Appendix F:
Transportation Impact Assessment

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March 2019

Transportation Impact Assessment

Alves Ranch

Prepared for:
First Carbon Solutions
City of Pittsburg

2018 Alves Ranch Project
Transportation Impact Assessment

Prepared for:

First Carbon Solutions
City of Pittsburg

March 2019

WC18-3500

FEHR PEERS

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1. Introduction

This report presents the analysis and findings of the Transportation Impact Assessment (TIA) prepared for 2018 Alves Ranch Project (project) located in the City of Pittsburg, Contra Costa County. This chapter discusses the TIA purpose, study locations and analysis scenarios, analysis methods, criteria used to identify significant impacts, and report organization.

Study Purpose and Project Description

The study's purpose is to evaluate the transportation impacts of the 2018 Alves Ranch Project, a residential and commercial development on approximately 38-acres in the City of Pittsburg, California, adjacent to the intersection of West Leland Road and Alves Ranch Road, as shown on **Figure 1.** The project proposes to construct 356 dwelling units, including 136-attached single-family homes, 210 detached single-family homes, and 10 accessory dwelling units on 26 acres. The remaining 12-acres would be developed with general retail and neighborhood serving uses, with a maximum development size of approximately 140,000 square feet, including up to a 40,000 square foot grocery store. A conceptual project site plan is shown on **Figure 2.**

Study Locations and Analysis Scenarios

This study evaluates weekday morning (7:00 to 9:00 AM) and weekday evening (4:00 to 6:00 PM) peak periods to coincide with the time-periods when adjacent street traffic demands are greatest for the intersections evaluated as part of the 2004 Final EIR, as well as two additional intersections that were selected for inclusion in the updated assessment based on the proposed project trip generation and trip distribution patterns, and consultation with City staff. The study addresses conditions without and with the project at the following intersections:

1. State Route (SR) 4 Westbound Ramps/Evora Road at San Marco Boulevard/Willow Pass Road
2. SR 4 Eastbound Ramps at San Marco Boulevard
3. West Leland Road at San Marco Boulevard
4. West Leland Road at Tomales Bay Drive (intersection not previously evaluated in the 2004 Final EIR)
5. West Leland Road at Alves Ranch Road

6. West Leland Road at Woodhill Drive
7. West Leland Road at Southwood Drive
8. West Leland Road at BART Exit
9. West Leland Road at BART Entrance
10. West Leland Road at Oak Hills Drive
11. Bailey Road at Canal Road (intersection not previously evaluated in the 2004 Final EIR)
12. SR 4 Westbound Ramps/Canal Road at Bailey Road
13. SR 4 Eastbound Ramps/BART at Bailey Road
14. West Leland Road at Bailey Road
15. West Leland Road at Chestnut Drive
16. Bailey Road at Myrtle Drive
17. Bailey Road at Concord Boulevard
18. Willow Pass Road at Avila Road

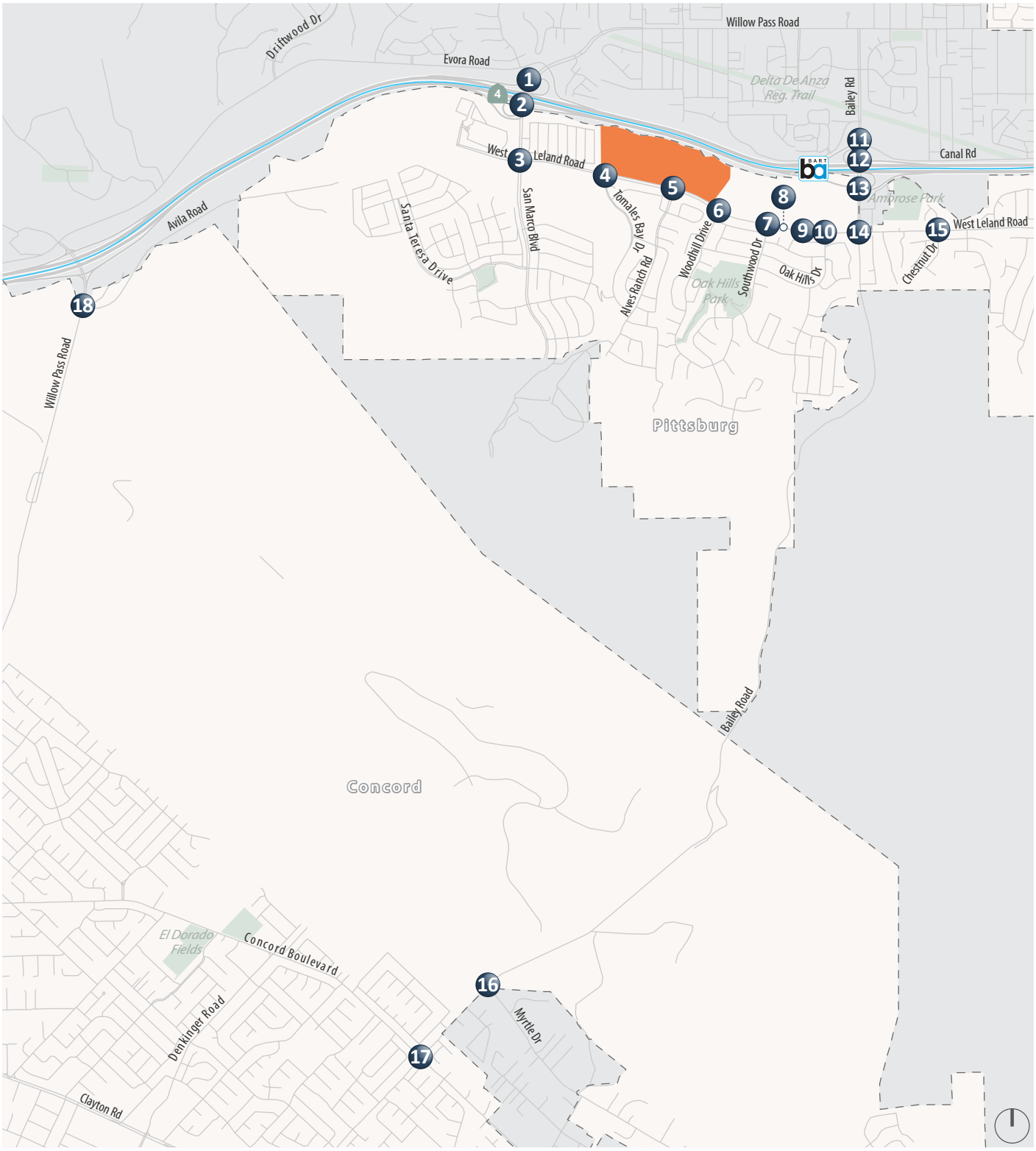
Study locations were selected in consultation with City of Pittsburg staff based on the level of vehicle traffic that is expected to be added to intersections in the area. The following freeway segments were evaluated based on the Delay Index:

1. State Route 4, between Arnold Industrial Place/Solano Way and SR 242
2. State Route 4. Between SR 242 and Port Chicago Highway
3. State Route 4, between Port Chicago Highway and Willow Pass Road
4. State Route 4, between Willow Pass Road and San Marco Boulevard
5. State Route 4, between San Marco Boulevard and Bailey Road
6. State Route 4, between Bailey Road and Railroad Avenue

An assessment of vehicle queues at the freeway on-ramps where project traffic is expected to be concentrated and ramp metering is operational was conducted, including:

1. SR 4 Westbound Ramps Loop On-ramp from northbound San Marco Boulevard south of Evora Road/Willow Pass Road
2. SR 4 Eastbound Ramps at Bailey Road

The 2004 Final EIR also evaluated the freeway segments noted above. The 2004 Final EIR did not evaluate on-ramp operations as ramp metering was not in affect at the time the 2004 Final EIR analysis was conducted.



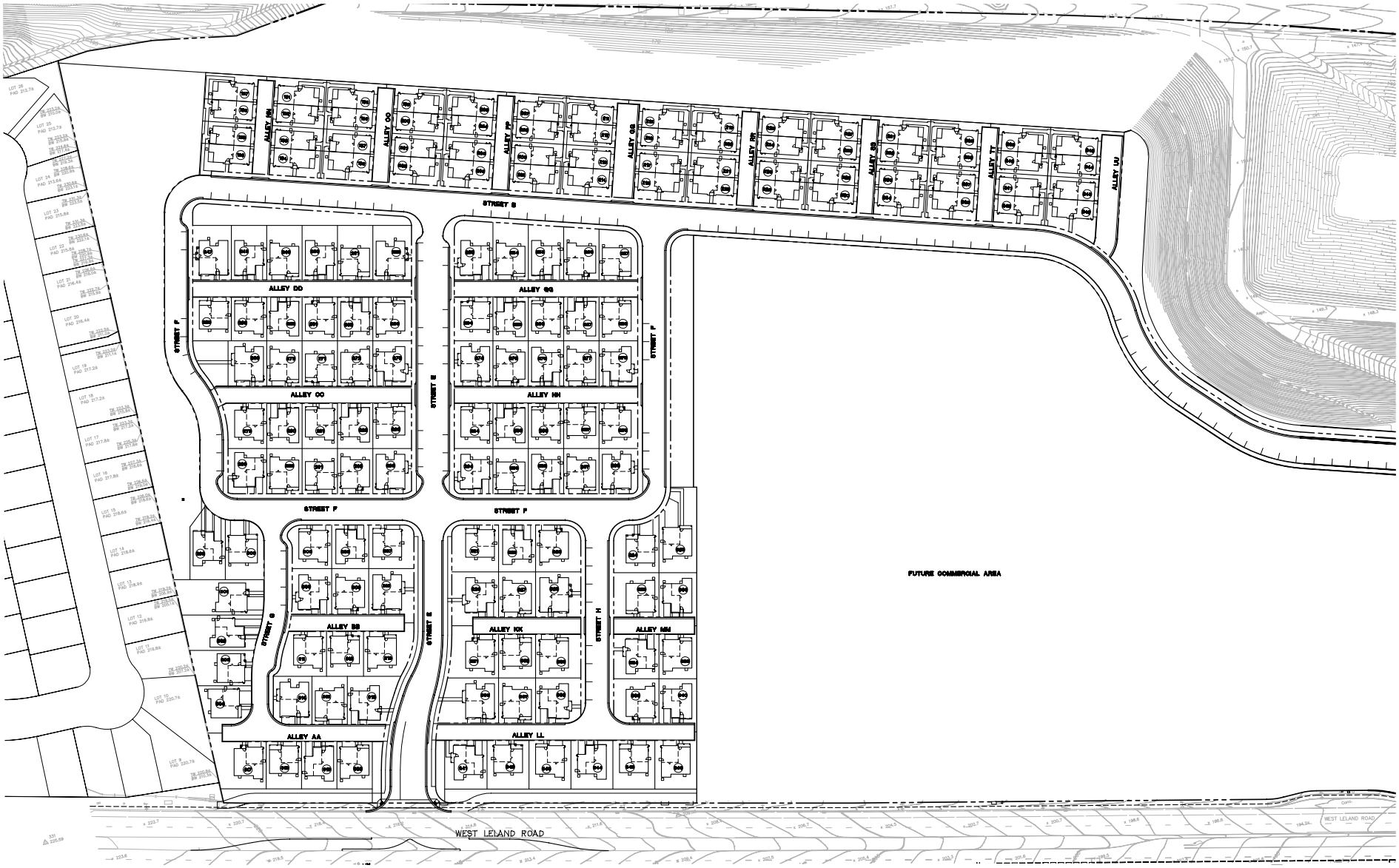
Project Site # Study Intersection

Figure 1

Alves Ranch

Project Site Vicinity and Study Intersection Locations

WC18-3500.02_1_StudyArea



Site Plan Source: Ruggeri-Jensen-Azar, 7/20/18

Figure 2A

Western Conceptual Project Site Plan

Site Plan Source: Ruggeri-Jensen-Azar, 7/20/18

Figure 2B

Eastern Conceptual Project Site Plan

Roadway operations were evaluated for the following scenarios:

Existing – Existing (2018) conditions based on recent traffic counts.

Existing with Project – Existing (2018) conditions with project-related traffic.

Near-Term without Project – Existing (2018) conditions with approved projects within the study area that could be constructed over the next five to ten years.

Near-Term with Project – Near-Term conditions with project-related traffic.

Cumulative without Project – Forecasts for the cumulative scenario based on traffic growth trends as described in the Pittsburg General Plan EIR and supplemented by a check of traffic forecasts for the study area in the most recent Contra Costa Transportation Authority Countywide travel demand model. The scenario reflects conditions over the next 20 to 25 years.

Cumulative with Project – Future forecast conditions with project-related traffic.

In addition to an assessment of vehicle travel through the area, bicycle, pedestrian and transit circulation was evaluated.

Analysis Methods

The operations of roadway facilities are described with the term "level of service" (LOS). LOS is a qualitative description of traffic flow from a vehicle driver's perspective based on factors such as speed, travel time, delay, and freedom to maneuver. Six levels of service are defined ranging from LOS A (free-flow conditions) to LOS F (over capacity conditions). LOS E corresponds to operations "at capacity." When volumes exceed capacity, stop-and-go conditions result, and operations are designated LOS F.

Signalized Intersections

Traffic conditions at signalized intersections were evaluated using methods developed by the Transportation Research Board (TRB), as documented in the 2010 *Highway Capacity Manual* (2010 HCM) for vehicles using the analysis software Synchro 10.0. The HCM method calculates control delay at an intersection based on inputs such as traffic volumes, lane geometry, signal phasing and timing, pedestrian crossing times, and peak hour factors. Control delay is defined as the delay directly associated with the traffic control device (i.e., a stop sign or a traffic signal) and specifically includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The relationship between LOS and control delay is summarized in **Table 1.**

Unsignalized Intersections

For unsignalized (all-way stop controlled and side-street stop controlled) intersections, the 2010 HCM method for unsignalized intersections was used. With this method, operations are defined by the average control delay per vehicle (measured in seconds). The control delay incorporates delay associated with deceleration, acceleration, stopping, and moving up in queue. **Table 2** summarizes the relationship between LOS and delay 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 1: Signalized Intersection LOS Criteria

Level of Service	Description	Delay in Seconds
A	Progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.	< 10.0
B	Progression is good, cycle lengths are short, or both. More vehicles stop than with LOS A, causing higher levels of average delay.	> 10.0 to 20.0
C	Higher congestion may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level, though many still pass through the intersection without stopping.	> 20.0 to 35.0
D	The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.	> 35.0 to 55.0
E	This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences.	> 55.0 to 80.0
F	This level is considered unacceptable with oversaturation, which is when arrival flow rates exceed the capacity of the intersection. This level may also occur at high V/C ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be contributing factors to such delay levels.	> 80.0

Source: 2010 *Highway Capacity Manual*

Table 2: Unsignalized Intersection LOS Criteria

Level of Service	Description	Delay in Seconds
A	Little or no delays	≤ 10.0
B	Short traffic delays	> 10.0 to 15.0
C	Average traffic delays	> 15.0 to 25.0
D	Long traffic delays	> 25.0 to 35.0
E	Very long traffic delays	> 35.0 to 50.0
F	Extreme traffic, delays where intersection capacity exceeded	> 50.0

Source: 2010 *Highway Capacity Manual*

Freeway Segments

For freeway segments, the *East County Action Plan for Routes of Regional Significance,* CCTA, established Multimodal Transportation Service Objective (MTSO) for State Route 4 (SR 4) through the study area. For this corridor, the MTSO is the delay index. The delay index is the ratio of travel time on a facility divided by the travel times that occur during non-congested free-flow periods. Should the delay index exceed 2.5 during either the AM or PM peak period, freeway operations would be considered deficient. This would equate to peak hour travel taking 2.5 times as long as off-peak travel or an average travel speed below 26 miles per hour assuming a non-congested free-flow speed of 65 miles per hour. The number of vehicles traveling in the high-occupancy vehicle (HOV) lane is also an MTSO, with a goal of more than 600 vehicles using the HOV lane in the peak direction in the peak hour.

Regulatory Setting and Significance Criteria

The project would have a significant impact on the environment if it would cause an increase in traffic which is substantial in relation to the traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, or delay and congestion at intersections), or change the condition of an existing street (e.g., street closures, changing direction of travel) in a manner that would substantially impact access or traffic load and capacity of the street system. Significance criteria are used to determine whether a project impact is considered significant and therefore requires mitigation.

CEQA Guidelines Appendix G, the City of Pittsburg General Plan, CCTA's Technical Procedures, the East County's Action Plan for Routes of Regional Significance, and City of Pittsburg staff were consulted to

determine the criteria against which impacts should be evaluated as part of this analysis, and this criteria is described below. The project would have a significant impact if it would:

A. Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency (CMA) for designated roads or highways.

Signalized Intersections - Project-related operational impacts on the signalized study intersections in the City of Pittsburg are considered significant if:

1. Project-related traffic causes the Level of Service (LOS) rating to deteriorate from Low-LOS D (50 seconds) or better to LOS E or F, or from LOS E to LOS F for intersections not along a Regional Route of Significance (intersections 1 and 2) in a Suburban setting as designated by the City of Pittsburg General Plan;

2. Project-related traffic causes the Level of Service (LOS) rating to deteriorate from LOS D (55-seconds) or better to LOS E or F, or from LOS E to LOS F for intersections along Regional Routes of Significance (intersections 3-10, 15), except for intersections on Bailey Road where LOS E is acceptable (intersections 11-14, 16 and 17);

3. Project-related traffic causes the Level of Service (LOS) rating to deteriorate from LOS E (80-seconds) or better to F for City of Concord intersections along Transit Routes, which include Willow Pass Road (intersection 18);

4. For intersections already operating at an unacceptable LOS without the project it is considered a significant impact of the project increase the average intersection delay by more than 5 seconds.

Unsignalized Intersections - Project-related operational impacts on unsignalized intersections are considered significant if:

5. Project generated traffic causes the worst-case movement (or average of all movements for all-way stop-controlled intersections) to deteriorate from LOS E or better to LOS F, and the signal warrant is met.

6. For intersections already operating at an unacceptable LOS without the project it is considered a significant impact if:

    - Project traffic results in satisfaction of the peak our volume traffic signal warrant;

- Project traffic increases the minor movement delay by more than 30 seconds; or
- Where the peak hour volume signal warrant is met without Project traffic and delay cannot be measured, the project increases traffic by 10 or more vehicles per lane on the controlled approach.

Freeway System - For the Caltrans freeway facilities being studied, the operational standards and significance criteria are established by the CCTA acting as the designated CMA representing the jurisdictions of Contra Costa County. As the acting CMA, the CCTA establishes the traffic LOS standards for all state highway facilities in Contra Costa County, which supersede the general Caltrans operational standard for all state highways.

For freeway segments, the *East County Action Plan for Routes of Regional Significance*, CCTA has established the delay index as the Multimodal Transportation Service Objective (MTSO) for State Route 4 (SR 4) through the study area. The delay index is the ratio of travel time on a facility divided by the travel times that occur during non-congested free-flow periods. Should the delay index exceed 2.5 during either the AM or PM peak period, freeway operations would be considered deficient. This would equate to peak hour travel taking 2.5 times as long as off-peak travel or an average travel speed below 26 miles per hour assuming a non-congested free-flow speed of 65 miles per hour.

For project impact assessment purposes, an impact is significant if the project adds traffic to a mixed flow segment projected to have a delay index over 2.5 without project traffic, or if the project adds traffic to an HOV segment projected to meet or exceed the desired volume without project traffic.

The number of vehicles traveling in the high-occupancy vehicle (HOV) lane is also an MTSO. However, since the *Action Plan* sets a goal of a minimum of 600 vehicles per lane in the peak hour using the HOV lanes, no significance criteria is identified for HOV lanes in this evaluation.

Transit System - The project would create a significant impact related to transit service if either of the following criteria are met:

- The project generates a substantial increase in transit riders that cannot be adequately served by existing transit services; or,
- The project conflicts with existing or planned transit facilities.

Bicycle System - The project would create a significant impact related to the bicycle system if any of the following criteria are met:

- The project design would not provide or would eliminate bicycle facilities that connect to the area circulation system,
- The project conflicts with existing or planned bicycle facilities; or
- The project design would create hazardous conditions for bicyclists.

Pedestrian System - The project would create a significant impact related to the pedestrian system if any of the following criteria are met:

- The project design would not provide or would eliminate pedestrian facilities to connect to the area circulation system, or
- The project design would create hazardous conditions for pedestrians, or
- The project conflicts with existing or planned pedestrian facilities.

B. Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

C. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

D. Result in inadequate emergency access?

Report Organization

This report is divided into nine chapters as described below:

- **Chapter 1 – Introduction** discusses the purpose and organization of the report.
- **Chapter 2 – Existing Conditions** describes the transportation system in the project vicinity, including the surrounding roadway network morning and evening peak period intersection turning movement volumes, existing bicycle, pedestrian, and transit facilities, and intersection operations.
- **Chapter 3 – Project Characteristics** presents relevant project information, such as the project components and project trip generation, distribution, and assignment.
- **Chapter 4 – Existing with Project Traffic Conditions** addresses the existing conditions with the project, and discusses project vehicular impacts.
- **Chapter 5 – Near-Term Traffic Conditions** addresses the near-term future condition, both without and with the project, and discusses project vehicular impacts.
- **Chapter 6 – Cumulative Traffic Conditions** addresses the long-term future condition, both without and with the project, and discusses project vehicular impacts.
- **Chapter 7 – Freeway Analysis** presents the results of the freeway analysis under existing, near-term and cumulative conditions, including an assessment of ramp meter operations at the Willow Pass Road and Bailey Road interchanges.
- **Chapter 8 – Site Plan Review** describes project access and circulation for all travel modes, and evaluates non-automobile significance criteria.
- **Chapter 9 – Vehicle Miles of Travel** presents the results of the VMT assessment conducted for the site.

