay, s/veh		59.6			47.3			45.2			42.7	
Approach LOS		E			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.7	47.5	27.4	26.6	8.6	56.6	9.6	44.4
Change Period (Y+Rc), s	4.5	6.5	4.5	5.8	4.5	6.5	4.5	5.8
Max Green Setting (Gmax), s	13.2	46.3	27.4	26.8	5.0	54.5	5.2	49.0
Max Q Clear Time (g_c+I1), s	13.8	37.9	21.9	19.1	5.2	15.0	6.1	17.8
Green Ext Time (p_c), s	0.0	2.9	1.0	1.8	0.0	3.2	0.0	2.0

Intersection Summary	
HCM 2010 Ctrl Delay	47.5
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	480	170	50	330	70	180	560	80	250	580	220
Future Volume (veh/h)	70	512	170	50	415	97	180	560	80	262	580	220
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1652	1652	1652	1727	1727	1727	1624	1624	1900	1583	1583	1583
Adj Flow Rate, veh/h	93	683	227	65	539	126	191	596	85	291	644	244
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	1	2	1
Peak Hour Factor	0.75	0.75	0.75	0.77	0.77	0.77	0.94	0.94	0.94	0.90	0.90	0.90
Percent Heavy Veh, %	15	15	15	10	10	10	17	17	17	20	20	20
Cap, veh/h	114	837	374	82	800	358	220	666	95	318	947	424
Arrive On Green	0.07	0.27	0.27	0.05	0.24	0.24	0.14	0.25	0.25	0.21	0.31	0.31
Sat Flow, veh/h	1573	3139	1404	1645	3282	1468	1547	2713	386	1508	3008	1346
Grp Volume(v), veh/h	93	683	227	65	539	126	191	338	343	291	644	244
Grp Sat Flow(s),veh/h/ln	1573	1570	1404	1645	1641	1468	1547	1543	1556	1508	1504	1346
Q Serve(g_s), s	5.3	18.5	12.8	3.5	13.5	6.4	11.0	19.2	19.3	17.1	16.9	13.8
Cycle Q Clear(g_c), s	5.3	18.5	12.8	3.5	13.5	6.4	11.0	19.2	19.3	17.1	16.9	13.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.25	1.00		1.00
Lane Grp Cap(c), veh/h	114	837	374	82	800	358	220	379	382	318	947	424
V/C Ratio(X)	0.81	0.82	0.61	0.80	0.67	0.35	0.87	0.89	0.90	0.91	0.68	0.58
Avail Cap(c_a), veh/h	120	1065	477	183	1229	550	227	405	408	327	1001	448
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.5	31.2	29.1	42.7	31.1	28.4	38.1	33.1	33.1	35.0	27.1	26.0
Incr Delay (d2), s/veh	32.4	4.0	1.6	15.9	1.0	0.6	28.0	20.6	21.0	28.5	1.8	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	8.4	5.1	2.0	6.2	2.7	6.4	10.4	10.5	9.6	7.2	5.3
LnGrp Delay(d),s/veh	73.9	35.2	30.7	58.6	32.1	29.0	66.1	53.7	54.2	63.5	28.9	27.7
LnGrp LOS	E	D	C	E	C	C	E	D	D	E	C	C
Approach Vol, veh/h		1003			730			872			1179	
Approach Delay, s/veh		37.8			33.9			56.6			37.2	
Approach LOS		D			C			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.7	28.1	9.0	30.0	17.4	34.4	11.1	27.9
Change Period (Y+Rc), s	4.5	5.8	4.5	5.8	4.5	5.8	4.5	5.8
Max Green Setting (Gmax), s	19.7	23.8	10.1	30.8	13.3	30.2	6.9	34.0
Max Q Clear Time (g_c+I1), s	19.1	21.3	5.5	20.5	13.0	18.9	7.3	15.5
Green Ext Time (p_c), s	0.1	1.0	0.0	3.7	0.0	3.8	0.0	3.5