2. Existing Conditions

This chapter describes transportation facilities in the project study area, including the surrounding roadway network, transit, pedestrian, and bicycle facilities in the project site vicinity. Existing intersection operations are also described.

Roadway System

The project site is bound by State Route 4 to the north, an undeveloped parcel to the east, West Leland Road and residential development to the south, and a residential development to the west in the City of Pittsburg. Pittsburg is located in eastern Contra Costa County, west of the City of Antioch and east of the unincorporated community of Bay Point. Land uses surrounding the project site are generally residential, with a BART station located approximately ½ mile east of the site.

Regional access to the site is provided by State Route 4, Bailey Road, San Marco Boulevard and Leland Road. An extension of Alves Ranch Road would provide local access. The following discusses the roadways that would provide access to the site and are most likely to experience direct traffic impacts, if any, from the proposed project.

State Route 4 (SR 4) is an east-west freeway that extends from Hercules in the west to Stockton and beyond in the east. The facility is an eight lane freeway in the project vicinity, with three general purpose lanes and one high occupancy vehicle lane in each direction. State Route 4 is a designated route of regional significance by the Contra Costa County Transportation Agency (CCTA). Routes of regional significance are roadways that connect two or more subareas of Contra Costa, cross County boundaries, carry significant through traffic, and/or provide access to a regional highway or transit facility. Caltrans uses ramp meters to moderate the flow of vehicles onto the freeway during peak commute periods in the study area.

West Leland Road is a four-lane east-west arterial street that forms the southern boundary of the project site and extends through the City of Pittsburg. At Century Boulevard it continues into the City of Antioch as Delta Fair Boulevard. In the west, it currently terminates west of San Marco Boulevard, but is proposed to connect with Avila Road, connecting to Willow Pass Road in Concord. West Leland Road is a designated Route of Regional Significance.

In the project vicinity, Class II bicycle lanes are provided on West Leland Road, and sidewalks are provided adjacent to developed parcels as well as along a portion of the project site. A landscaped median is also provided. No on-street parking is permitted. The posted speed limit is 45 miles per hour.

Alves Ranch Road is a generally a two-lane north-south collector roadway that intersects with West Leland Road and would be extended into the project site to provide primary access to the eastern residential neighborhood and the commercial center. South of West Leland Road, Class II bicycle facilities are provided. On-street parking is prohibited on portions of Alves Ranch Road where housing does not front the roadway. Where direct residential access is provided, on-street parking is permitted. Alves Ranch Road has a posted speed limit of 25 miles per hour.

San Marco Boulevard is a north-south four lane roadway that terminates in the south at Rio Verde Circle, and continues in the north as Willow Pass Road. It primarily provides access to the San Marco subdivision, which is still under construction. Sidewalks are provided along both sides of the roadway, except for a gap on the west side of the roadway between Willow Pass Road and the Arco gas station at the corner of West Leland Road at San Marco Boulevard. Class II bicycle lanes are provided between West Leland Road and Willow Pass Road. San Marco Boulevard has a posted speed limit of 40 miles per hour.

Bailey Road is a north-south roadway that connects the City of Concord to the community of Bay Point, through Pittsburg. In the City of Pittsburg, it provides two travel lanes in each direction in the vicinity of State Route 4. South of West Leland Road, Bailey Road narrows to provide one travel lane in each direction. Sidewalks and Class II bicycle facilities are provided on this roadway in the City of Pittsburg. South of the City of Pittsburg, Bailey Road transitions to a two lane rural roadway without pedestrian or bicycle facilities. Limited shoulders are provided. In the rural area, the posted speed limit is 45 miles per hour. In the urbanized area, the posted speed limit is 30 miles per hour. Bailey Road connecting to Concord is used as a commuter thoroughfare and typically carries higher levels of vehicle traffic than the roadway was designed to accommodate.

Existing Pedestrian and Bicycle Facilities

Pedestrian facilities include sidewalks, crosswalks, and pedestrian signals. Pedestrian facilities are provided on public roadways adjacent to the site where development has occurred as well as for a segment along the project frontage. In the immediate project vicinity, marked crosswalks, push buttons and signals are provided on three legs (north, south and west) of the signalized intersection of West Leland Road at Alves Ranch Road. No pedestrian crossing of West Leland Road is provided at Tomales Bay Drive. The next closest pedestrian crossing of West Leland Road is at the BART station exit driveway.

Bicycle facilities in Pittsburg include the following:

Bike paths (Class I) – Paved trails that are separated from roadways. These facilities are typically shared with pedestrians, although bicycles must yield to pedestrians.

Bike lanes (Class II) – Lanes on roadways designated for use by bicycles through striping, pavement legends, and signs. There may or may not be parking allowed on the roadway.

Bike routes (Class III) – Designated roadways for bicycle use by signs only; may or may not include additional pavement width for cyclists.

Class II bicycle facilities are provided on West Leland Road through the study area, as well as on Alves Ranch Road and Tomales Bay Drive, south of West Leland Road. Class II facilities are also provided on Bailey Road between Willow Pass Road and just south of the City limit, and on San Marco Boulevard between West Leland Road and Willow Pass Road. There are also several Class I trails in the area, including the Delta De Anza Regional Trail, that can be accessed through the BART station, and a Class I trail along the west side of San Marco Boulevard.

Existing Transit Service

The center of the project site is approximately 1/2-mile from the Pittsburg/Bay Point Bay Area Rapid Transit (BART) station that connects the area to the greater region via transit. The BART station also serves as a hub for TriDelta Transit, the local transit provider, as well as other transit services.

The BART system provides regional rail transit service connecting San Francisco, Alameda County, Contra Costa County, and parts of San Mateo County. From the Pittsburg/Bay Point station, direct connections to San Francisco and Antioch are provided, with transfers available to access the entire BART system. During peak periods, trains operate on less than 15 minute headways to/from San Francisco. Trains run to/from San Francisco with 15 to 20 minute headways during off-peak periods.

Nine of the thirteen TriDelta Transit Routes serve the Pittsburg/Bay Point BART station (Routes 200, 201, 380, 387, 388, 389, 392, 394 and 396). Route 200 travels along the project frontage on West Leland Road, and connects the site to the BART station as well as to Martinez. Bus stops are provided on West Leland Road at Alves Ranch Road.

Existing Traffic Counts

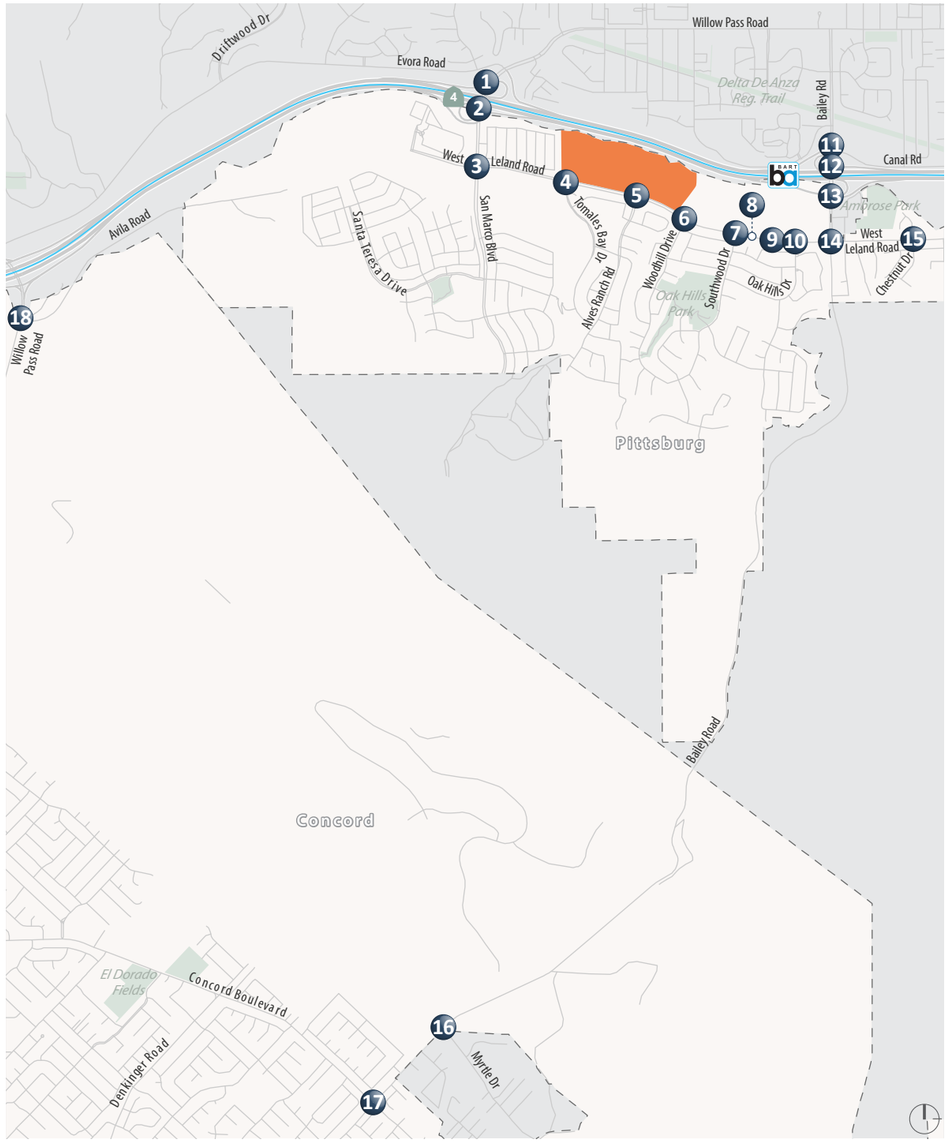
Weekday morning (7:00 to 9:00 AM) and evening (4:00 to 6:00 PM) peak period intersection turning movement counts were collected at the study intersections, including separate counts of pedestrians and bicyclists, in May 2018 and October 2018 with area schools in normal session, per CCTA guidelines. Peak hour intersection vehicle volumes are summarized on **Figure 3** along with existing lane configurations and traffic controls. Bicycle and pedestrian counts are presented on **Figure 4**; as shown on Figure 4, existing bicycle and pedestrian activity at the study intersections is generally low. The traffic counts for existing conditions are provided in **Appendix A**.

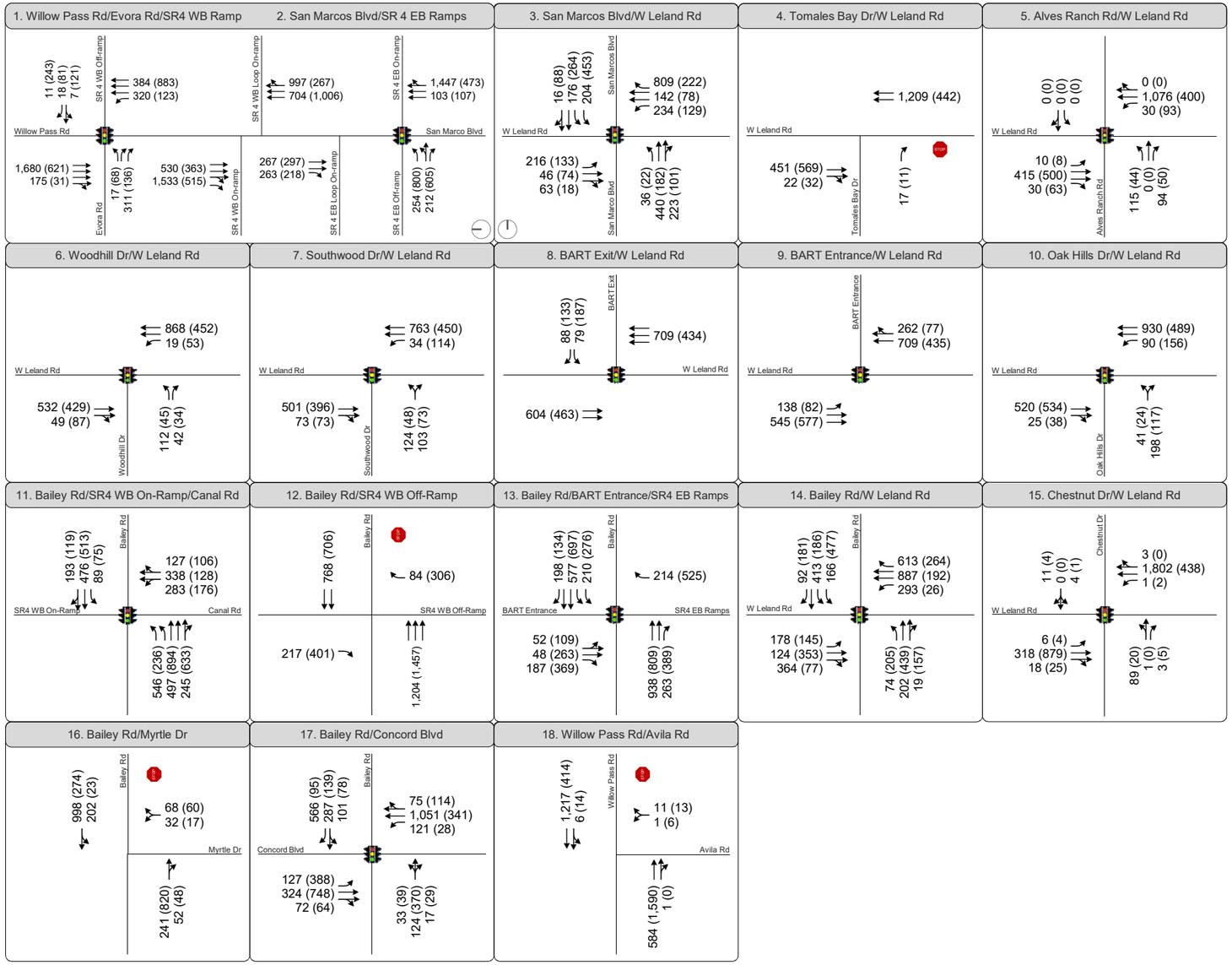
Existing Intersection Levels of Service

Existing intersection lane configurations, signal timings, and peak hour turning movement volumes were used to calculate the levels of service for the study intersections during each peak hour, using the Synchro 10.0 software program, as presented in **Table 3.** Observed peak hour factors[1] were used at all intersections for the existing analysis. Pedestrian and bicycle activity was also factored into the analysis. Detailed intersection LOS calculation worksheets are presented in **Appendix B**. As shown, signalized study intersections generally operate within the level of service standards set by the City of Pittsburg, CCTA, and City of Concord, except for the West Leland Road at San Marco Boulevard intersection that operates at a LOS F during the morning peak hour.

The unsignalized intersection of Bailey Road at Myrtle Drive currently experiences high levels of delay for vehicles turning from Myrtle Drive to Bailey Road during the morning peak hour, as well as the Bailey Road at SR 4 Westbound Ramps for westbound right-turning vehicles from the off-ramp to northbound Bailey Road.

[1] The peak hour factor is the relationship between the peak 15-minute flow rate and the full hourly volume: PHF = Hourly volume / (4 x (volume during the peak 15 minutes of flow)). The analysis level of served is based on peak rates of flow occurring within the peak hour because substantial short term fluctuations typically occurring during an hour.





XX (YY) AM (PM) Peak Hour Traffic Volumes

Signalized Intersection

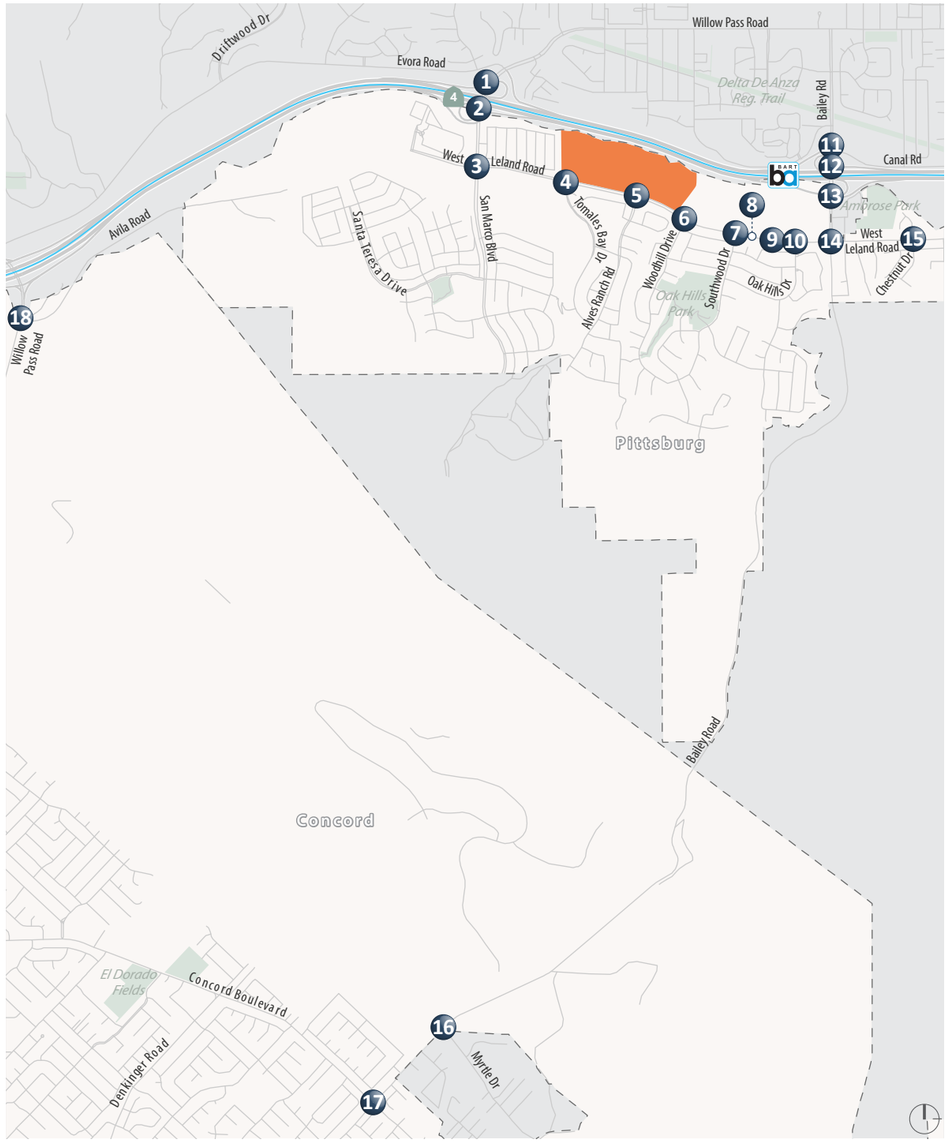
Stop Sign

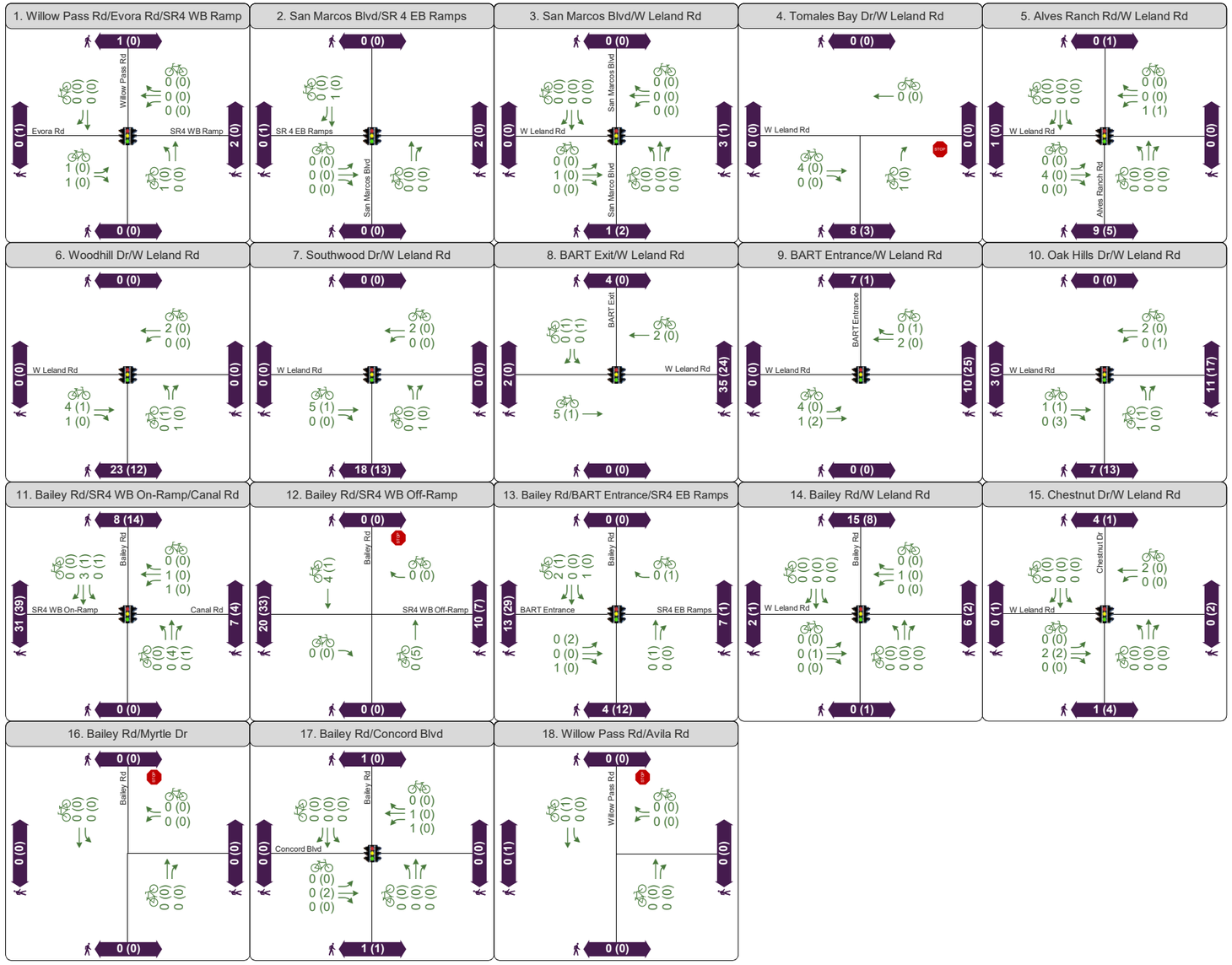
Project Site

Study Intersection

Figure 3

Existing Peak Hour
Intersection Traffic Volumes, Lane Configurations and Traffic Controls