Intersection Summary	
HCM 2010 Ctrl Delay	41.2
HCM 2010 LOS	D

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	224	1017	298	2121	2498	40
Future Volume (veh/h)	231	1024	300	2121	2498	42
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1863	1863	1881	1881
Adj Flow Rate, veh/h	285	1264	345	2438	2871	48
Adj No. of Lanes	1	2	1	3	3	1
Peak Hour Factor	0.81	0.81	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	1	1	2	2	1	1
Cap, veh/h	270	1011	371	3984	2782	866
Arrive On Green	0.15	0.15	0.21	0.78	0.54	0.54
Sat Flow, veh/h	1792	2814	1774	5253	5305	1599
Grp Volume(v), veh/h	285	1264	345	2438	2871	48
Grp Sat Flow(s),veh/h/ln	1792	1407	1774	1695	1712	1599
Q Serve(g_s), s	20.5	20.5	26.0	27.2	73.8	1.9
Cycle Q Clear(g_c), s	20.5	20.5	26.0	27.2	73.8	1.9
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	270	1011	371	3984	2782	866
V/C Ratio(X)	1.06	1.25	0.93	0.61	1.03	0.06
Avail Cap(c_a), veh/h	270	1011	419	4124	2782	866
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.9	43.6	52.9	6.1	31.2	14.8
Incr Delay (d2), s/veh	70.7	120.8	25.9	0.3	26.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.4	48.3	15.4	12.5	41.5	0.9
LnGrp Delay(d),s/veh	128.6	164.4	78.8	6.4	57.3	14.8
LnGrp LOS	F	F	E	A	F	B
Approach Vol, veh/h	1549			2783	2919	
Approach Delay, s/veh	157.9			15.4	56.6	
Approach LOS	F			B	E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		111.3		25.0	33.0	78.3		
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5		
Max Green Setting (Gmax), s		110.5		20.5	32.2	73.8		
Max Q Clear Time (g_c+I1), s		29.2		22.5	28.0	75.8		
Green Ext Time (p_c), s		46.7		0.0	0.4	0.0		

Intersection Summary	
HCM 2010 Ctrl Delay	62.4
HCM 2010 LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	274	0	404	0	2152	132	792	2737	0
Future Volume (veh/h)	0	0	0	274	0	406	0	2152	132	799	2737	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1881	1881	1900
Adj Flow Rate, veh/h	0	0	0	338	0	501	0	4782	293	999	3421	0
Adj No. of Lanes	1	1	1	1	1	2	1	3	1	2	3	0
Peak Hour Factor	0.92	0.92	0.92	0.81	0.92	0.81	0.92	0.45	0.45	0.80	0.80	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	1	1	2
Cap, veh/h	1	39	33	204	315	937	1	2867	893	580	3924	0
Arrive On Green	0.00	0.00	0.00	0.11	0.00	0.17	0.00	0.56	0.56	0.17	0.76	0.00
Sat Flow, veh/h	1774	1863	1583	1774	1863	2787	1774	5085	1583	3476	5305	0
Grp Volume(v), veh/h	0	0	0	338	0	501	0	4782	293	999	3421	0
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1393	1774	1695	1583	1738	1712	0
Q Serve(g_s), s	0.0	0.0	0.0	15.5	0.0	19.6	0.0	76.0	13.4	22.5	63.5	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	15.5	0.0	19.6	0.0	76.0	13.4	22.5	63.5	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	1	39	33	204	315	937	1	2867	893	580	3924	0
V/C Ratio(X)	0.00	0.00	0.00	1.66	0.00	0.53	0.00	1.67	0.33	1.72	0.87	0.00
Avail Cap(c_a), veh/h	66	249	211	204	394	1054	66	2867	893	580	3924	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	59.7	0.0	36.2	0.0	29.4	15.7	56.2	11.2	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	316.5	0.0	0.5	0.0	302.2	0.2	332.2	2.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	25.5	0.0	7.6	0.0	115.5	5.9	37.5	30.3	0.0
LnGrp Delay(d),s/veh	0.0	0.0	0.0	376.1	0.0	36.7	0.0	331.6	16.0	388.3	13.6	0.0
LnGrp LOS				F		D		F	B	F	B	
Approach Vol, veh/h		0			839			5075			4420	
Approach Delay, s/veh		0.0			173.4			313.3			98.3	
Approach LOS					F			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	27.0	80.5	20.0	7.3	0.0	107.5	0.0	27.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	22.5	76.0	15.5	18.0	5.0	93.5	5.0	28.5
Max Q Clear Time (g_c+I1), s	24.5	78.0	17.5	0.0	0.0	65.5	0.0	21.6
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	26.8	0.0	1.2