x (y) AM (PM) Peak Hour Pedestrian Volumes

x (y) AM (PM) Peak Hour Bicycle Volumes

Signalized Intersection

Stop Sign

Project Site

Study Intersection

Figure 4

Existing Peak Hour Bicycle and Pedestrian Volumes

Table 3: Existing Conditions Peak Hour Intersection LOS Summary

Willow Pass Road Intersection	Control[1]	Peak Hour	Level of Service Standard	Delay[2]	LOS	Peak Hour Signal Warrant Met?
1. State Route 4 Westbound Ramps at San Marco Boulevard/Evora Road	Signal	AM PM	High-LOS D (50 seconds	37[3] 12	D B	N/A
2. State Route 4 Eastbound Ramps at San Marco Boulevard	Signal	AM PM	High-LOS D (50 seconds	7 8	A A	N/A
3. West Leland Road at San Marco	Signal	AM PM	LOS D (55-seconds)	**119** 36	**F** D	N/A
4. West Leland Road at Tomales Bay Drive	SSSC	AM PM	LOS D (55-seconds)	0 (11) 0 (11)	A (B) A (B)	No No
5. West Leland Road at Alves Ranch Road	Signal	AM PM	LOS D (55-seconds)	9 12	A B	N/A
6. West Leland Road at Woodhill Drive	Signal	AM PM	LOS D (55-seconds)	14 11	B B	N/A
7. West Leland Road at Southwood Drive	Signal	AM PM	LOS D (55-seconds)	14 17	B B	N/A
8. West Leland Road at BART Exit	Signal	AM PM	LOS D (55-seconds)	8 12	A B	N/A
9. West Leland Road at BART Entrance	Signal	AM PM	LOS D (55-seconds)	8 10	A A	N/A
10. West Leland Road at Oak Hills Drive	Signal	AM PM	LOS D (55-seconds)	12 18	B B	N/A
11. Bailey Road at Canal Road/SR 4 Westbound Ramps	Signal	AM PM	LOS E (80-Seconds)	37 16	D B	N/A
12. Bailey Road at SR 4 Westbound Ramps	SSSC	AM PM	LOS E (80-Seconds)	1 (18) 17 **(140)**	A (C) C **(F)**	No No
13. Bailey Road at BART/SR 4 Eastbound Ramps	Signal	AM PM	LOS E (80-Seconds)	16 23	B C	N/A
14. West Leland Road at Bailey Road	Signal	AM PM	LOS E (80-Seconds)	38 25	D C	N/A
15. West Leland Road at Chestnut Drive	Signal	AM PM	LOS D (55-seconds)	28 13	C B	N/A
16. Bailey Road at Myrtle Drive	SSSC	AM PM	LOS E (80-Seconds)	6 (43) 2 (22)	A (E) A (C)	Yes No

Table 3: Existing Conditions Peak Hour Intersection LOS Summary

Willow Pass Road Intersection	Control[1]	Peak Hour	Level of Service Standard	Delay[2]	LOS	Peak Hour Signal Warrant Met?
17. Bailey Road at Concord Boulevard	Signal	AM PM	LOS E (80-Seconds)	42 43	D D	N/A
18. Willow Pass Road at Avila Road	SSSC	AM PM	LOS E (80-Seconds)	1 (13) 1 (37)	A (B) A (E)	No No

Notes: **Bold** indicates potentially deficient operations. 1. Signal = signalized intersection; SSSC = side-street stop-control
2. Average intersection delay is calculated for all signalized intersections using the HCM method for vehicles.
3. Delay presented here does not consider delay associated with ramp metering. An assessment of ramp meter operations is provided in Chapter 7. Source: Fehr & Peers, 2019

To assess the need for signalization of stop-controlled intersections, the Manual of Uniform Traffic Control (MUTCD) (Federal Highway Administration 2009) presents nine signal warrants. The Peak Hour Volume Warrant and the Peak Hour Delay Warrant was used in this study as a supplemental analysis tool to assess operations at the unsignalized intersections.[2]

The Bailey Road at Myrtle Drive intersection currently meets the peak hour signal warrant during the morning peak hour. **Appendix C** provides the existing conditions signal warrant worksheets.

As operations of State Route 4 and the ramp meters at the San Marco Boulevard interchange can affect local street operations, additional field observations were conducted to document the effects of vehicle queue spillback from the ramp meters; detailed evaluation of ramp meter operations is provided in Chapter 7.

Congestion was not observed along the local street system prior to the ramp meters turning on at 6:00 AM. Queues for the San Marco Boulevard westbound loop on-ramp exceeded the on-ramp storage by 6:30 AM. By 7:00 AM, queues for the on-ramp spilled back to the San Marco Boulevard/West Leland Road intersection and queues on West Leland Road did not dissipate until 8:15 AM. The maximum length of queue was recorded at 7:45 AM and measured approximately 4,100 feet (measured from the ramp meter stop bar),

[2] Unsignalized intersection warrant analysis is intended to examine the general correlation between existing conditions and the need to install new traffic signals. Existing peak-hour volumes are compared against a subset of the standard traffic signal warrants recommended in the MUTCD and associated State guidelines. This analysis should not serve as the only basis for deciding whether and when to install a signal. To reach such a decision, the full set of warrants should be investigated based on field-measured traffic data and a thorough study of traffic and roadway conditions by an experienced engineer. Furthermore, the decision to install a signal should not be based solely on the warrants because the installation of signals can lead to certain types of collisions. The responsible State or local agency should undertake regular monitoring of actual traffic conditions and accident data and conduct a timely re-evaluation of the full set of warrants in order to prioritize and program intersections for signalization.

which is past the intersection of West Leland Road at Tomales Bay Drive. After 8:15 AM, queues were contained within the on-ramp storage, and by 8:30 AM queues at the ramp meter had largely dissipated (i.e. there were periods of no queue at the ramp meter).

Field observations indicate that the ramp meter is the controlling bottleneck for traffic getting on the freeway when the ramp meter is active. While some vehicles merging onto the freeway after the ramp meter had to wait to merge (due to congestion on westbound SR 4), the queues from the merge rarely extended to the ramp meter stop bar. Therefore, the PEMS volume data for the ramp meter is indicative of vehicles served by the ramp meter.

Some motorists were observed to make atypical maneuvers on local streets to try to avoid the queue spillback from the San Marco Boulevard westbound loop on-ramp meter. The following movements were regularly observed to occur during periods when the ramp meter queue spilled back onto San Marco Boulevard and/or West Leland Road:

- Bypassing on-ramp queues and congestion along westbound SR 4 by using Evora Road to the Willow Pass Road (Concord) interchange
- Making illegal U-turns at Willow Pass Road/Evora Road to access the Willow Pass Road diagonal on-ramp[3]
- Making illegal westbound right turns around the "pork chop" right turn island at the West Leland Road/San Marco Boulevard intersection

Vehicle queues were also calculated by Synchro 10.0 and the queuing reports are provided in **Appendix D** along with a summary table. In the existing condition, average left-turn vehicle queues are contained within the available storage with the 95th percentile vehicle queue for some movements potentially extending beyond the available storage, including:

- Willow Pass Road at Evora Road/SR 4 Westbound Ramp (southbound movement, AM peak hour)
- San Marco Boulevard at West Leland Road (eastbound left, westbound left, and westbound right, AM peak hour)
- Bailey Road at West Leland Road (eastbound left, westbound left, westbound right, AM peak hour; southbound left, PM peak hour)
- Bailey Road at Concord Boulevard (westbound left, AM peak hour; eastbound left, PM peak hour

[3] About 4-5 vehicles per cycle were observed to make the illegal U-turn movement at the intersection throughout the AM peak period, especially when queues spilled back past the eastbound SR 4 ramps/San Marco Boulevard intersection. City of Pittsburg Police Department motorcycle units were observed to pull over and cite drivers making these illegal movements.

3. Project Characteristics

This chapter provides an overview of the proposed project components and addresses the proposed project trip generation, distribution, and assignment characteristics, allowing for an evaluation of project impacts on the surrounding roadway network. The amount of traffic associated with the project was estimated using a three-step process:

1. **Trip Generation** – The *amount* of vehicle traffic entering/exiting the project site was estimated.
2. **Trip Distribution** – The *direction* trips would use to approach and depart the site was projected.
3. **Trip Assignment** – Trips were then *assigned* to specific roadway segments and intersection turning movements.

Project Description

As currently proposed, the approximately 38-acre site is proposed to be developed with up to 356 dwelling units, including 136-attached single-family homes, 210 detached single-family homes and 10 accessory dwelling units on 26 acres. The remaining 12-acres would be developed with general retail and community serving uses, with a maximum development size of approximately 140,000 square feet, including up to a 40,000 square foot grocery store.

Access to the site would be provided from three locations on West Leland Road, including an extension of Alves Ranch Road north into the site, forming the fourth leg of an existing signalized intersection with West Leland Road. As part of the project, this intersection would be modified to provide two left-turn lanes and a through-right shared lane on both the northbound and southbound approaches. As part of this modification, a new crosswalk would be provided across the east leg of the intersection, and the traffic signal would be modified to accommodate a new pedestrian phase and the changed lane geometries on the north and south legs of the intersection.

A full access unsignalized intersection is proposed on West Leland Road, west of Alves Ranch Road. This intersection would be off-set with Tomales Bay Drive on the south side of West Leland Road, which would remain a right-in/right-out side-street stop controlled intersection. A secondary right-in/right-out access to the commercial site would also be provided from West Leland Road between Alves Ranch Road and the new roadway off-set with Tomales Bay Drive. In addition to the vehicular access locations, an emergency

vehicle access location would be provided on the eastern portion of the site, approximately 500 feet east of Alves Ranch Road.

As part of the project, a 12-foot wide sidewalk would be constructed on the north side of West Leland Road along the residential project frontage, connecting to an existing sidewalk in the west; a temporary pedestrian connection would be constructed along the future commercial frontage with full improvements constructed once the commercial site is developed. A new crosswalk across the east leg of Leland Road would be constructed as part of the site access improvements, and the signal modified to accommodate the additional pedestrian phase. Class II bicycle facilities are provided on West Leland Road, which would not be altered as result of the project.

Project Trip Generation

Trip generation refers to the process of estimating the amount of vehicular traffic a project would add to the surrounding roadway system. Estimates are created for the daily condition and for the peak one-hour period during the morning and evening commute when traffic volumes on the adjacent streets are typically the highest. Project trip generation was estimated using rates from the Institute of Transportation Engineers (ITE) *Trip Generation Manual* (10th Edition), as presented in **Table 4.**

Given the project's proximity to the Pittsburg/Bay Point BART station and the likelihood of future residents utilizing the BART system without using a private vehicle to access the station, the trip generation estimates considered a 6 percent transit reduction for the proposed residential uses. This reduction is consistent with the reduction used for the 2004 Environmental Impact Report (2004 EIR) that served as the basis for the initial project approvals and entitlements.

At retail establishments, such as the one that could be developed as part of the commercial parcel, driveway traffic comprises: (1) new traffic generated by the project, (2) traffic that would otherwise already be on the adjacent roadways but the driver decides to stop at the site (e.g., to purchase an item on their way home from work), and (3) traffic on other nearby roadways, but the driver decides to take a short detour to stop at the site. The trips in Item 2 are referred to as "pass-by" trips and the trips in Item 3 are referred to as "diverted-link" trips.

Information contained in the ITE *Trip Generation Handbook* and surveys of similar uses was used to estimate pass-by and diverted-link trips for the grocery store and general retail components of the project. For grocery stores, the average pass-by rate is 36 percent, and the average diverted linked trip rate is 32 percent during PM peak hour (limited data is available for the AM peak hour). In other words, at a grocery store, approximately, 68 percent of the traffic entering and exiting the site is already on the surrounding roadway system – not a new vehicle trip to the area. For general retail, the average pass-by rate is 34 percent, and

the average diverted linked trip rate is 16 percent during PM peak hour (limited data is available for the AM peak hour). In other words, at a typical shopping center, approximately, 50 percent of the traffic entering and exiting the site is already on the surrounding roadway system.

For this assessment, a pass-by reduction of 36 percent was applied for the grocery store and a 34 percent reduction was applied to the general retail portion of the project during the PM peak hour and on a daily basis.

Although there is likely to be interaction between the retail and residential components of the project, no additional trip reductions were taken to present a conservative assessment of potential project impacts. The resulting project trip generation estimates are presented in **Table 4,** which shows that the proposed project is expected to generate approximately 8,370 weekday daily trips, including 492 morning peak hour and 815 evening peak hour trips.

Project Trip Distribution and Assignment

Project trip distribution refers to the directions of approach and departure that vehicles would take to access and leave the site. Estimates of regional project trip distribution were developed based on existing travel patterns in the area, a select zone analysis using the Contra Costa Transportation Authority (CCTA) travel demand model, and the location of complementary land uses, such as schools, employment centers, and retail/recreational opportunities. Separate estimates were developed for the residential and commercial portions of the project as they are likely to have different trip distribution patterns. The resulting trip distribution percentages are shown on **Figure 5.** Project trips where then assigned to the roadway network, as shown on **Figure 6**.

Table 4: Vehicle Trip Generation Estimates

Use	Size	Weekday						
		Daily	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Single Family Homes[1]	346 units	3,070	60	180	240	203	119	322
Accessory Dwelling Units[2]	10 units	70	1	4	5	4	2	6
Grocery Store[3]	40,000 square feet	4,270	92	61	153	188	181	369
Neighborhood Shopping Center[4]	100,000 square feet	3,780	58	36	94	183	198	381
Less Pass-by Supermarket[5]		-1,540	--	--	--	-68	-65	-133
Less Pass-by Neighborhood Retail[6]		-1,280	--	--	--	-63	-67	-130
Net Vehicle Trip Generation		8,370	211	281	492	447	368	815

1. ITE land use category 210 – Single-Family Homes (Adj Streets, 7-9A, 4-6P):
   Weekday Daily: (T) = 9.44 (X)
   AM Peak Hour: T = 0.74(X); Enter = 25%; Exit = 75%
   PM Peak Hour: T = 0.99 (X); Enter = 63%; Exit = 37%
   Trip generation results reflect 6 percent reduction to account for transit use.
2. ITE land use category 220 – Multi-family Housing (Adj Streets, 7-9A, 4-6P):
   Weekday Daily: (T) = 7.32 (X)
   AM Peak Hour: T = 0.46 (X); Enter = 23%; Exit = 77%
   PM Peak Hour: T = 0.56 (X); Enter = 63%; Exit = 37%
   Trip generation results reflect 6 percent reduction to account for transit use.
3. ITE land use category 850 – Grocery Store (Adj Streets, 7-9A, 4-6P):
   Weekday Daily: (T) = 106.78(X)
   AM Peak Hour: T = 3.82 (X); Enter = 60%; Exit = 40%
   PM Peak Hour: T = 9.24 (X); Enter = 51%; Exit = 49%
4. ITE land use category 820 – Shopping Center (Adj Streets, 7-9A, 4-6P):
   Weekday Daily: (T) = 37.75(X)
   AM Peak Hour: T = 0.94(X); Enter = 62%; Exit = 38%
   PM Peak Hour: T = 3.81 (X); Enter = 48%; Exit = 52%
5. Reflects a 36 percent pass-by reduction for grocery store only trips.
6. Reflects a 34 percent pass-by reduction for neighborhood retail trips.

Source: Trip Generation Manual (10th Edition), ITE, 2017; Fehr & Peers, 2019.

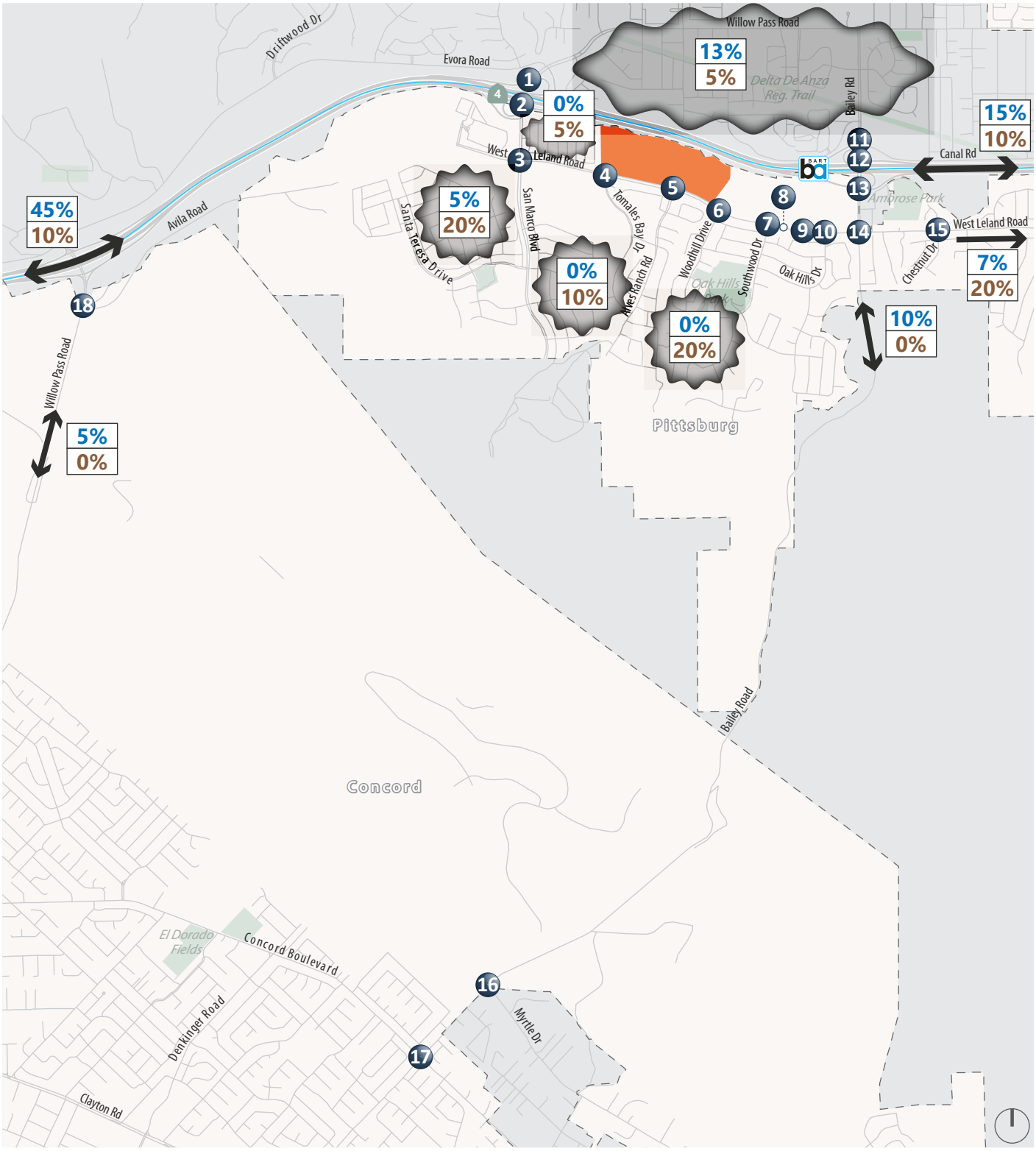
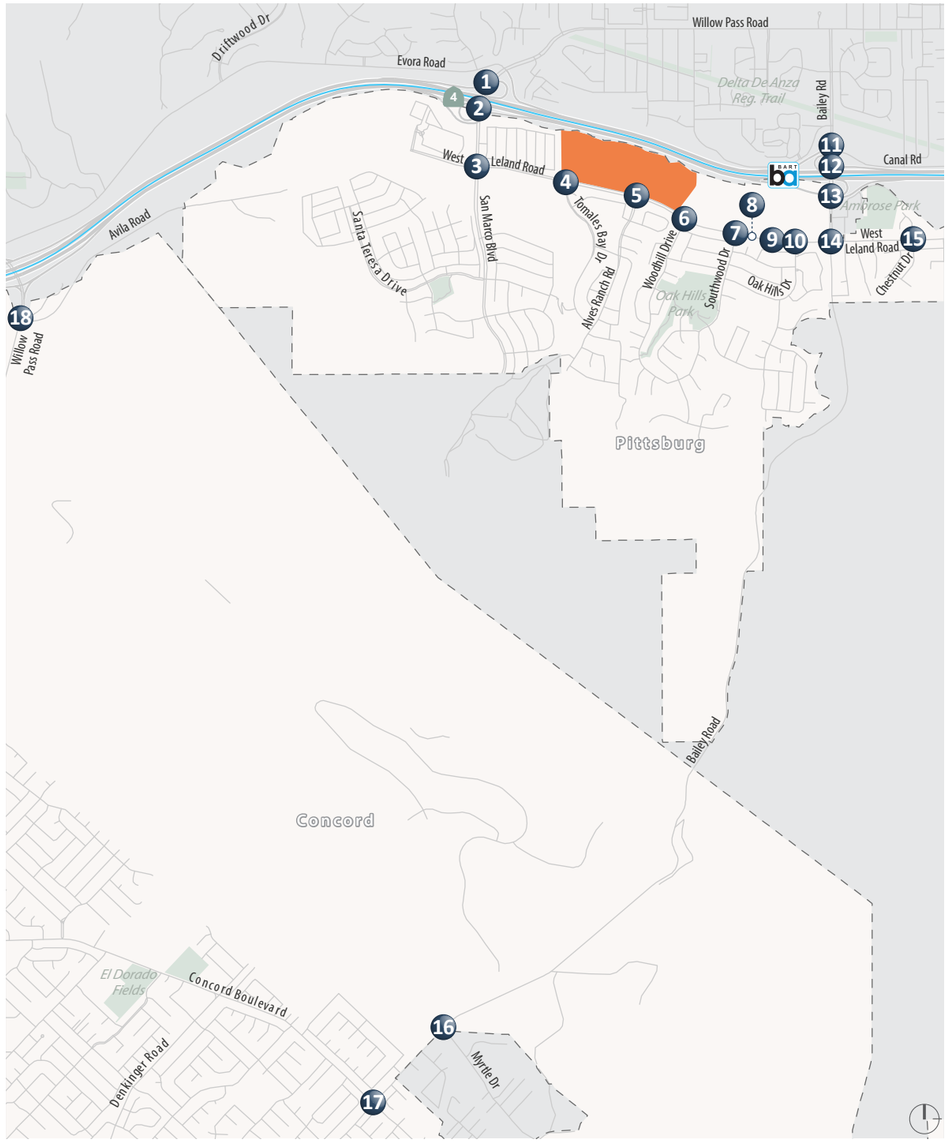