Intersection Summary	
HCM 2010 Ctrl Delay	210.0
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	925	209	64	648	331	80	915	108	369	774	127
Future Volume (veh/h)	74	927	210	64	649	331	80	915	108	369	774	128
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1881	1881	1881	1900	1881	1881	1900
Adj Flow Rate, veh/h	85	1066	241	74	746	380	88	1005	119	405	851	141
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	2	2	0
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	109	1124	503	95	1097	491	112	1053	125	435	1196	198
Arrive On Green	0.06	0.31	0.31	0.05	0.31	0.31	0.06	0.33	0.33	0.13	0.39	0.39
Sat Flow, veh/h	1792	3574	1599	1792	3574	1599	1792	3220	381	3476	3070	509
Grp Volume(v), veh/h	85	1066	241	74	746	380	88	558	566	405	495	497
Grp Sat Flow(s),veh/h/ln	1792	1787	1599	1792	1787	1599	1792	1787	1814	1738	1787	1791
Q Serve(g_s), s	4.7	29.1	12.1	4.1	18.2	21.6	4.8	30.5	30.5	11.5	23.4	23.4
Cycle Q Clear(g_c), s	4.7	29.1	12.1	4.1	18.2	21.6	4.8	30.5	30.5	11.5	23.4	23.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.21	1.00		0.28
Lane Grp Cap(c), veh/h	109	1124	503	95	1097	491	112	584	593	435	696	698
V/C Ratio(X)	0.78	0.95	0.48	0.78	0.68	0.77	0.78	0.95	0.96	0.93	0.71	0.71
Avail Cap(c_a), veh/h	131	1128	505	95	1097	491	138	585	594	435	696	698
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.2	33.4	27.6	46.7	30.3	31.4	46.1	32.9	32.9	43.2	25.7	25.7
Incr Delay (d2), s/veh	22.0	15.9	0.7	32.8	1.7	7.6	20.7	26.2	26.1	26.6	3.4	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	16.9	5.4	2.9	9.3	10.6	3.0	19.3	19.6	7.1	12.2	12.2
LnGrp Delay(d),s/veh	68.2	49.4	28.3	79.4	32.0	39.0	66.8	59.0	59.0	69.9	29.1	29.1
LnGrp LOS	E	D	C	E	C	D	E	E	E	E	C	C
Approach Vol, veh/h		1392			1200			1212			1397	
Approach Delay, s/veh		46.9			37.2			59.6			40.9	
Approach LOS		D			D			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.0	37.1	9.8	35.9	10.7	43.4	10.5	35.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	12.5	32.7	5.3	31.5	7.7	37.5	7.3	29.5
Max Q Clear Time (g_c+I1), s	13.5	32.5	6.1	31.1	6.8	25.4	6.7	23.6
Green Ext Time (p_c), s	0.0	0.1	0.0	0.3	0.0	4.8	0.0	3.1

Intersection Summary	
HCM 2010 Ctrl Delay	46.0
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	230	1667	834	690	958	70	586	458	1302	283	528	145
Future Volume (veh/h)	230	1667	835	691	958	70	588	459	1306	283	528	145
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1881	1881	1881	1900	1900	1900	1792	1792	1792
Adj Flow Rate, veh/h	250	1812	0	743	1030	0	700	546	0	322	600	0
Adj No. of Lanes	2	3	1	2	3	1	2	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.84	0.84	0.84	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	1	1	1	0	0	0	6	6	6
Cap, veh/h	307	1602	705	661	2137	665	459	975	744	235	716	321
Arrive On Green	0.09	0.31	0.00	0.19	0.42	0.00	0.13	0.27	0.00	0.07	0.21	0.00
Sat Flow, veh/h	3442	5085	1583	3476	5136	1599	3510	3610	1615	3312	3406	1524
Grp Volume(v), veh/h	250	1812	0	743	1030	0	700	546	0	322	600	0
Grp Sat Flow(s),veh/h/ln	1721	1695	1583	1738	1712	1599	1755	1805	1615	1656	1703	1524
Q Serve(g_s), s	9.6	42.2	0.0	25.5	19.6	0.0	17.5	17.4	0.0	9.5	22.6	0.0
Cycle Q Clear(g_c), s	9.6	42.2	0.0	25.5	19.6	0.0	17.5	17.4	0.0	9.5	22.6	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	307	1602	705	661	2137	665	459	975	744	235	716	321
V/C Ratio(X)	0.81	1.13	0.00	1.12	0.48	0.00	1.53	0.56	0.00	1.37	0.84	0.00
Avail Cap(c_a), veh/h	444	1602	705	661	2137	665	459	1406	937	235	1123	503
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	59.9	45.9	0.0	54.2	28.6	0.0	58.2	42.1	0.0	62.2	50.7	0.0
Incr Delay (d2), s/veh	7.4	67.6	0.0	74.0	0.2	0.0	247.9	0.5	0.0	191.8	3.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	29.7	0.0	19.0	9.3	0.0	24.3	8.8	0.0	10.6	11.0	0.0
LnGrp Delay(d),s/veh	67.4	113.5	0.0	128.3	28.7	0.0	306.1	42.6	0.0	254.0	54.0	0.0
LnGrp LOS	E	F		F	C		F	D		F	D	
Approach Vol, veh/h		2062			1773			1246			922	
Approach Delay, s/veh		107.9			70.5			190.6			123.9	
Approach LOS		F			E			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	42.0	30.0	48.0	22.0	34.0	16.5	61.5
Change Period (Y+Rc), s	4.5	5.8	4.5	5.8	4.5	5.8	4.5	5.8
Max Green Setting (Gmax), s	9.5	52.2	25.5	42.2	17.5	44.2	17.3	50.4
Max Q Clear Time (g_c+I1), s	11.5	19.4	27.5	44.2	19.5	24.6	11.6	21.6
Green Ext Time (p_c), s	0.0	3.6	0.0	0.0	0.0	3.6	0.4	7.5