Figure 5

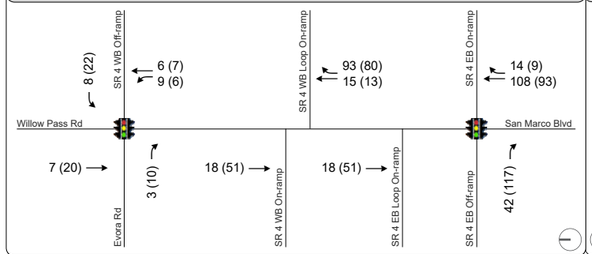
Alves Ranch

Project Trip Distribution

WC18-3500.02_5_TripDistro

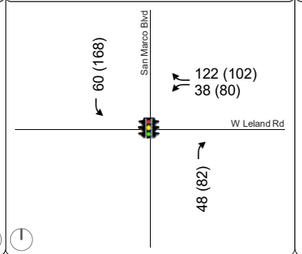


1. Willow Pass Rd/Evora Rd/SR4 WB Ramp

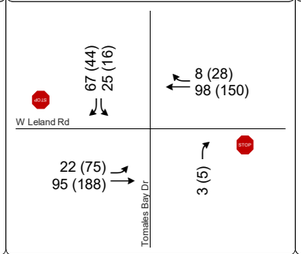


2. San Marcos Blvd/SR 4 EB Ramps

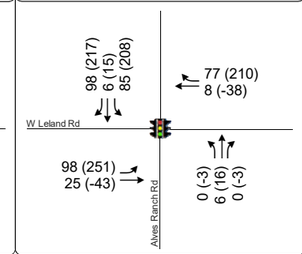
3. San Marco Blvd/W Leland Rd



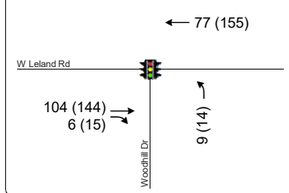
4. Tomales Bay Dr/W Leland Rd



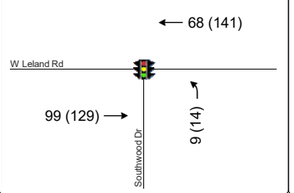
5. Alves Ranch Rd/W Leland Rd



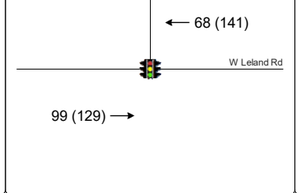
6. Woodhill Dr/W Leland Rd



7. Southwood Dr/W Leland Rd

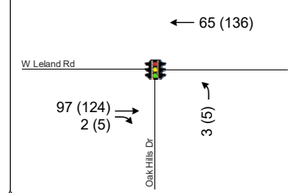


8. BART Exit/W Leland Rd

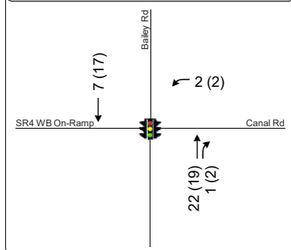


9. BART Entrance/W Leland Rd

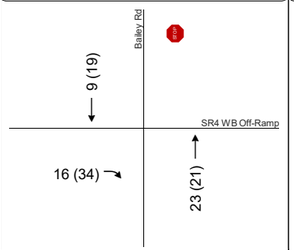
10. Oak Hills Dr/W Leland Rd



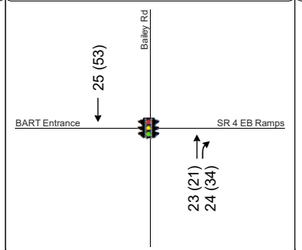
11. Bailey Rd/SR4 WB On-Ramp/Canal Rd



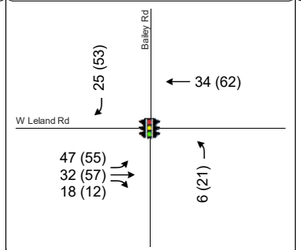
12. Bailey Rd/SR4 WB Off-Ramp



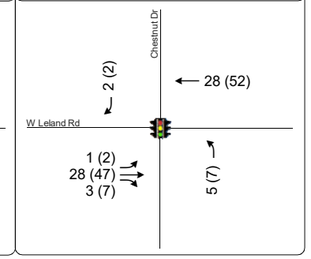
13. Bailey Rd/BART Entrance/SR4 EB Ramps



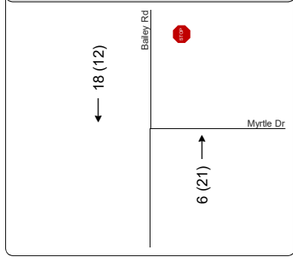
14. Bailey Rd/W Leland Rd



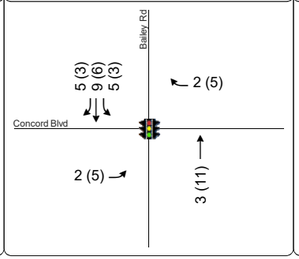
15. Chestnut Dr/W Leland Rd



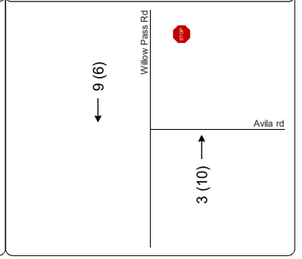
16. Bailey Rd/Myrtle Dr



17. Bailey Rd/Concord Blvd



18. Willow Pass Rd/Avila Rd



XX (YY) AM (PM) Peak Hour Traffic Volumes

Signalized Intersection

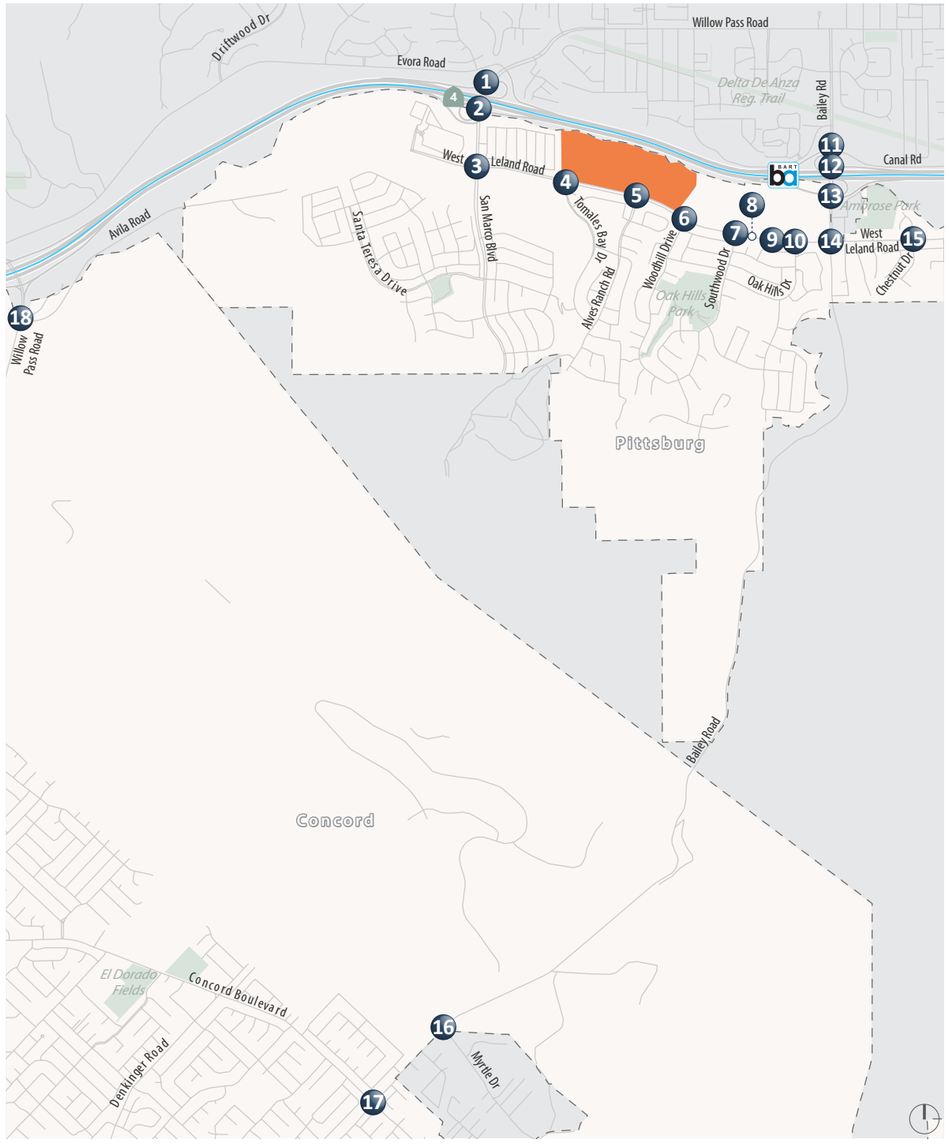
Stop Sign

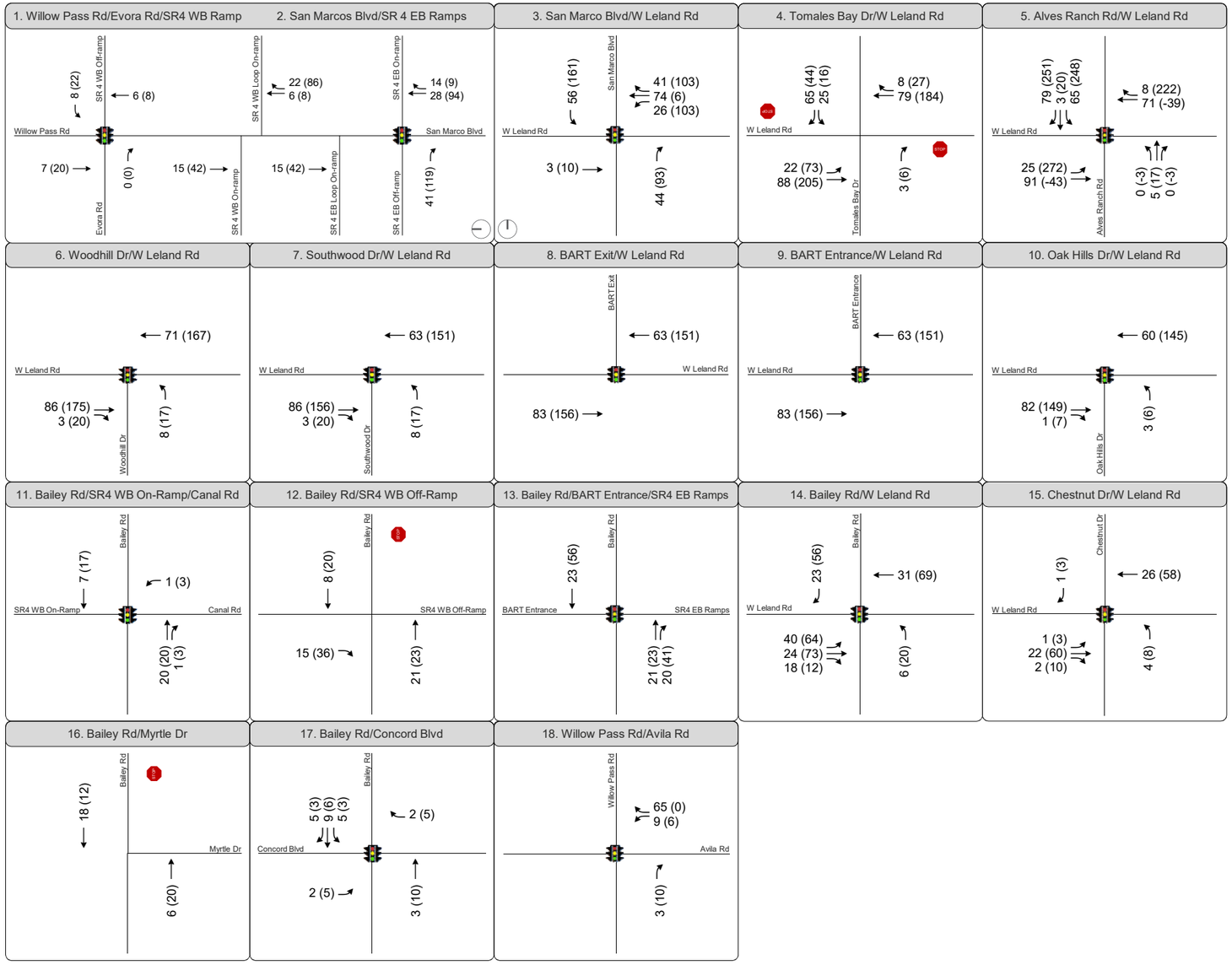
Project Site

Study Intersection

Figure 6A

Project Trip Assignment — Existing and Near-Term





XX (YY) AM (PM) Peak Hour Traffic Volumes Signalized Intersection Stop Sign

Project Site # Study Intersection

Figure 6B

Project Trip Assignment — Cumulative

4. Existing with Project Conditions

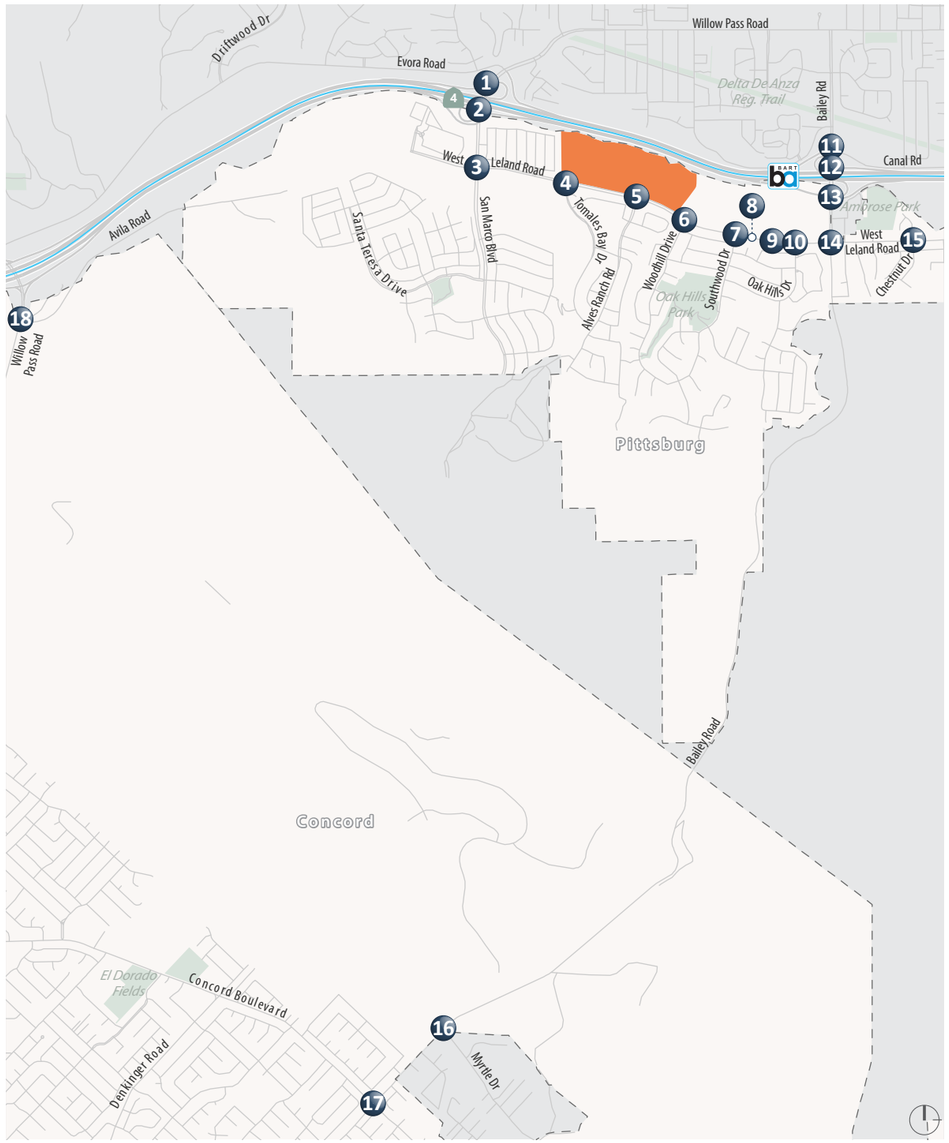
This chapter evaluates potential off-site traffic impacts under Existing with Project conditions.

Existing with Project Traffic Volumes

The project traffic volumes on **Figure 6** were added to the existing traffic volumes from **Figure 3** to estimate the Existing with Project traffic volumes, as shown on **Figure 7**. No roadway improvements were assumed for the evaluation of Existing with Project conditions except for the improvements proposed as part of the project at the West Leland Road at Alves Ranch Road intersection, which would be modified to provide two left-turn lanes and a through-right shared lane on both the northbound and southbound approaches. As part of this modification, a new crosswalk would be provided across the east leg of the intersection, and the traffic signal would be modified to accommodate a new pedestrian phase and the changed lane geometries on the north and south legs of the intersection.

Analysis of Existing with Project Conditions

Existing with Project intersection operations were evaluated using the same methods described in Chapter 1. The Existing with Project analysis results are presented in **Table 5**, based on the traffic volumes and intersection configurations presented on Figure 7. Table 5 also includes the operations results for Existing conditions. The addition of project traffic would increase average delay at the signalized study intersections and would worsen already deficient operations at the West Leland Road at San Marco Boulevard intersection. No signalized intersections that are currently operating within the City's level of service standard are projected to degrade beyond the established level of service standard with the addition of project traffic in the existing condition.



XX (YY) AM (PM) Peak Hour Traffic Volumes

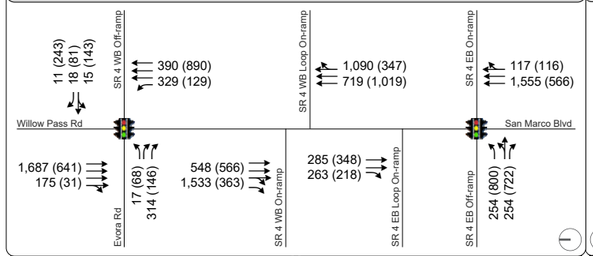
Signalized Intersection

Stop Sign

Project Site

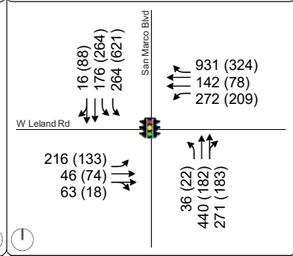
Study Intersection

1. Willow Pass Rd/Evora Rd/SR4 WB Ramp

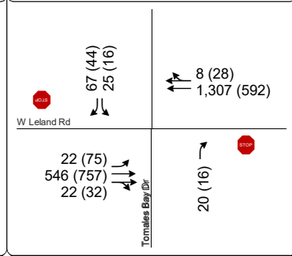


2. San Marcos Blvd/SR 4 EB Ramps

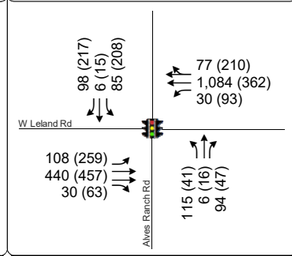
3. San Marco Blvd/W Leland Rd



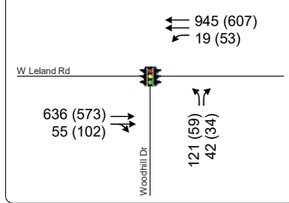
4. Tomales Bay Dr/W Leland Rd



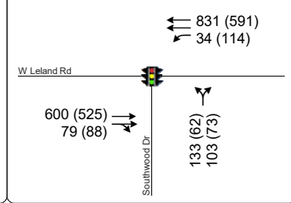
5. Alves Ranch Rd/W Leland Rd



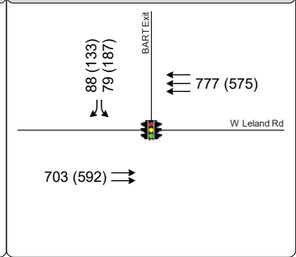
6. Woodhill Dr/W Leland Rd



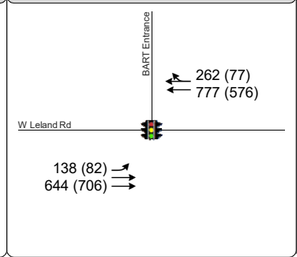
7. Southwood Dr/W Leland Rd



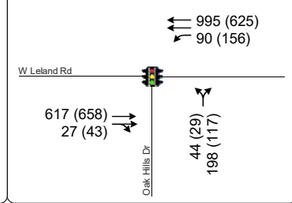
8. BART Exit/W Leland Rd



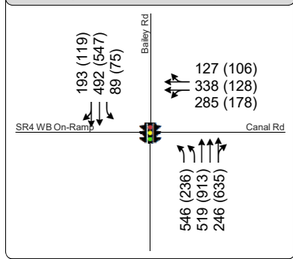
9. BART Entrance/W Leland Rd



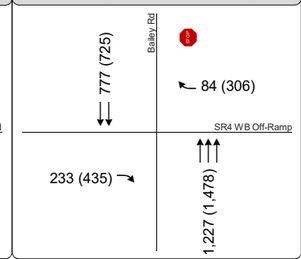
10. Oak Hills Dr/W Leland Rd



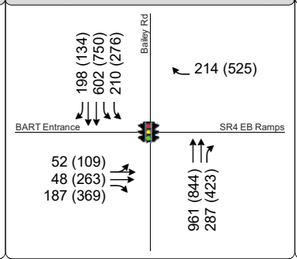
11. Bailey Rd/SR4 WB On-Ramp/Canal Rd



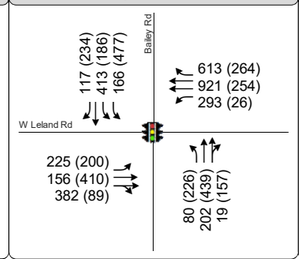
12. Bailey Rd/SR4 WB Off-Ramp



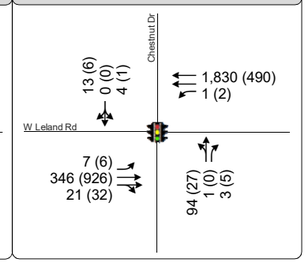
13. Bailey Rd/BART Entrance/SR4 EB Ramps



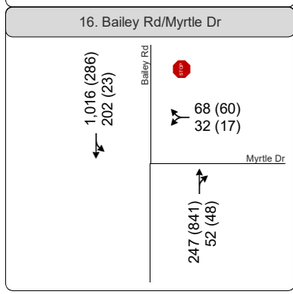
14. Bailey Rd/W Leland Rd



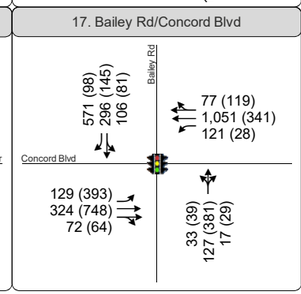
15. Chestnut Dr/W Leland Rd



16. Bailey Rd/Myrtle Dr



17. Bailey Rd/Concord Blvd



18. Willow Pass Rd/Avila Rd

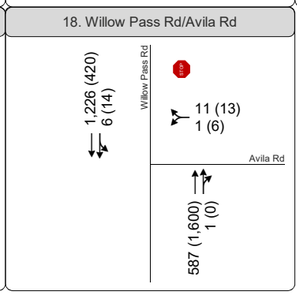


Figure 7

Existing with Project Peak Hour
Intersection Traffic Volumes, Lane Configurations and Traffic Controls

Table 5: Existing With Project Conditions Peak Hour Intersection LOS Summary

Intersection	Control[1]	Peak Hour	Level of Service Standard	Existing		Existing with Project		Significant Impact?
				Delay[2]	LOS	Delay[2]	LOS	
1. State Route 4 Westbound Ramps at San Marco Boulevard/Evora Road	Signal	AM PM	High-LOS D (50 seconds	37[3] 12	D B	39 12	D B	No
2. State Route 4 Eastbound Ramps at San Marco Boulevard	Signal	AM PM	High-LOS D (50 seconds	7 8	A A	8 10	A B	No
3. West Leland Road at San Marco Boulevard	Signal	AM PM	LOS D (55-seconds)	**119** 36	**F** D	**173** 42	**F** D	**Yes**; average delay increase of more than 5-seconds
4. West Leland Road at Tomales Bay Drive	SSSC	AM PM	LOS D (55-seconds)	0 (11) 0 (11)	A (B) A (B)	2 (29) 1 (13)	A (D) A (B)	No
5. West Leland Road at Alves Ranch Road	Signal	AM PM	LOS D (55-seconds)	9 12	A B	22 35	C C	No
6. West Leland Road at Woodhill Drive	Signal	AM PM	LOS D (55-seconds)	14 11	B B	11 7	B A	No
7. West Leland Road at Southwood Drive	Signal	AM PM	LOS D (55-seconds)	14 17	B B	15 17	B B	No
8. West Leland Road at BART Exit	Signal	AM PM	LOS D (55-seconds)	8 12	A B	8 11	A B	No
9. West Leland Road at BART Entrance	Signal	AM PM	LOS D (55-seconds)	8 10	A A	8 10	A A	No
10. West Leland Road at Oak Hills Drive	Signal	AM PM	LOS D (55-seconds)	12 18	B B	12 18	B B	No
11. Bailey Road at Canal Road	Signal	AM PM	LOS E (80-Seconds)	37 16	D B	37 16	D B	No
12. Bailey Road at SR 4 Westbound Ramps	SSSC	AM PM	LOS E (80-Seconds)	1 (18) 17 **(140)**	A (C) C **(F)**	1 (19) 18 **(148)**	A (C) C **(F)**	No; signal warrants are not met and side-street delay does not increase by more than 30-seconds
13. Bailey Road at SR 4 Eastbound Ramps	Signal	AM PM	LOS E (80-Seconds)	16 23	B C	16 23	B C	No

Table 5: Existing With Project Conditions Peak Hour Intersection LOS Summary

Intersection	Control[1]	Peak Hour	Level of Service Standard	Existing		Existing with Project		Significant Impact?
				Delay[2]	LOS	Delay[2]	LOS	
14. West Leland Road at Bailey Road	Signal	AM PM	LOS E (80-Seconds)	38 25	D C	43 28	D C	No
15. West Leland Road at Chestnut Drive	Signal	AM PM	LOS D (55-seconds)	28 13	C B	29 14	C B	No
16. Bailey Road at Myrtle Drive	SSSC	AM PM	LOS E (80-Seconds)	6 **(43)** 2 (22)	A **(E)** A (C)	6 **(46)** 2 (23)	A **(E)** A (C)	No; side-street delay does not increase by more than 30-seconds
17. Bailey Road at Concord Boulevard	Signal	AM PM	LOS E (80-Seconds)	42 43	D D	45 36	D D	No
18. Willow Pass Road at Avila Road	SSSC	AM PM	LOS E (80-Seconds)	1 (13) 1 (37)	A (B) A (E)	1 (13) 1 (37)	A (B) A (E)	No

Notes:
1. Signal = signalized intersection; SSSC = side-street stop-control
2. Average intersection delay is calculated for all signalized intersections using the HCM method for vehicles.
3. Delay presented here does not consider delay associated with the westbound State Route 4 on-ramp. An assessment of ramp meter operations is provided in Chapter 7.
Source: Fehr & Peers, 2019

At the Bailey Road at Myrtle Drive and Bailey Road at SR 4 Westbound Ramps intersections, the addition of project traffic would cause already deficient side-street conditions to worsen, but would not result in a significant impact based on the significance criteria.

In the existing plus project condition, average left-turn vehicle queues are contained within the available storage with the 95th percentile vehicle queue for some movements potentially extending beyond the available storage that did not extend beyond the available storage in the existing condition, including:

- San Marco Boulevard at West Leland Road (westbound left, PM peak hour)
- Bailey Road at West Leland Road (eastbound left, PM peak hour)

For signalized intersections that are projected to operate at LOS D or better during the morning and evening peak hours, it is expected that vehicle queue spillback can be managed through signal timing adjustments which the City of Pittsburg periodically undertakes to optimize travel flow along major corridors, as described in the City's Capital Improvement Program project (S-7: 2018/19 Traffic Signal Modification Project).

Construction Assessment

The assessment of construction activity considers construction vehicles (including vehicles removing or delivering fill material, bulldozers, and other heavy machinery, as well as building materials delivery) and construction worker activity. The project would be required to implement the City's Standard Construction Conditions of Approval which would include measures to reduce the potential for construction vehicle conflicts with other roadway users. The construction management plan is expected to include at a minimum:

- Project staging plan to maximize on-site storage of materials and equipment
- A set of comprehensive traffic control measures, including scheduling of major truck trips and deliveries to avoid peak hours; lane closure proceedings; signs, cones, and other warning devices for drivers; and designation of construction access routes
- Permitted construction hours
- Location of construction staging
- Identification of parking areas for construction employees, site visitors, and inspectors, including on-site locations
- Provisions for street sweeping to remove construction related debris on public streets

Existing with Project Conditions Impacts and Mitigation

One off-site intersection impact was identified in the existing condition.

Impact Statement 1: Intersection 3 – West Leland Road at San Marco Boulevard

The West Leland Road at San Marco Boulevard intersection operates at a deficient LOS F during the AM peak hour prior to the addition of project traffic in the existing condition. The addition of project traffic would worsen operations and increase average delay by more than 5-seconds. Based on the significance criteria, this is considered a ***significant*** impact.

> ***Mitigation Measure 1:*** The project applicant shall contribute their fair share to intersection improvements that would result in acceptable operations, which could include widening the northbound San Marco Boulevard north of West Leland Road to allow the westbound right movement to operate as a free turning movement. For the improvement noted above to be effective, additional vehicle storage would also need to be provided for the westbound loop on-

ramp from San Marco Boulevard (See Mitigation Measure TR-9). The project applicant previously paid transportation impact fees for improvements at this intersection associated with development of the entitled project.

With implementation of this measure in combination with ramp metering improvements, intersection operations would improve to an acceptable level, reducing the impact to a ***less-than-significant*** level, as shown in **Table 6.** Additionally, the Project applicant shall pay regional transportation impact fees to the East Contra Costa Regional Fee and Financing Authority (ECCRFFA) that would fund construction of additional improvements along the State Route 4 corridor as well as the extension of West Leland Road to Willow Pass Road. However, as it is uncertain if the ramp meter improvements could be constructed and the timing of the West Leland Road extension to Willow Pass Road is unknown, this impact would remain ***significant and unavoidable***.

Table 6: Existing with Project with Mitigation Conditions Peak Hour Intersection LOS Summary

Intersection	Control[1]	Peak Hour	Existing		Existing with Project		Existing with Project with Mitigation	
			Delay[2]	LOS	Delay[2]	LOS	Delay[2]	LOS
West Leland Road at San Marco Boulevard	Signal	AM	**119**	**F**	**173**	**F**	31	C
		PM	36	D	42	D	39	D

Notes: 1. Signal = signalized intersection
2. Average intersection delay is calculated for all signalized intersections using the 2010 HCM method for vehicles.
Source: Fehr & Peers, 2019

5. Near-Term Traffic Conditions

The near-term scenario reflects existing traffic counts plus traffic from approved and pending developments that are expected to be completed and occupied upon project completion. Near-term conditions without and with the project are evaluated. It also includes transportation projects programmed for implementation around the time that the project is completed, and construction of required transportation mitigation measures for approved projects. The analysis of cumulative conditions (see Chapter 6 for details) considers development within the City of Pittsburg as described in the General Plan.

Near-Term Forecasts

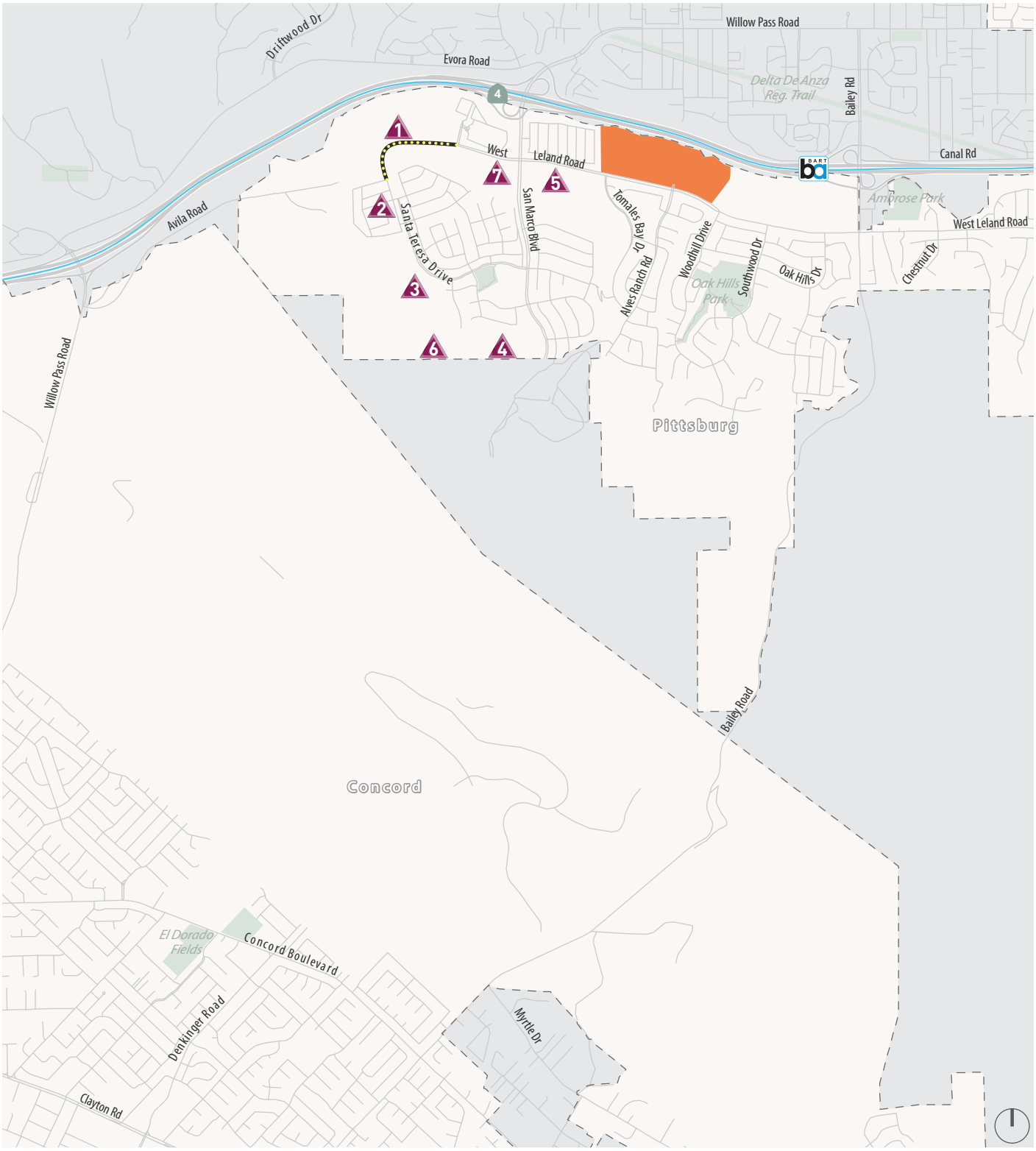
The *Project Pipeline* list prepared by the City of Pittsburg at the time the project's Notice of Preparation (NOP) was issued were reviewed to identify developments to include in this scenario. A copy of this report is provided in **Appendix D**. Developments that could generate significant traffic through the study area are summarized in **Table 7** and their locations shown on **Figure 8.**

Near-Term project vehicle trip generation was estimated using trip generation rates and equations for the proposed land uses from ITE's *Trip Generation Manual* (10th Edition). The results are provided in **Appendix E**. Traffic generated by approved and pending developments was added to the existing traffic volumes to provide the basis for the Near-Term without Project analysis, as presented on **Figure 9.** The existing traffic counts were also increased by 5 percent to account for traffic growth from projects outside the immediate study area that could add through traffic to the area, as well as to account for low-trip generating projects in the study area. This factor was derived based on a review of travel growth trends from the Contra Costa Transportation Authority (CCTA) travel demand model. Project traffic volumes from **Figure 6a** were added to the Near-Term without Project forecasts to estimate Near-Term with Project volumes at the study intersections, as presented on **Figure 10.**

Table 7: Approved Projects Summary

Map Location	Project Name	Size	Land Use	Status
1	San Marco Village C	459 dwelling units	Multi-Family Homes	Needs design review approval; 339 units currently planned for but area can accommodate additional units; additional 120 units from San Marco Village M assumed in analysis (see below)
2	San Marco Village D	171 dwelling units	Single Family Homes	Under Construction
3	San Marco Village E	107 dwelling units	Single Family Homes	23 built; 84 remaining
4	San Marco Village F	100 dwelling units	Single Family Homes	75 built; 25 remaining
5	San Marco Village M	300 dwelling units	Multi-Family Homes	Approved; previously planned for 420 units. Excess units assumed in Village C to maintain development totals in area.
6	San Marco Village N	64 dwelling units	Single Family Homes	Needs design review approval
7	San Marco Village O	115 dwelling units	Single Family Homes	Needs design review approval

Source: *City of Pittsburg Project Status Report* (October 2018)

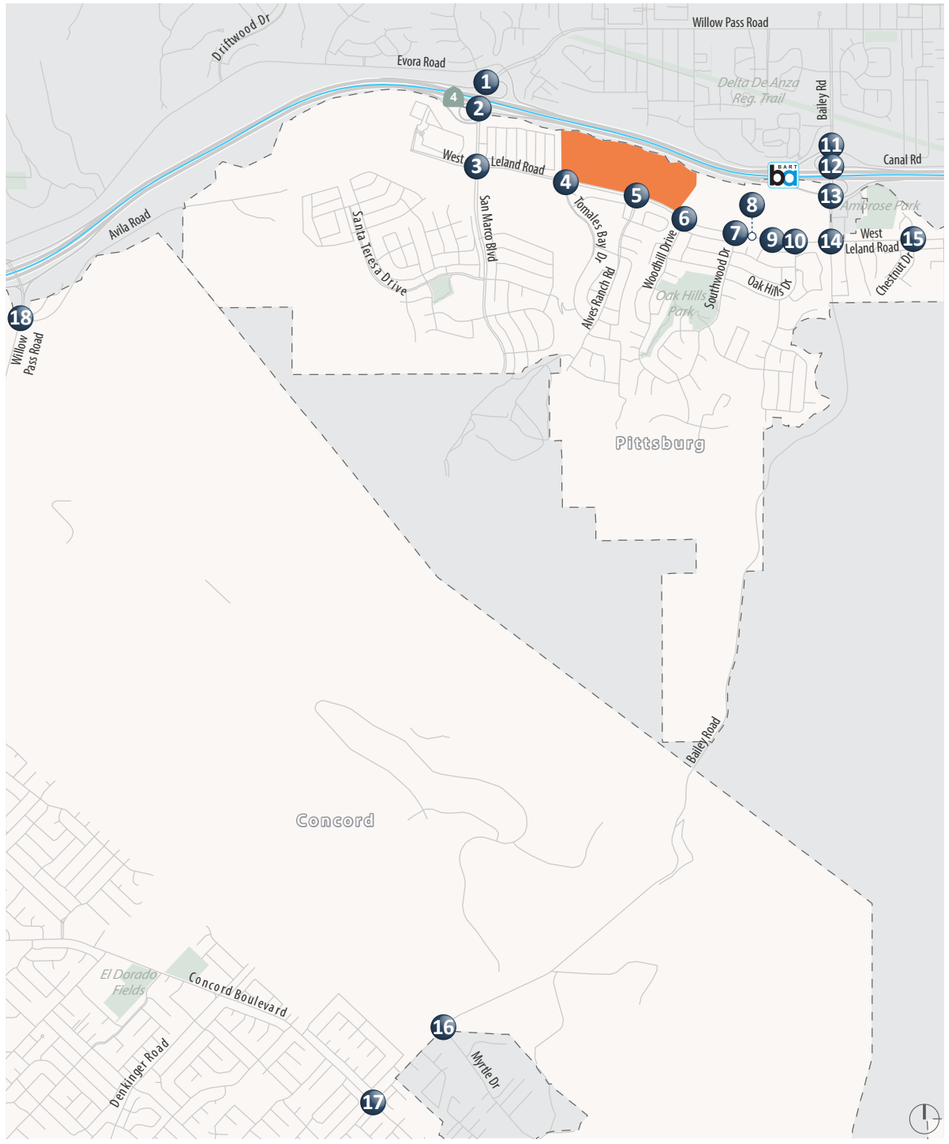


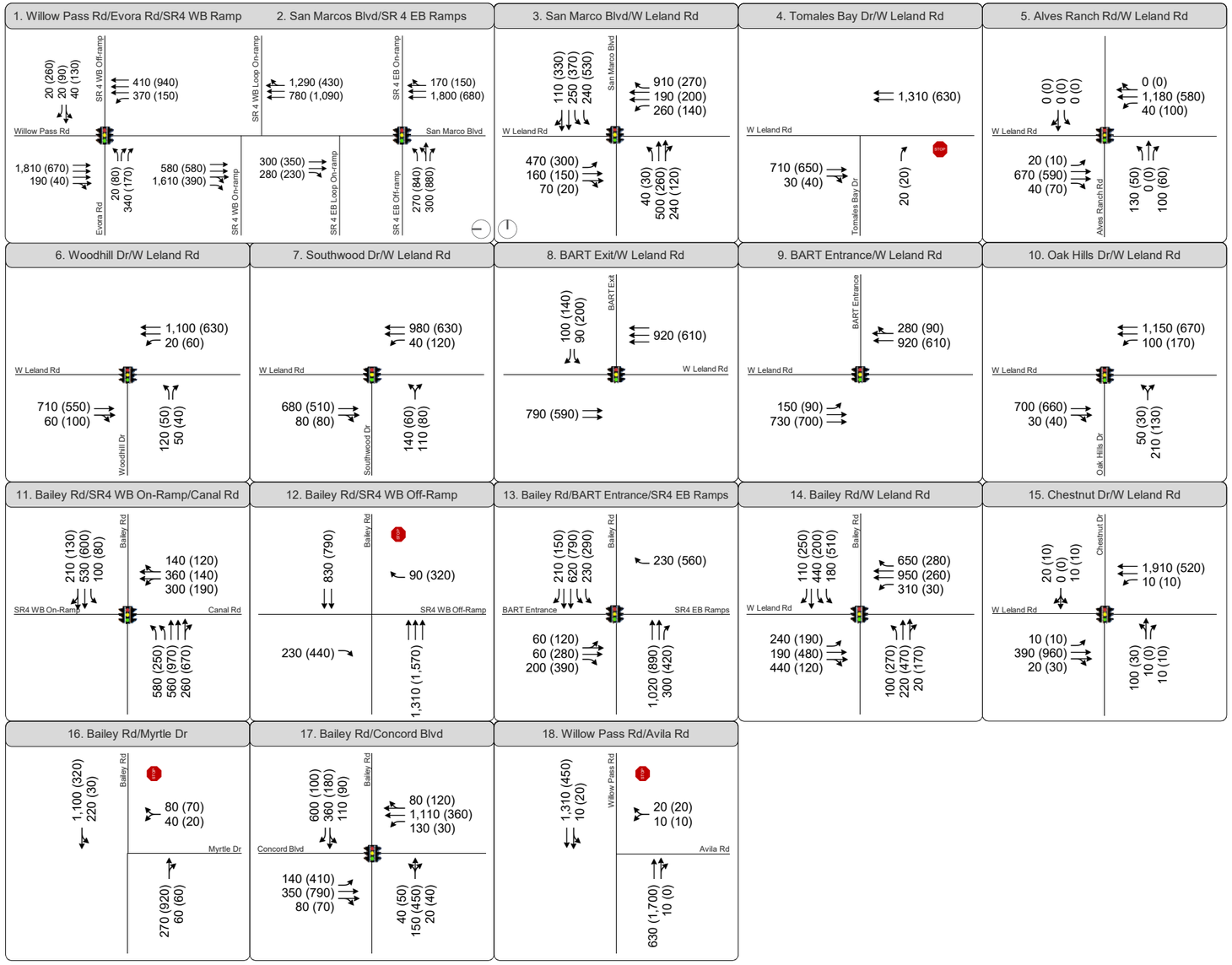
Project Site # Approved Project Location Future Roadway Connection