Intersection Summary		
HCM 2010 Ctrl Delay		116.5
HCM 2010 LOS		F

14800 W. Schulte Rd Traffic Impact Study

Caltrans Peak Hour Warrant Summary

ID	Intersection	Existing Control	Ex. Peak Hr		EPAP		EPAP+P		Cumulative NP		Cumulative + P	
			AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
			Warrant Met?		Warrant Met?		Warrant Met?		Warrant Met?		Warrant Met?	
3	Schulte Road and Lammers Road	AWS	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
4	Valpico Road and Lammers Road	OWS	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
5	Valpico Road and Corral Hollow Road	AWS	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note:
OWS - One Way Stop control
AWS - All Way Stop control

Details of Fair Share Calculations for 14800 W. Schulte Rd TIS

The fair share cost for intersection improvements would be primarily based on two components:

(i) the new signal cost and

(ii) intersection lane configuration improvements.

(I) Signal Improvement Cost

County staff was only able to locate a signal installation in Caltrans District 10 (Tuolumne County). Since that is rather rural, and too limited of a data point, research was expanded signal bids shown in Districts 3 & 4, as they are also fairly "local". Six signal projects and 34 bids were located based on bids data in District 3 and 4 as shown in **Exhibit 1.**

Based on the weighted averages of the six projects and 34 bids, the estimated signal installation improvement is approximately $400,000.

(II)Assumed Intersection Improvements Under Cumulative Scenarios

The assumed intersection improvements assumed for the Cumulative scenarios are based on a review of the City of Tracy Transportation Master Plan[1] and review of previously approved roadway improvements under cumulative scenarios, AMG included these mitigation measures for the following intersections:

- Hansen Road/Schulte Road (#2) – add eastbound and westbound through lane and northbound and southbound through lanes.
- Schulte Road & Lammers Road (#3) – add two through lanes in the northbound and southbound approaches as well as provide left and right turn lanes. Add right-turn lane in the eastbound and add new westbound approach.
- Valpico Road/Lammers Road (#4) – add two additional though lanes on Lammers Road making it