Figure 8

Alves Ranch

Approved and Pending Project Locations





XX (YY) AM (PM) Peak Hour Traffic Volumes

Signalized Intersection

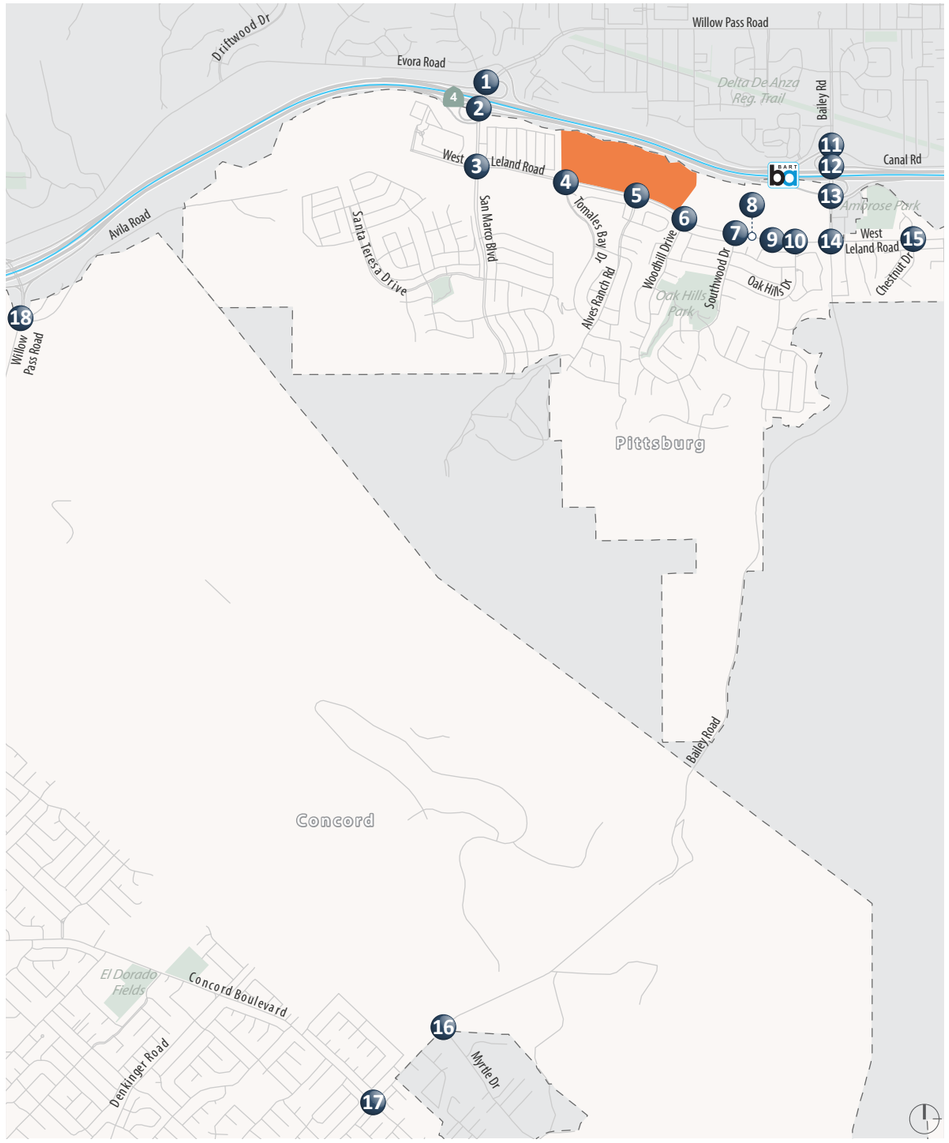
STOP Stop Sign

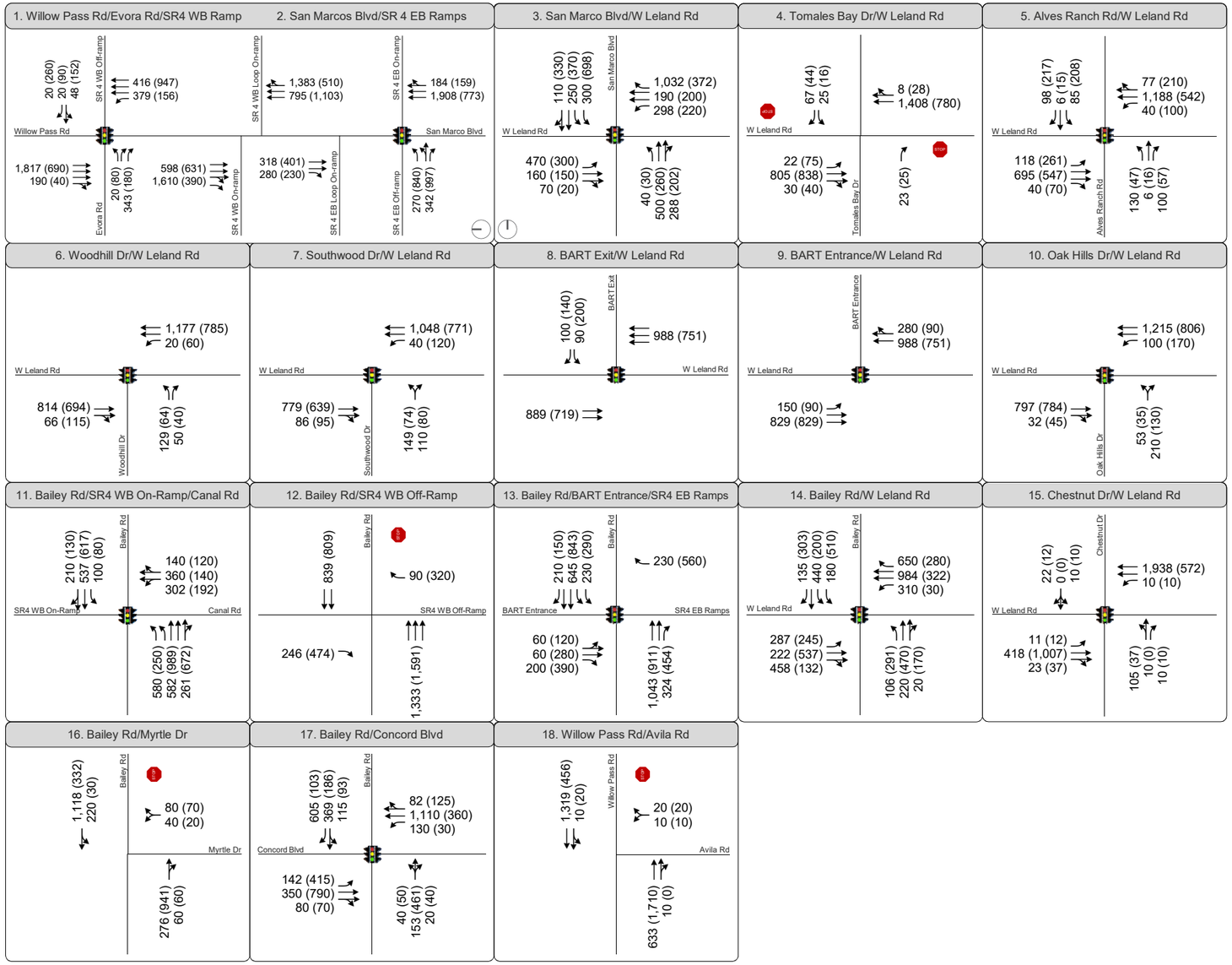
Project Site

Study Intersection

Figure 9

Near-Term without Project Peak Hour Intersection Traffic Volumes, Lane Configurations and Traffic Controls





XX (YY) AM (PM) Peak Hour Traffic Volumes

Signalized Intersection

Stop Sign

Project Site

Study Intersection

Figure 10

Near-Term with Project Peak Hour
Intersection Traffic Volumes, Lane Configurations and Traffic Controls

Near-Term Roadway Assumptions

No roadway improvements at any of the study intersections were considered in the evaluation of near-term conditions, except for the improvements at the intersection of West Leland Road at Alves Ranch Road that are proposed as part of the project. The extension of West Leland Road to Avila Road was not considered in the analysis of near-term conditions as full funding for the improvement has not yet been identified and the timing of completion cannot be assured in the near-term time horizon.

Analysis of Near-Term Conditions

Near-Term without and with Project conditions were evaluated using the same methods described in Chapter 1. The analysis results are presented in **Table 8**, based on the traffic volumes and lane configurations presented on Figure 9 and Figure 10. In the near-term condition, the State Route 4 Westbound Ramps at San Marco Boulevard/Evora Road, West Leland Road at San Marco Boulevard, and Bailey Road at Concord Boulevard intersections would operate at overall deficient levels. For unsignalized intersections, at least one side-street movement would experience deficient operations at the intersections of Bailey Road at SR 4 Westbound Ramps, Bailey Road at Myrtle Drive, and Willow Pass Road at Avila Road. All other study intersection would operate at acceptable service levels prior to the addition of project traffic.

With the addition of project traffic, operations of the intersections already experiencing deficient operations would worsen, but no intersection would degrade from acceptable to unacceptable operations with the addition of project traffic.

Table 8: Near-Term Conditions Peak Hour Intersection LOS Summary

Intersection	Control[1]	Peak Hour	Level of Service Standard	Near-Term without Project		Near-Term with Project		Significant Impact?
				Delay[2]	LOS	Delay[2]	LOS	
1. State Route 4 Westbound Ramps at San Marco Boulevard/Evora Road	Signal	AM PM	High-LOS D (50 seconds	40 13	D B	42 14	D B	No
2. State Route 4 Eastbound Ramps at San Marco Boulevard	Signal	AM PM	High-LOS D (50 seconds	15 15	B B	30 24	C C	No
3. West Leland Road at San Marco Boulevard	Signal	AM PM	LOS D (55-seconds)	**208** **63**	**F** **E**	**261** **66**	**F** **E**	**Yes**; average delay increase of more than 5-seconds
4. West Leland Road at Tomales Bay Drive	SSSC	AM PM	LOS D (55-seconds)	1 (12) 1 (11)	A (B) A (B)	2 (34) 1 (15)	A (D) A (C)	No
5. West Leland Road at Alves Ranch Road	Signal	AM PM	LOS D (55-seconds)	10 11	A B	25 34	C C	No
6. West Leland Road at Woodhill Drive	Signal	AM PM	LOS D (55-seconds)	11 7	B A	8 6	A A	No
7. West Leland Road at Southwood Drive	Signal	AM PM	LOS D (55-seconds)	16 18	B B	18 19	B B	No
8. West Leland Road at BART Exit	Signal	AM PM	LOS D (55-seconds)	9 12	A B	9 12	A B	No
9. West Leland Road at BART Entrance	Signal	AM PM	LOS D (55-seconds)	8 10	A B	8 10	A B	No
10. West Leland Road at Oak Hills Drive	Signal	AM PM	LOS D (55-seconds)	13 18	B B	14 18	B B	No
11. Bailey Road at Canal Road	Signal	AM PM	LOS E (80-Seconds)	38 17	D B	38 17	D B	No
12. Bailey Road at SR 4 Westbound Ramps	SSSC	AM PM	LOS E (80-Seconds)	1 (20) 25 **(207)**	A (C) C **(F)**	1 (21) 26 **(218)**	A (C) D **(F)**	No; signal warrants are not met and side-street delay does not increase by more than 30-seconds
13. Bailey Road at SR 4 Eastbound Ramps	Signal	AM PM	LOS E (80-Seconds)	17 24	B C	17 24	B C	No

Table 8: Near-Term Conditions Peak Hour Intersection LOS Summary

Intersection	Control[1]	Peak Hour	Level of Service Standard	Near-Term without Project		Near-Term with Project		Significant Impact?
				Delay[2]	LOS	Delay[2]	LOS	
14. West Leland Road at Bailey Road	Signal	AM PM	LOS E (80-Seconds)	53 29	D C	60 33	E C	No; LOS Standard is E for the intersection
15. West Leland Road at Chestnut Drive	Signal	AM PM	LOS D (55-seconds)	36 15	D B	38 16	D B	No
16. Bailey Road at Myrtle Drive	SSSC	AM PM	LOS E (80-Seconds)	11 **(102)** 2 (30)	B **(F)** A (D)	12 **(111)** 2 (31)	B **(F)** A (D)	No; side-street delay does not increase by more than 30-seconds
17. Bailey Road at Concord Boulevard	Signal	AM PM	LOS E (80-Seconds)	**62** **66**	**E** **E**	**64** **70**	**E** **E**	No; delay does not increase by more than 5-seconds
18. Willow Pass Road at Avila Road	SSSC	AM PM	LOS E (80-Seconds)	1 (25) 1 **(53)**	A (C) A **(F)**	1 (25) 1 **(55)**	A (C) A **(F)**	No; signal warrants are not met and side-street delay does not increase by more than 30-seconds

Notes:
1. Signal = signalized intersection; SSSC = side-street stop-control
2. Average intersection delay is calculated for all signalized intersections using the HCM method for vehicles.
3. Delay presented here does not consider delay associated with the westbound State Route 4 on-ramp. An assessment of ramp meter operations is provided in Chapter 7.
Source: Fehr & Peers, 2019

Vehicle queues are expected to increase at study intersections as traffic volumes increase, which would further increase with the addition of project traffic. In the near term plus project condition, average left-turn vehicle queues are contained within the available storage with the 95th percentile vehicle queue for some movements potentially extending beyond the available storage that did not extend beyond the available storage in the existing condition, including:

- San Marco Boulevard at SR 4 Eastbound Ramps (eastbound right, PM peak hour)
- San Marco Boulevard at West Leland Road (southbound left, PM peak hour)
- Bailey Road at West Leland Road (eastbound left and northbound left, PM peak hour)

For signalized intersections that are projected to operate at LOS D or better during the morning and evening peak hours, monitoring and adjusting traffic signal timings in response to actual traffic volumes to minimize the potential for vehicle queue spillback is recommended. The City of Pittsburg periodically undertakes traffic signal timing adjustments to optimize travel flow along major corridors, as described in the City's Capital Improvement Program project (S-7: 2018/19 Traffic Signal Modification Project).

Near-Term with Project Conditions Impacts and Mitigation

One potential off-site intersection impact was identified in the near-term condition.

Impact Statement 2: Intersection 3 – West Leland Road at San Marco Boulevard

The West Leland Road at San Marco Boulevard intersection is projected to operate at a deficient LOS F in the AM peak hour prior to the addition of project traffic in the near-term condition. The addition of project traffic would worsen operations and increase average delay by more than 5-seconds. Based on the significance criteria, this is considered a ***significant*** impact.

> ***Mitigation Measure 2:*** Implement Mitigation Measure 1. Implementation of this measure would reduce the project's near-term impact to a ***less-than-significant*** level, as shown in **Table 9.** However, as implementation of the various measures required to improve operations cannot be assured, this impact would remain ***significant and unavoidable***.

Table 9: Near-Term With Project With Mitigation Conditions Peak Hour Intersection LOS Summary

Intersection	Control[1]	Peak Hour	Near-term without Project		Near-Term with Project		Near-Term with Project with Mitigation	
			Delay[2]	LOS	Delay[2]	LOS	Delay[2]	LOS
3. West Leland Road at San Marco Boulevard	Signal	AM PM	**208** **63**	**F** **E**	**261** **66**	**F** **E**	53 **65**	D **E**

Notes:
1. Signal = signalized intersection; SSSC = side-street stop-controlled
2. Average intersection delay is calculated for all signalized intersections using the 2010 HCM method for vehicles.
Source: Fehr & Peers, 2019

6. Cumulative Traffic Conditions

This chapter discusses Cumulative traffic conditions both without and with the project. The future conditions analysis considers development within the City of Pittsburg as described in the General Plan, as well as development in adjacent jurisdictions.