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Contract Cost Data

Cost Data Home > Results

Select	Item No. / Description	Unit	Dist	Qty	Unit Price	Adj Price	Total	Bid Open Date	Contract No.	Bid	M	TRO
☐	870400 - SIGNAL AND LIGHTING SYSTEM	LS	04	1	$2156000.00	$2166746.50	$2156000.00	04-10-2018	04-4H7514	1	M	
☐	870400 - SIGNAL AND LIGHTING SYSTEM	LS	04	1	$2120000.00	$2130567.06	$2120000.00	04-10-2018	04-4H7514	2	M	
☐	870400 - SIGNAL AND LIGHTING SYSTEM	LS	04	1	$2120000.00	$2130567.06	$2120000.00	04-10-2018	04-4H7514	3	M	
☐	870400 - SIGNAL AND LIGHTING SYSTEM	LS	04	1	$2400000.00	$2411962.70	$2400000.00	04-10-2018	04-4H7514	4	M	
☐	870400 - SIGNAL AND LIGHTING SYSTEM	LS	04	1	$2120000.00	$2130567.06	$2120000.00	04-10-2018	04-4H7514	5	M	
☐	870400 - SIGNAL AND LIGHTING SYSTEM	LS	04	1	$2806100.00	$2820086.89	$2806100.00	04-10-2018	04-4H7514	6	M	
☐	870400 - SIGNAL AND LIGHTING SYSTEM	LS	04	1	$2550000.00	$2562710.37	$2550000.00	04-10-2018	04-4H7514	7	M	
☑	870400 - SIGNAL AND LIGHTING SYSTEM	LS	04	1	$238864.00	$240280.05	$238864.00	11-06-2018	04-1J7004	1	M	
☑	870400 - SIGNAL AND LIGHTING SYSTEM	LS	04	1	$332000.00	$333968.19	$332000.00	11-06-2018	04-1J7004	2	M	
☑	870400 - SIGNAL AND LIGHTING SYSTEM	LS	04	1	$235000.00	$236393.14	$235000.00	11-06-2018	04-1J7004	3	M	
☑	870400 - SIGNAL AND LIGHTING SYSTEM	LS	04	1	$285000.00	$286689.56	$285000.00	11-06-2018	04-1J7004	4	M	
☑	870400 - SIGNAL AND LIGHTING SYSTEM	LS	04	1	$238864.00	$240280.05	$238864.00	11-06-2018	04-1J7004	5	M	
☑	870400 - SIGNAL AND LIGHTING SYSTEM	LS	04	1	$332000.00	$338538.47	$332000.00	10-02-2019	04-4J2824	1	M	
☑	870400 - SIGNAL AND LIGHTING SYSTEM	LS	04	1	$250000.00	$254923.54	$250000.00	10-02-2019	04-4J2824	2	M	
☑	870400 - SIGNAL AND LIGHTING SYSTEM	LS	04	1	$332000.00	$338538.47	$332000.00	10-02-2019	04-4J2824	3	M	
☑	870400 - SIGNAL AND LIGHTING SYSTEM	LS	04	1	$387000.00	$394621.65	$387000.00	10-02-2019	04-4J2824	4	M	
☑	870400 - SIGNAL AND LIGHTING SYSTEM	LS	04	1	$335353.54	$341958.05	$335353.54	10-02-2019	04-4J2824	5	M	
☑	870400 - SIGNAL AND LIGHTING SYSTEM	LS	04	1	$435000.00	$443566.97	$435000.00	10-02-2019	04-4J2824	6	M	
☑	870400 - SIGNAL AND LIGHTING SYSTEM	LS	04	1	$408000.00	$416035.22	$408000.00	10-02-2019	04-4J2824	7	M	
☑	870400 - SIGNAL AND LIGHTING SYSTEM	LS	04	1	$332000.00	$338538.47	$332000.00	10-02-2019	04-4J2824	8	M	

uncheck all | check all

cost indexes | legend

SUMMARY	Unmodified	Adjusted		
Average Price/Unit: $	318,544.73	323,410.14	Avg No. Units	1
Std Dev. (of Unit Price): ±$	63,705.02	66,019.95	Rows Selected	13
Weighted Avg.: $	318,544.73	323,410.14	Rows Returned	20
Minimum Price/Unit: $	235,000.00	236,393.14		
Maximum Price/Unit: $	435,000.00	443,566.97		

- Adjusted prices are adjusted to today's dollars based on the Caltrans Construction Cost Index
- To remove a row from the calculations, uncheck the checkbox next to that row.
- To see additional information for a contract, click on that contract number.
- To see a trend graph of prices for an item, click on the item number.
- Statistics are calculated per result row, NOT per contract. Thus some stats may be skewed to contracts with more bidders.