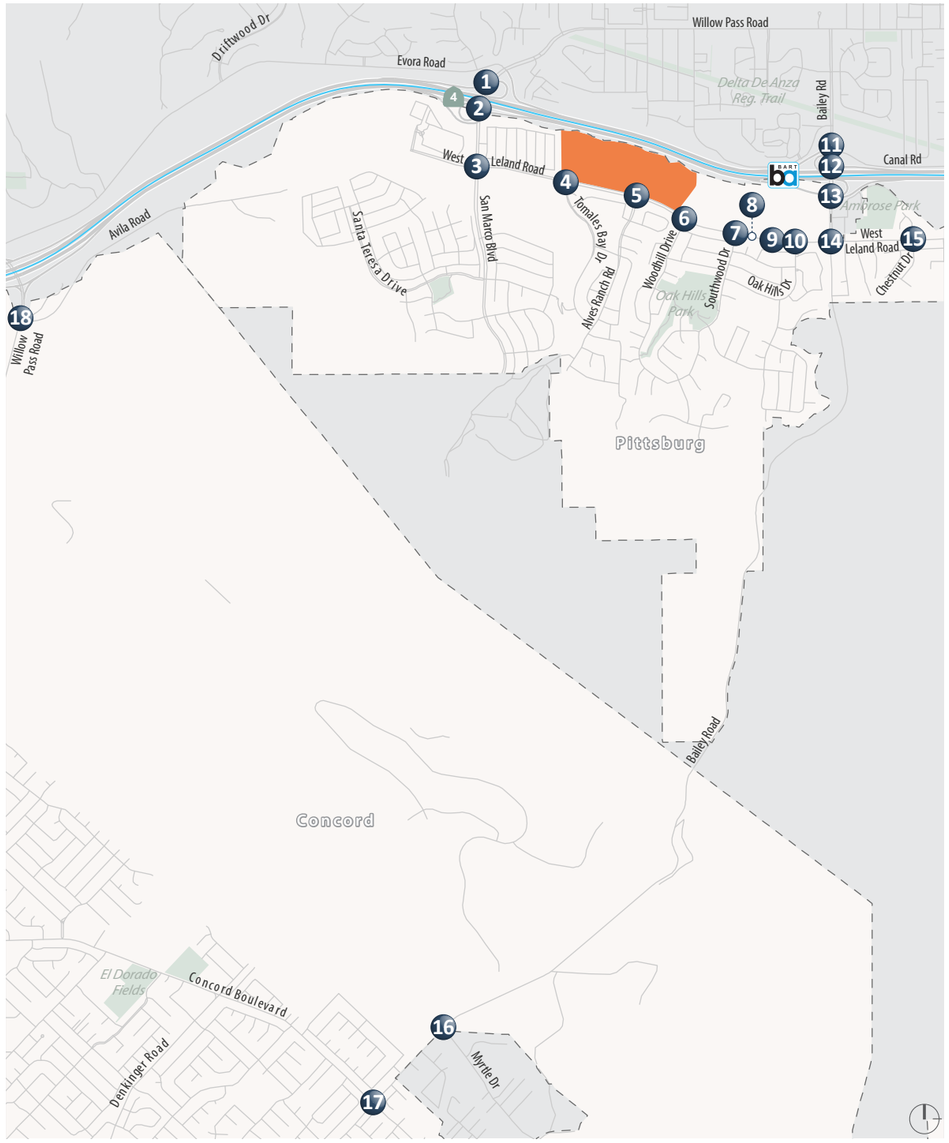
Cumulative Traffic Forecasts

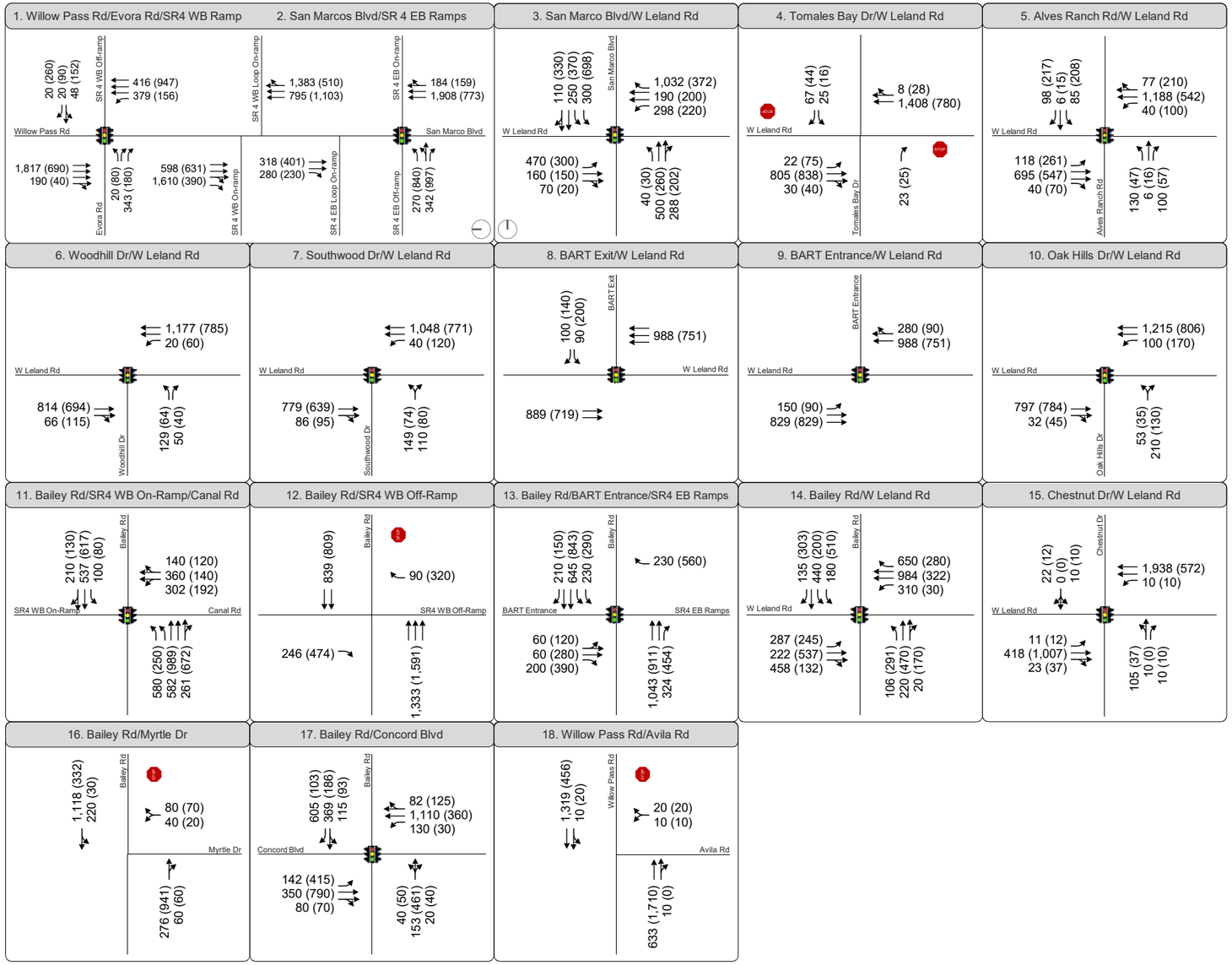
To assess cumulative growth in Pittsburg and adjacent communities several sources of data were reviewed, including the CCTA Model which reflects growth in Pittsburg and surrounding jurisdictions based on their respective General Plans and regional growth forecasts, the ongoing plans for the Concord Naval Weapons Station, and adopted plans for development on the Pittsburg/Bay Point BART station. Traffic forecasts within the study area were reviewed to ensure that known developments were adequately reflected in the forecasts, such as the San Marco subdivision.

The resulting traffic forecasts reflect the most current growth projections for the area from the Association of Bay Area Governments (ABAG), the Metropolitan Transportation Commission (MTC) and CCTA. Minor adjustments were made to the forecasts to balance traffic volumes between closely spaced intersections in the study area. The resulting Cumulative Without 2018 Project forecasts are presented on **Figure 11**, which are representative of conditions over the next 20 to 25 years. The Project volumes from Figure 6b were added to the Cumulative without Project traffic volumes to represent Cumulative with Project conditions, as presented on **Figure 12.**

Cumulative Roadway Assumptions

In the cumulative condition a number of roadway improvements are scheduled to be completed, including the extension of West Leland Road to Avilia Road, providing a connection to Willow Pass Road, improvements to State Route 4 between I-680 and Willow Pass Road, and improvements to State Route 242. Additionally, operational improvements to State Route 4 between I-680 and Bailey Road are also planned for implementation, which include a number of discrete improvements aimed at reducing bottleneck, such as adding mixed-flow travel lanes between interchanges, and extending mixed-flow travel lanes.





XX (YY) AM (PM) Peak Hour Traffic Volumes

Signalized Intersection

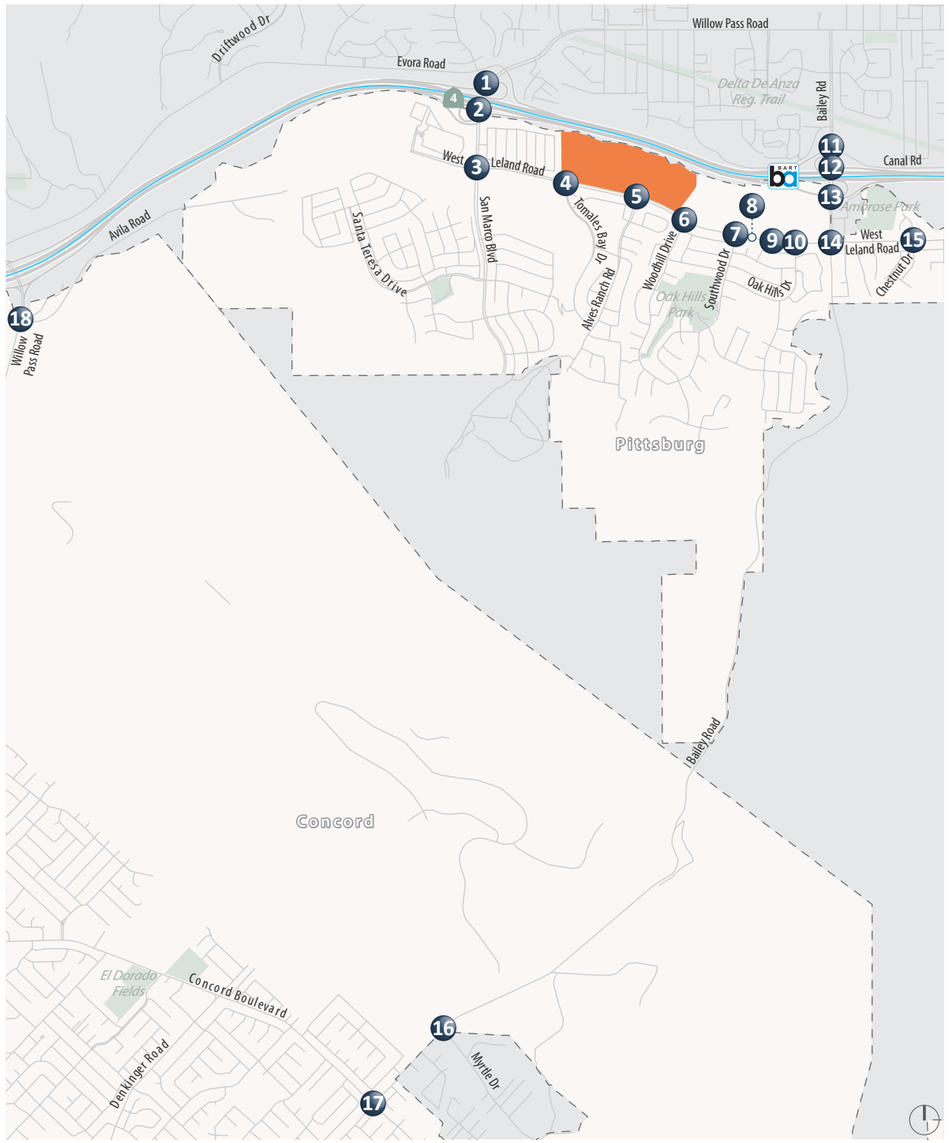
Stop Sign

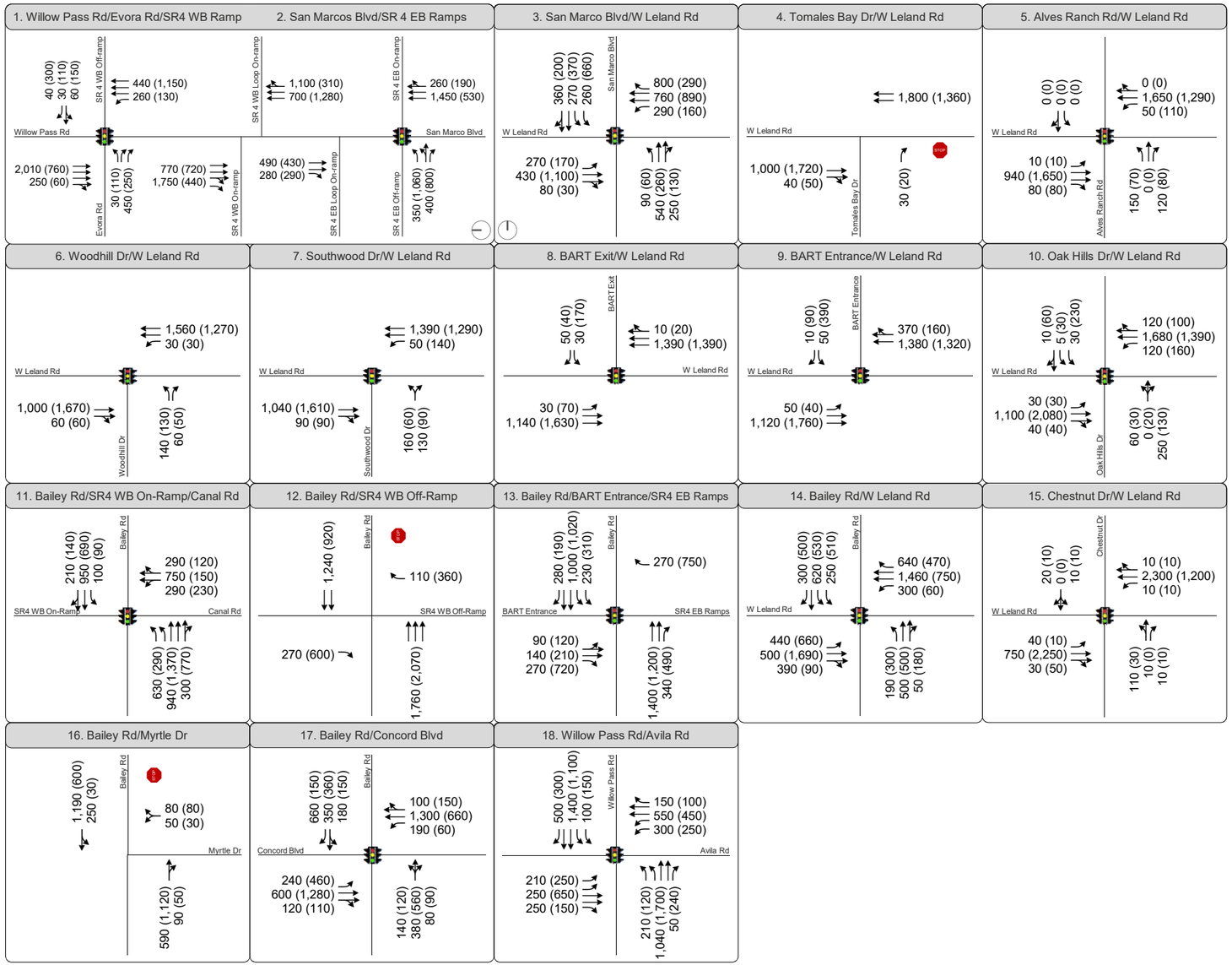
Project Site

Study Intersection

Figure 10

Near-Term with Project Peak Hour
Intersection Traffic Volumes, Lane Configurations and Traffic Controls





XX (YY) AM (PM) Peak Hour Traffic Volumes

Signalized Intersection

STOP Stop Sign

Project Site

Study Intersection

Figure 11

Cumulative without Project Peak Hour Intersection Traffic Volumes, Lane Configurations and Traffic Controls

Vehicle traffic generated by the proposed project would contribute to the need for local and regional roadway improvements. The project would contribute to the construction of regional roadway improvements through the payment of regional transportation impact fees to the East Contra Costa Regional Fee and Financing Authority (ECCRFFA).

Analysis of Cumulative Conditions

Cumulative without and with Project conditions were evaluated using the same methods described in Chapter 1. The analysis results are presented in **Table 10,** based on the traffic volumes presented on Figure 11 and Figure 12. . In the cumulative condition, the West Leland Road at San Marco Boulevard, Bailey Road at Canal Road, West Leland Road at Bailey Road, and Bailey Road at Concord Boulevard intersections would operate at overall deficient levels. For unsignalized intersections, at least one side-street movement would experience deficient operations at the intersections of Bailey Road at SR 4 Westbound Ramps, and Bailey Road at Myrtle Drive. All other study intersection would operate at acceptable service levels prior to the addition of project traffic.

Table 10: Cumulative Conditions Peak Hour Intersection LOS Summary

Intersection	Control[1]	Peak Hour	Level of Service Standard	Cumulative without Project		Cumulative with Project		Impact?
				Delay[2]	LOS	Delay[2]	LOS	
1. State Route 4 Westbound Ramps at San Marco Boulevard/Evora Road	Signal	AM PM	High-LOS D (50 seconds	42 15	D B	45 15	D B	No
2. State Route 4 Eastbound Ramps at San Marco Boulevard	Signal	AM PM	High-LOS D (50 seconds	9 9	A A	11 14	B B	No
3. West Leland Road at San Marco	Signal	AM PM	LOS D (55-seconds)	**102** **57**	**F** **E**	**117** **71**	**F** **E**	**Yes**; average delay increase of more than 5-seconds
4. West Leland Road at Tomales Bay Drive	SSSC	AM PM	LOS D (55-seconds)	0 (14) 0 (19)	A (B) A (C)	3 **(102)** 1 **(37)**	A **(F)** A **(E)**	No; signal warrants are not met
5. West Leland Road at Alves Ranch Road	Signal	AM PM	LOS D (55-seconds)	12 10	B A	33 33	C C	No
6. West Leland Road at Woodhill Drive	Signal	AM PM	LOS D (55-seconds)	8 6	A A	9 7	A A	No

Table 10: Cumulative Conditions Peak Hour Intersection LOS Summary

Intersection	Control[1]	Peak Hour	Level of Service Standard	Cumulative without Project		Cumulative with Project		Impact?
				Delay[2]	LOS	Delay[2]	LOS	
7. West Leland Road at Southwood Drive	Signal	AM PM	LOS D (55-seconds)	29 35	C D	36 53	D D	No
8. West Leland Road at BART Exit	Signal	AM PM	LOS D (55-seconds)	22 18	C B	28 21	C C	No
9. West Leland Road at BART Entrance	Signal	AM PM	LOS D (55-seconds)	3 18	A B	2 19	A B	No
10. West Leland Road at Oak Hills Drive	Signal	AM PM	LOS D (55-seconds)	18 39	B D	21 **57**	C **E**	**Yes**
11. Bailey Road at Canal Road	Signal	AM PM	LOS E (80-Seconds)	**65** 23	**E** C	**65** 23	**E** C	No
12. Bailey Road/SR 4 Westbound Ramps	SSSC	AM PM	LOS E (80-Seconds)	1 (36) **67** **(>120)**	A (E) **F (F)**	1 (37) **69** **(>120)**	A (E) **F (F)**	No; signal warrants are not met and the project traffic does not increase by 10 or more vehicles (delay cannot be measured)
13. Bailey Road/SR 4 Eastbound Ramps	Signal	AM PM	LOS E (80-Seconds)	16 31	B C	16 32	B C	No
14. West Leland Road at Bailey Road	Signal	AM PM	LOS E (80-Seconds)	**143** **172**	**F** **F**	**150** **201**	**F** **F**	**Yes**; average delay increase of more than 5-seconds
15. West Leland Road at Chestnut Drive	Signal	AM PM	LOS D (55-seconds)	40 27	D C	42 34	D C	No
16. Bailey Road at Myrtle Drive	SSSC	AM PM	LOS E (80-Seconds)	**54** **(>120)** 6 **(100)**	**E (F)** A **(F)**	**56** **(>120)** 7 **(111)**	**F (F)** A **(F)**	**Yes**; side-street delay increases by more than 30-seconds and signal warrants met without project
17. Bailey Road at Concord Boulevard	Signal	AM PM	LOS E (80-Seconds)	**181** **204**	**F** **F**	**185** **209**	**F** **F**	**Yes**; average delay increase of more than 5-seconds
18. Willow Pass Road at Avila Road	Signal	AM PM	LOS E (80-Seconds)	38 50	D D	38 50	D D	No

Notes:
1. Signal = signalized intersection; SSSC = side-street stop-control
2. Average intersection delay is calculated for all signalized intersections using the HCM method for vehicles.
3. Delay presented here does not consider delay associated with the westbound State Route 4 on-ramp. An assessment of ramp meter operations is provided in Chapter 7.
Source: Fehr & Peers, 2019

With the addition of project traffic, operations of the intersections already experiencing deficient operations would worsen, resulting in potentially significant impacts.

Vehicle queues are expected to increase at study intersections as traffic volumes increase, which would further increase with the addition of project traffic. In the Cumulative with Project condition, average left-turn vehicle queues are contained within the available storage with the 95th percentile vehicle queue for some movements potentially extending beyond the available storage that did not extend beyond the available storage in the existing condition, including:

- San Marco Boulevard at SR 4 Eastbound Ramps (eastbound right, PM peak hour)
- San Marco Boulevard at West Leland Road (southbound left and westbound right, PM peak hour)
- West Leland Road at Alves Ranch (northbound left, AM peak hour)

For signalized intersections that are projected to operate at LOS D or better during the morning and evening peak hours, monitoring and adjusting traffic signal timings in response to actual traffic volumes to minimize the potential for vehicle queue spillback is recommended. The City of Pittsburg periodically undertakes traffic signal timing adjustments to optimize travel flow along major corridors, as described in the City's Capital Improvement Program project (S-7: 2018/19 Traffic Signal Modification Project).

Cumulative Conditions Impacts and Mitigation

Five potential off-site intersection impacts were identified in the Cumulative condition.

Impact Statement 3: Intersection 3 – West Leland Road at San Marco Boulevard

The West Leland Road at San Marco Boulevard intersection is projected to operate at a deficient LOS F in the AM peak hour prior to the addition of project traffic in the cumulative condition, and a deficient LOS E in the PM peak hour. The addition of project traffic would worsen operations and increase average delay by more than 5-seconds. Based on the significance criteria, this is considered a ***significant*** impact.

> ***Mitigation Measure 3:*** Implement Mitigation Measure 1. Implementation of this measure would reduce the project's near-term impact to a ***less-than-significant*** level, as shown in **Table 11.** However, as implementation of the various measures required to improve operations cannot be assured, this impact would remain ***significant and unavoidable***.

Impact Statement 4: Intersection 10 – West Leland Road at Oak Hills Drive

The West Leland Road at Oak Hills Drive intersection is projected to operate at an acceptable LOS D in the PM peak hour prior to the addition of project traffic in the Cumulative condition. The addition of project traffic would worsen the level of service to LOS E in the PM peak hour. Based on the significance criteria, this is considered a ***significant*** impact.

> ***Mitigation Measure 4:*** To mitigate this impact, the project applicant shall pay its pro rata fair share fees to restripe the northbound approach to provide separate left and right-turn lanes. This improvement is also a mitigation measure for planned development on the Pittsburg/Bay Point BART station and assumes that a north leg to this intersection is constructed as part of the BART project, as identified in the Pittsburg/Bay Point BART Specific Plan and associated EIR. Should BART development not occur, this improvement would not be necessary. Implementation of this improvement would result in overall acceptable service levels, reducing the project's impact to a ***less-than-significant*** level, as shown in **Table 11**.

Impact Statement 5: Intersection 14 – West Leland Road at Bailey Road

The West Leland Road at Bailey Road intersection is projected to operate at a deficient LOS F during both peak hours prior to the addition of project traffic in the cumulative condition. The addition of project traffic would worsen operations and increase average delay by more than 5-seconds during both peak hours. Based on the significance criteria, this is considered a ***significant*** impact.

> ***Mitigation Measure 5:*** The project applicant shall contribute their fair share to improvements that could improve the operations of the intersection, including the construction of a second eastbound left-turn lane. However, there is insufficient right-of-way available to construct this improvement With this improvement, the operations would improve as compared to the without project condition, although the intersection would continue to operate at a deficient LOS F. As it is uncertain if improvements could be constructed and identified improvements would not result in acceptable LOS E operations, this impact would remain ***significant and unavoidable***. The project applicant previously paid transportation impact fees for improvements at this intersection associated with development of the entitled project.