Caltrans

Contract Cost Data

Cost Data Home > Results

Select	Item No. / Description	Unit	Dist	Qty	Unit Price	Adj Price	Total	Bid Open Date	Contract No.	Bid	M	TRO
☑	870400 - SIGNAL AND LIGHTING SYSTEM	LS	03	1	$260000.00	$261295.96	$260000.00	05-16-2018	03-0C4724	1	M	TRO
☑	870400 - SIGNAL AND LIGHTING SYSTEM	LS	03	1	$260000.00	$261295.96	$260000.00	05-16-2018	03-0C4724	2	M	TRO
☑	870400 - SIGNAL AND LIGHTING SYSTEM	LS	03	1	$256667.00	$257946.35	$256667.00	05-16-2018	03-0C4724	3	M	TRO
☑	870400 - SIGNAL AND LIGHTING SYSTEM	LS	03	1	$259259.60	$260551.87	$259259.60	05-16-2018	03-0C4724	4	M	TRO
☑	870400 - SIGNAL AND LIGHTING SYSTEM	LS	03	1	$250000.00	$251246.12	$250000.00	05-16-2018	03-0C4724	5	M	TRO
☑	870400 - SIGNAL AND LIGHTING SYSTEM	LS	03	1	$260000.00	$261295.96	$260000.00	05-16-2018	03-0C4724	6	M	TRO
☑	870400 - SIGNAL AND LIGHTING SYSTEM	LS	03	1	$366500.00	$368276.96	$366500.00	05-16-2018	03-0C4724	7	M	TRO
☑	870400 - SIGNAL AND LIGHTING SYSTEM	LS	03	1	$259750.00	$261044.71	$259750.00	05-16-2018	03-0C4724	8	M	TRO
☑	870400 - SIGNAL AND LIGHTING SYSTEM	LS	03	1	$250000.00	$223768.74	$250000.00	09-26-2018	03-2F9804	1	M	TRO
☑	870400 - SIGNAL AND LIGHTING SYSTEM	LS	03	1	$275000.00	$246145.61	$275000.00	09-26-2018	03-2F9804	2	M	TRO
☑	870400 - SIGNAL AND LIGHTING SYSTEM	LS	03	1	$433287.00	$387824.34	$433287.00	09-26-2018	03-2F9804	3	M	TRO
☑	870400 - SIGNAL AND LIGHTING SYSTEM	LS	03	1	$331615.00	$296820.29	$331615.00	09-26-2018	03-2F9804	4	M	TRO
☑	870400 - SIGNAL AND LIGHTING SYSTEM	LS	03	1	$370000.00	$331177.73	$370000.00	09-26-2018	03-2F9804	5	M	TRO
☐	870400 - SIGNAL AND LIGHTING SYSTEM	LS	03	1	$1000000.00	$1188570.64	$1000000.00	01-30-2019	03-2F3404	1	M	TRO
☐	870400 - SIGNAL AND LIGHTING SYSTEM	LS	03	1	$950000.00	$1129142.10	$950000.00	01-30-2019	03-2F3404	2	M	TRO
☐	870400 - SIGNAL AND LIGHTING SYSTEM	LS	03	1	$4343434.34	$5162478.52	$4343434.34	01-30-2019	03-2F3404	3	M	TRO
☐	870400 - SIGNAL AND LIGHTING SYSTEM	LS	03	1	$1000000.00	$1188570.64	$1000000.00	01-30-2019	03-2F3404	4	M	TRO
☑	870400 - SIGNAL AND LIGHTING SYSTEM	LS	03	1	$566793.82	$487660.65	$566793.82	04-18-2019	03-3H71U4	1	M	
☑	870400 - SIGNAL AND LIGHTING SYSTEM	LS	03	1	$523000.00	$449981.12	$523000.00	04-18-2019	03-3H71U4	2	M	
☑	870400 - SIGNAL AND LIGHTING SYSTEM	LS	03	1	$563628.43	$484937.20	$563628.43	04-18-2019	03-3H71U4	3	M	
☑	870400 - SIGNAL AND LIGHTING SYSTEM	LS	03	1	$500000.00	$430192.28	$500000.00	04-18-2019	03-3H71U4	4	M	
☑	870400 - SIGNAL AND LIGHTING SYSTEM	LS	03	1	$865000.00	$744232.64	$865000.00	04-18-2019	03-3H71U4	5	M	
☑	870400 - SIGNAL AND LIGHTING SYSTEM	LS	03	1	$554900.00	$477427.39	$554900.00	04-18-2019	03-3H71U4	6	M	
☐	870400 - SIGNAL AND LIGHTING SYSTEM	LS	03	1	$1500000.00	$1257557.97	$1500000.00	03-18-2020	03-3F99U4	1	M	TRO
☐	870400 - SIGNAL AND LIGHTING SYSTEM	LS	03	1	$1813581.25	$1520455.70	$1813581.25	03-18-2020	03-3F99U4	2	M	TRO
☐	870400 - SIGNAL AND LIGHTING SYSTEM	LS	03	1	$1795625.00	$1505401.69	$1795625.00	03-18-2020	03-3F99U4	3	M	TRO

uncheck all | check all

cost indexes | legend

SUMMARY	Unmodified	Adjusted		
Average Price/Unit: $	389,231.62	354,374.83	Avg No. Units	1
Std Dev. (of Unit Price): ±$	163,153.67	128,560.05	Rows Selected	19
Weighted Avg.: $	389,231.62	354,374.83	Rows Returned	26
Minimum Price/Unit: $	250,000.00	223,768.74		
Maximum Price/Unit: $	865,000.00	744,232.64		

Exhibit 1: Caltrans District 3 &4 Bid Cost Data

[1] *Transportation Master Plan, November 2012, Figure 4.4a & Figure 4.4b*

a six-lane roadway. Add two right-turn lanes on the westbound approach and one through lane on the eastbound.

- Valpico Road/Corral Hollow Road (#5) – add one additional though lane on Valpico Road making it a four-lane roadway. Add one through lane on the north-south approach making Corral Hollow Road a four-lane roadway.
- Lammers Road/11th Street (#6) – the intersection is assumed to be build out.

Based on the Traffic Operations Analysis Report (FTOAR) for the I- 580/International Parkway/Patterson Pass Road[2], the following changes were made to the existing lane configuration at International/Schulte:

- An additional right-turn lane was added to the northbound approach.

Further assumptions as regards length of left, through and right-turn lane were assumed as follows:

- Through lane - 300'
- Right turn lane - 150'
- Left turn lane - 365'

  Based on Caltrans HDM (Table 405.2B), the deceleration lane length for 40 mph is 315', and assuming a minimum storage length of 50' for either two automobiles or one truck indicated a left-turn lane of 365'.

Unit Cost

Based on data provided in "Urban Arterial Road Reconstruction, San Joaquin County Department of Public Works, Pavement Management System," a unit cost of $8.84/SF was used in the cost estimate.

The results of improvement cost estimates for each intersection is included in the attached **Fair Share Appendix 1.**

Intersection Improvement cost

The estimated project fair share cost is shown in **Table 1**. The estimated total project fair share cost is approximately $58,100.

Table 1: Project Fair Share Improvement Cost

	Intersection	Signal Cost Estimate	Intersection Improvements	Total Cost	Project Fairshare
1	Schulte Road & International Prkwy	$10,000	$31,824	$41,824	$4,768
2	Schulte Road & Hansen Road	$400,000	$63,648	$463,648	$52,023
3	Schulte Road & Lammers Road	$400,000	$284,294	$684,294	$2,589
4	Valpico Road & Lammers Road	$400,000	$361,733	$761,733	$1,308
5	Valpico Road & Corral Hollow Road	$400,000	$250,349	$650,349	$2,208
			Total Fairshare Cost		***$58,128***

[2] *FTOAR for the I- 580 / International Parkway / Patterson Pass Road Interchange in Tracy, CA, July 26, 2019*

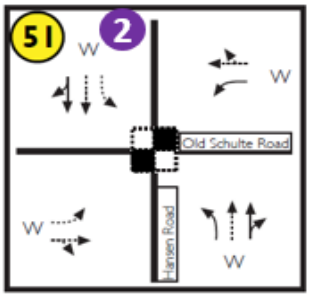
Fair Share Appendix 1

Intersection Improvement Cost Estimates Based on City of Tracy TMP

Unit cost/SF	$8.84

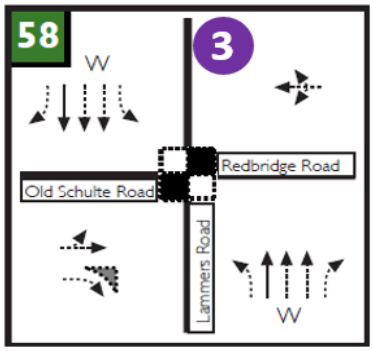
Schulte/International (#1)		NB		
Lane width (ft)	12	**L**	**T**	**R**
Left (ft)	365			1
Through (ft)	300			
Right (ft)	300			
Total SF	3,600			
Intersection Cost	***$31,824***			

Note:
This improvement is shown in the TOAR report.



Hansen/Schulte (#2)		NB		
Lane width (ft)	12	**L**	**T**	**R**
Left (ft)	365		1	
Through (ft)	300			
Right (ft)	150			
Total SF	3,600			
Cost	$31,824			
		SB		
Lane width (ft)	12	**L**	**T**	**R**
Left (ft)	365		1	
Through (ft)	300			
Right (ft)	150			
Total SF	3,600			
Cost	$31,824			
Intersection total cost		***$63,648***		

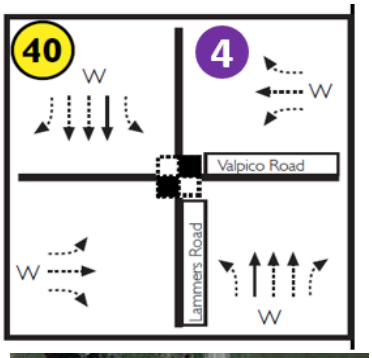
Note:
Caltrans HDM - Decel lane length for 40 mph is 315' in Table 405.2B. Assumed minimum storage length of 50' for two



Schulte/Lammers (# 3)		NB		
Lane width (ft)	12	**L**	**T**	**R**
Left (ft)	365	1	2	1
Through (ft)	300			
Right (ft)	150			
Total SF	13,380			
Cost	$118,279			
		SB		
Lane width (ft)	12	**L**	**T**	**R**
Left (ft)	365	1	2	1
Through (ft)	300			
Right (ft)	150			
Total SF	13,380			
Cost	$118,279			
		EB		
Lane width (ft)	12	**L**	**T**	**R**
Left (ft)	365			1
Through (ft)	300			
Right (ft)	150			
Total SF	1,800			
Cost	$15,912			
		WB		
Lane width (ft)	12	**L**	**T**	**R**
Left (ft)	365		1	
Through (ft)	300			
Right (ft)	150			
Total SF	3,600			
Cost	$31,824			
Intersection total cost		***$284,294***		

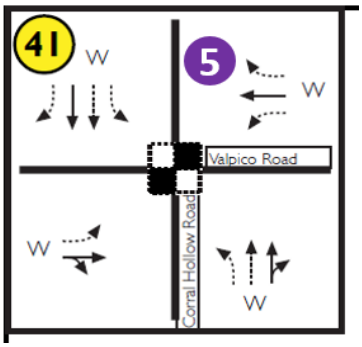
Note:
Caltrans HDM - Decel lane length for 40 mph is 315' in Table 405.2B. Assumed minimum storage length of 50' for two

Intersection Improvement Cost Estimates Based on City of Tracy TMP



Valpico/Lammers (#4)		NB		
Lane width (ft)	12	L	T	R
Left (ft)	365	1	2	1
Through (ft)	300			
Right (ft)	150			
Total SF	13,380			
Cost	$118,279			
		SB		
Lane width (ft)	12	L	T	R
Left (ft)	365	1	2	1
Through (ft)	300			
Right (ft)	150			
Total SF	13,380			
Cost	$118,279			
		EB		
Lane width (ft)	12	L	T	R
Left (ft)	365	1		1
Through (ft)	300			
Right (ft)	150			
Total SF	6,180			
Cost	$54,631			
		WB		
Lane width (ft)	12	L	T	R
Left (ft)	365	1		2
Through (ft)	300			
Right (ft)	150			
Total SF	7,980			
Cost	$70,543			
Intersection total cost		*$361,733*		

Note:
Caltrans HDM - Decel lane length for 40 mph is 315' in Table 405.2B. Assumed minimum storage length of 50' for two



Valpico/Coral Hollow		NB		
Lane width (ft)	12	L	T	R
Left (ft)	365	1	1	
Through (ft)	300			
Right (ft)	150			
Total SF	7,980			
Cost	$70,543			
		SB		
Lane width (ft)	12	L	T	R
Left (ft)	365	1	1	1
Through (ft)	300			
Right (ft)	150			
Total SF	9,780			
Cost	$86,455			
		EB		
Lane width (ft)	12	L	T	R
Left (ft)	365	1		
Through (ft)	300			
Right (ft)	150			
Total SF	4,380			
Cost	$38,719			
		WB		
Lane width (ft)	12	L	T	R
Left (ft)	365	1		1
Through (ft)	300			
Right (ft)	150			
Total SF	6,180			
Cost	$54,631			
Intersection total cost		*$250,349*		

Note:
Caltrans HDM - Decel lane length for 40 mph is 315' in Table 405.2B. Assumed minimum storage length of 50' for two