Impact Statement 6: Intersection 16 – Bailey Road at Myrtle Drive

The Bailey Road at Myrtle Drive intersection is projected to operate at deficient levels prior to the addition of project traffic in the cumulative condition; peak hour warrants would be met. The addition of project

traffic would increase side-street delay by more than 30-seconds. Based on the significance criteria, this is considered a ***significant*** impact.

> ***Mitigation Measure 6:*** The project applicant shall pay their fair share towards the signalization of this intersection in conjunction with the construction of a southbound left-turn lane and other potential improvements. These improvements would result in overall acceptable service levels, reducing the project's cumulative impact to a ***less-than-significant*** level, as shown in **Table 11**.
>
> However, improvements to this intersection would require approval from the City of Concord and the City of Pittsburg cannot assure implementation of this measure. Therefore, the impact would remain ***significant and unavoidable.***

Impact Statement 7: Intersection 17 – Bailey Road at Concord Boulevard

The Bailey Road at Concord Boulevard intersection is projected to operate at a deficient LOS F in the AM and PM peak hour prior to the addition of project traffic in the cumulative condition. The addition of project-generated vehicle trips during the PM peak hour would increase delay in the PM peak hour by more than 5-seconds. Based on the significance criteria, this is considered a ***significant*** impact.

> ***Mitigation Measure 7:*** The project applicant shall install a southbound right-turn overlap phase and work with the City of Concord to retime the traffic signal. Construction of this improvement would not result in acceptable operations, as shown in **Table 11**, but it would reduce the overall delay such that the With Project With Mitigation condition is better than the Without Project condition, reducing the cumulative impact to a ***less-than-significant*** level.
>
> However, improvements to this intersection would require approval from the City of Concord and the City of Pittsburg cannot assure implementation of this measure. Therefore, the impact would remain ***significant and unavoidable.***

Table 11: Cumulative With Project With Mitigation Conditions Peak Hour Intersection LOS Summary

Intersection	Control[1]	Peak Hour	Cumulative		Cumulative with Project		Cumulative with Project with Mitigation	
			Delay[2]	LOS	Delay[2]	LOS	Delay[2]	LOS
3. West Leland Road at San Marco	Signal	AM PM	**102** **57**	**F** **E**	**117** **71**	**F** **E**	**60** **72**	**E** **E**
10. West Leland Road at Oak Hills Drive	Signal	AM PM	18 39	B D	21 **57**	C **E**	17 50	B D
14. West Leland Road at Bailey Road	Signal	AM PM	**143** **172**	**F** **F**	**150** **201**	**F** **F**	**120** **137**	**F** **F**
16. Bailey Road at Myrtle Drive	SSSC	AM PM	**54 (>120)** 6 **(100)**	**E (F)** A **(F)**	**56 (>120)** 7 **(111)**	**F (F)** A **(F)**	10 8	A A
17. Bailey Road at Concord Boulevard	Signal	AM PM	**181** **204**	**F** **F**	**185** **209**	**F** **F**	**180** **195**	**F** **F**

Notes:
1. Signal = signalized intersection
2. Average intersection delay is calculated for all signalized intersections using the 2010 HCM method for vehicles.
Source: Fehr & Peers, 2019

7. Freeway Analysis

The freeway analysis was conducted under existing, near-term and cumulative conditions based on the methodology outlined in Chapter 1 to determine travel speeds along the State Route 4 corridor from State Route 242 to Railroad Avenue. A ramp meter assessment was also conducted.

Mainline Analysis

Existing Conditions

Existing conditions mainline traffic counts for the State Route 4 study corridor and associated on and off-ramps were obtained from the Caltrans Performance Measurement System (PeMS). From this data, the peak hour of westbound and eastbound travel was identified during both the morning and evening commute periods. Initial travel speeds where then calculated, which were then compared against available speed data from GPS devices from vehicles that travel the corridor, as well as from travel surveys conducted by Fehr & Peers staff.

Existing conditions results are presented in **Table 12** for the AM peak hour and **Table 13** for the PM peak hour. During the morning peak hour, congestion is experienced in the westbound direction, such that some segments of State Route 4 operate with a delay index in excess of 6.0, meaning that travel during peak times takes six times longer than travel during off-peak times. During the PM peak hour, the majority of delay is experienced at the State Route 4/State Route 242 interchange, with freeway operations improving in the vicinity of the Willow Pass Road interchange.

During both peak hours, the addition of project traffic would worsen the operation of freeway segments that are already projected to operate deficiently, but would not result in new deficiencies.

The amount of vehicle traffic in high-occupancy vehicle lanes was also assessed, as presented in **Table 14**, which shows that in both the morning and evening peak hours in the existing condition, the volume of traffic in the HOV lane is above the desired MTSO standard of at least 600 vehicles per hour per lane. The project is expected to add traffic to these HOV lane segments.

Table 12: Existing Conditions Freeway Operations Summary – AM Peak Hour

Segment	Direction	Existing		Existing with Project	
		Volume	Delay Index	Volume	Delay Index
1. State Route 4, between Arnold Industrial Pl/Solano Way & SR 242	EB	2,880	1.01	2,894	1.01
	WB	4,940	1.64	4,971	1.67
2. State Route 4, between SR 242 & Port Chicago HWY	EB	1,839	1.00	2,762	1.00
	WB[1]	**5,100**	**3.11**	**5,193**	**3.43**
3. State Route 4, between Port Chicago HWY & Willow Pass Road	EB	2,252	1.00	3,372	1.00
	WB[1]	6,242	1.41	7,143	1.46
4. State Route 4, between Willow Pass Rd & San Marco Blvd	EB	2,306	1.00	3,452	1.00
	WB[1]	**8,943**	**3.14**	**10,193**	**3.30**
5. State Route 4, between San Marco Blvd & Bailey Rd	EB	2,103	1.00	3,124	1.00
	WB[1]	**8,500**	**5.89**	**9,608**	**5.92**
6. State Route 4, between Bailey Rd & Railroad Ave	EB	2,150	1.00	3,218	1.00
	WB[1]	**8,588**	**6.31**	**9,724**	**6.42**

Notes:
1. AM peak hour analysis reflects operation of the HOV lane which carries approximately 13 percent of traffic volumes, reducing the number of mixed-flow lanes available during the AM peak hour.

Source: Fehr & Peers, 2019.

Table 13: Existing Conditions Freeway Operations Summary – PM Peak Hour

Segment	Direction	Existing		Existing with Project	
		Volume	Delay Index	Volume	Delay Index
1. State Route 4, between Arnold Industrial Pl/Solano Way & SR 242	EB	**5,710**	**3.03**	**5,749**	**3.14**
	WB	2,070	1.00	2,097	1.00
2. State Route 4, between SR 242 & Port Chicago HWY	EB	**7,829**	**3.53**	**10,517**	**3.81**
	WB[1]	2,300	1.00	2,380	1.00
3. State Route 4, between Port Chicago HWY & Willow Pass Road	EB	5,797	1.23	7,817	1.26
	WB[1]	3,839	1.00	4,830	1.01
4. State Route 4, between Willow Pass Rd & San Marco Blvd	EB	4,366	1.01	5,917	1.01
	WB[1]	3,572	1.00	4,500	1.00
5. State Route 4, between San Marco Blvd & Bailey Rd	EB	3,538	1.00	4,709	1.00
	WB[1]	3,216	1.00	4,002	1.00
6. State Route 4, between Bailey Rd & Railroad Ave	EB	3,124	1.00	4,193	1.00
	WB[1]	3,249	1.00	4,076	1.00

Notes:
1. PM peak hour analysis reflects operation of the HOV lane which carries approximately 13 percent of traffic volumes, reducing the number of mixed-flow lanes available during the PM peak hour.

Source: Fehr & Peers, 2019.

Table 14: Existing Conditions Freeway Operations Summary – HOV Lane Volumes

Segment	Direction	Existing		Existing with Project	
		AM	PM	AM	PM
1. State Route 4, between Arnold Industrial Pl/Solano Way & SR 242	EB	-	-	-	-
	WB	-	-	-	-
2. State Route 4, between SR 242 & Port Chicago HWY	EB	-	2,571	-	2,586
	WB	-	-	-	-
3. State Route 4, between Port Chicago HWY & Willow Pass Road	EB	-	1,903		1,919
	WB	808	-	820	-
4. State Route 4, between Willow Pass Rd & San Marco Blvd	EB	-	1,434		1,449
	WB	1,157	-	1,170	-
5. State Route 4, between San Marco Blvd & Bailey Rd	EB	-	1,162	-	1,163
	WB	1,100	-	1,101	
6. State Route 4, between Bailey Rd & Railroad Ave	EB	-	1,026	-	1,031
	WB	1,112	-	1,115	-

Source: Fehr & Peers, 2019.

Near-Term

Near-term freeway forecasts were developed based on the same method used to develop the near-term intersection forecasts, both without and with the project. Operations were evaluated using the same methods described in Chapter 1. No freeway improvements were included in the evaluation of near-term freeway operations. The Near-term without and with Project analysis results are presented in **Table 15** and **Table 16** for the AM and PM peak hours, respectively, based on the estimates of near-term traffic volumes, plus estimates of project traffic. The project would increase traffic on freeways in the study area, and worsen the delay index for segments that are projected to exceed the standard; however, it would not result in study-segment operations to degrade beyond the established standard.

The amount of vehicle traffic in high-occupancy vehicle lanes was also assessed, as presented in **Table 17**, which shows that in both the morning and evening peak hours, the volume of traffic in the HOV lane is above the desired MTSO standard of at least 600 vehicles per hour per lane. The project is expected to add traffic to these HOV lane segments.

Table 15: Near-term Conditions Freeway Operations Summary – AM Peak Hour

Segment	Direction	Near Term		Near Term with Project	
		Volume	Delay Index	Volume	Delay Index
1. State Route 4, between Arnold Industrial Pl/Solano Way & SR 242	EB	3,050	1.00	3,064	1.00
	WB	5,270	2.07	5,301	2.12
2. State Route 4, between SR 242 & Port Chicago HWY	EB	2,930	1.00	2,972	1.00
	WB[1]	**5,590**	**5.39**	**5,683**	**6.00**
3. State Route 4, between Port Chicago HWY & Willow Pass Road	EB	3,570	1.00	3,612	1.00
	WB[1]	7,640	1.68	7,733	1.74
4. State Route 4, between Willow Pass Rd & San Marco Blvd	EB	3,650	1.00	3,692	1.00
	WB[1]	**10,840**	**4.29**	**10,933**	**4.52**
5. State Route 4, between San Marco Blvd & Bailey Rd	EB	3,320	1.00	3,334	1.00
	WB[1]	**10,100**	**7.93**	**10,108**	**7.98**
6. State Route 4, between Bailey Rd & Railroad Ave	EB	3,410	1.00	3,448	1.00
	WB[1]	**10,210**	**8.65**	**10,234**	**8.80**

Notes:

1. AM peak hour analysis reflects operation of the HOV lane which carries approximately 13 percent of traffic volumes, reducing the number of mixed-flow lanes available during the AM peak hour.

Source: Fehr & Peers, 2019.

Table 16: Near-term Conditions Freeway Operations Summary – PM Peak Hour

Segment	Direction	Near Term		Near Term with Project	
		Volume	Delay Index	Volume	Delay Index
1. State Route 4, between Arnold Industrial Pl/Solano Way & SR 242	EB	6,080	1.34	6,119	1.35
	WB[1]	2,220	1.00	2,247	1.00
2. State Route 4, between SR 242 & Port Chicago HWY	EB	**11,160**	**5.57**	**11,277**	**6.03**
	WB[1]	2,560	1.01	2,640	1.01
3. State Route 4, between Port Chicago HWY & Willow Pass Road	EB	8,330	1.44	8,447	1.51
	WB[1]	5,130	1.01	5,210	1.01
4. State Route 4, between Willow Pass Rd & San Marco Blvd	EB	6,330	1.01	6,447	1.02
	WB[1]	4,780	1.00	4,860	1.00
5. State Route 4, between San Marco Blvd & Bailey Rd	EB	4,970	1.01	4,979	1.01
	WB[1]	4,180	1.00	4,202	1.00
6. State Route 4, between Bailey Rd & Railroad Ave	EB	4,400	1.00	4,443	1.00
	WB[1]	4,240	1.00	4,296	1.00

Notes:

1. PM peak hour analysis reflects operation of the HOV lane which carries approximately 13 percent of traffic volumes, reducing the number of mixed-flow lanes available during the PM peak hour.

Source: Fehr & Peers, 2019.

Table 17: Near Term Conditions Freeway Operations Summary – HOV Lane Volumes

Segment	Direction	Near Term		Near Term with Project	
		AM	PM	AM	PM
1. State Route 4, between Arnold Industrial Pl/Solano Way & SR 242	EB	-	-	-	-
	WB	-	-	-	-
2. State Route 4, between SR 242 & Port Chicago HWY	EB	-	2,732	-	2,747
	WB	-	-	-	-
3. State Route 4, between Port Chicago HWY & Willow Pass Road	EB	-	2,032	-	2,047
	WB	1,004		1,016	
4. State Route 4, between Willow Pass Rd & San Marco Blvd	EB	-	1,532	-	1,547
	WB	1,404		1,416	-
5. State Route 4, between San Marco Blvd & Bailey Rd	EB	-	1,205		1,206
	WB	1,221	-	1,222	-
6. State Route 4, between Bailey Rd & Railroad Ave	EB	-	1,106	-	1,112
	WB	1,221	-	1,224	-

Source: Fehr & Peers, 2019.

Cumulative

Cumulative freeway forecasts were developed based on the same method used to develop the cumulative intersection forecasts, both without and with the project. Operations were evaluated using the same methods described in Chapter 1. The Cumulative without and with Project analysis results are presented in **Table 18** and **Table 19** for the AM and PM peak hours, respectively, based on the estimates of cumulative traffic volumes, plus estimates of project traffic. In the cumulative condition, operations of State Route 4 are projected to further degrade beyond the MTSO with a projected delay index greater than 2.5 on some segments during the morning and evening peak hours. The addition of project traffic would worsen the delay index, resulting in a ***significant*** impact.

Table 18: Cumulative Conditions Freeway Operations Summary – AM Peak Hour

Segment	Direction	Cumulative		Cumulative with Project	
		Volume	Delay Index	Volume	Delay Index
1. State Route 4, between Arnold Industrial Pl/Solano Way & SR 242	EB	3,800	1.01	3,814	1.01
	WB	**6,600**	**7.45**	**6,607**	**7.51**
2. State Route 4, between SR 242 & Port Chicago HWY	EB	3,600	1.00	3,641	1.00
	WB[1]	**6,800**	**13.00**	**6,822**	**13.00**
3. State Route 4, between Port Chicago HWY & Willow Pass Road	EB	4,400	1.00	4,441	1.00
	WB[1]	**9,400**	**5.04**	**9,422**	**5.12**
4. State Route 4, between Willow Pass Rd & San Marco Blvd	EB	4,500	1.00	4,541	1.00
	WB[1]	**13,400**	**13.00**	**13,422**	**13.00**
5. State Route 4, between San Marco Blvd & Bailey Rd	EB	4,100	1.00	4,114	1.00
	WB[1]	**12,800**	**13.00**	**12,808**	**13.00**
6. State Route 4, between Bailey Rd & Railroad Ave	EB	4,200	1.00	4,234	1.00
	WB[1]	**12,900**	**13.00**	**12,923**	**13.00**

Notes:

1. AM peak hour analysis reflects operation of the HOV lane which carries approximately 13 percent of traffic volumes, reducing the number of mixed-flow lanes available during the AM peak hour.

Source: Fehr & Peers, 2019.

Table 19: Cumulative Conditions Freeway Operations Summary – PM Peak Hour

Segment	Direction	Cumulative		Cumulative with Project	
		Volume	Delay Index	Volume	Delay Index
1. State Route 4, between Arnold Industrial Pl/Solano Way & SR 242	EB	**7,600**	**3.00**	**7,640**	**3.08**
	WB[1]	2,800	1.01	2,829	1.01
2. State Route 4, between SR 242 & Port Chicago HWY	EB	**13,800**	**13.00**	**13,919**	**13.00**
	WB[1]	3,100	1.04	3,186	1.05
3. State Route 4, between Port Chicago HWY & Willow Pass Road	EB	**10,200**	**5.04**	**10,319**	**5.46**
	WB[1]	6,300	1.04	6,386	1.50
4. State Route 4, between Willow Pass Rd & San Marco Blvd	EB	7,700	1.13	7,819	1.15
	WB[1]	5,900	1.01	5,986	1.09
5. State Route 4, between San Marco Blvd & Bailey Rd	EB	6,300	1.08	6,309	1.08
	WB[1]	5,300	1.01	5,322	1.12
6. State Route 4, between Bailey Rd & Railroad Ave	EB	5,500	1.03	5,550	1.03
	WB[1]	5,300	1.01	5,358	1.12

Notes:
1. PM peak hour analysis reflects operation of the HOV lane which carries approximately 13 percent of traffic volumes, reducing the number of mixed-flow lanes available during the PM peak hour.
Source: Fehr & Peers, 2019.

The amount of vehicle traffic in high-occupancy vehicle lanes was also assessed, as presented in **Table 20**, which shows that in both the morning and evening peak hours, the volume of traffic in the HOV lane is above the desired MTSO standard of at least 600 vehicles per hour per lane. The project is expected to add traffic to these HOV lane segments.

Table 20: Cumulative Conditions Freeway Operations Summary – HOV Lane Volumes

Segment	Direction	Cumulative		Cumulative with Project	
		AM	PM	AM	PM
1. State Route 4, between Arnold Industrial Pl/Solano Way & SR 242	EB	-	-	-	-
	WB	-	-	-	-
2. State Route 4, between SR 242 & Port Chicago HWY	EB	-	2,600	-	2,615
	WB	-	-	-	-
3. State Route 4, between Port Chicago HWY & Willow Pass Road	EB	-	1,900	-	1,915
	WB	1,100	-	1,103	-
4. State Route 4, between Willow Pass Rd & San Marco Blvd	EB	-	1,400	-	1,415
	WB	1,500	-	1,503	-
5. State Route 4, between San Marco Blvd & Bailey Rd	EB	-	1,200	-	1,201
	WB	1,500	-	1,501	-
6. State Route 4, between Bailey Rd & Railroad Ave	EB	-	1,000	-	1,007
	WB	1,500	-	1,503	-

Bold indicates volume exceeds desired volume of 600 vehicles per hour.
Source: Fehr & Peers, 2019.

Impact Statement 8: Regional Freeway Facilities

The project is expected to worsen the delay index along the State Route 4 corridor where deficient operations currently occur; these effects would occur in the existing, near-term and cumulative condition and is considered a ***significant*** impact. Additionally, the project would contribute to worsening congestion on other freeway segments not explicitly evaluated, including State Route 242.

> ***Mitigation Measure 8:*** Caltrans plans to increase vehicle capacity along State Route 4 from west of I-680 and east of State Route 242 which would extend the high occupancy vehicle lane and add an additional mixed-flow lane in each direction. The Contra Costa Transportation Authority is in the process of selected a contractor for the construction of this improvement, with project completion expected by 2021/2022.
>
> Additionally, CCTA has developed State Route 4 Integrated Corridor Management (ICM) plan that includes strategies such as adaptive ramp metering, incident management, traffic and transit information systems, traffic arterial and transit information systems, connected vehicle technologies, and integration with the Interstate 80 corridor ICM to better manage traffic flows

along the corridor. The project applicant shall pay their fair share towards this project through the payment of the regional transportation impact fees to the East Contra Costa Regional Fee and Financing Authority (ECCRFFA).

However, as full funding for this improvement has not been identified and the effectiveness of the ICM project is uncertain, the impact would remain ***significant and unavoidable.***

Ramp Meter Assessment

An assessment of vehicle queues at the freeway on-ramps where project traffic is concentrated was conducted, as presented in **Table 21** for the existing condition, **Table 22** for the near-term condition, and **Table 23** for the cumulative condition. The on-ramps evaluated include:

1. SR 4 Westbound Ramps Loop On-ramp from northbound San Marco Boulevard south of Evora Road/Willow Pass Road
2. SR 4 Eastbound Ramps at Bailey Road

The project is not expected to increase traffic to other on-ramps in the immediate project vicinity, or ramp meters are not in operation during some peak hours.

The ramp metering assessment was conducted based on general ramp metering rates provided from Caltrans and field observations. At the San Marco Boulevard loop on-ramp to westbound SR 4 in the morning peak hour, the metering rate is 950 vehicles per hour, with two vehicles per green allowed to enter the freeway. At the Bailey Road on-ramp to eastbound SR 4 during the PM peak hour, the metering rate is 560 vehicles per hour.

Results of the assessment and field observations indicate that in the existing condition, vehicle queues extend from the westbound SR 4 ramp from southbound San Marco Boulevard to West Leland Road, and beyond to Tomales Bay Drive (see detailed description of existing conditions in Chapter 3) during the morning peak hour. At the Bailey Road on-ramp to eastbound SR 4, maximum vehicle queues extend slightly beyond the on-ramp to Bailey Road. The addition of project traffic would exacerbate the level of vehicle queue spillback from both ramp meters.

In the near-term and cumulative conditions, vehicle queues are projected to worsen at the locations noted above if the metering rates are maintained at the same level, and the addition of project traffic would further exacerbate queue spillback.

Table 21: Ramp Meter Analysis – Existing Condition

On-Ramp	Peak Hour	Storage Length (ft)	Meter Rate	Existing without Project		Existing with Project	
				Metered Volume	Max Queue (ft)	Metered Volume	Max Queue (ft)
SB San Marco to WB 4	AM	750	950[1]	1,046	**4,605**	1,090	**5,697**
NB Bailey to EB 4[2]	PM	1,150	560	572	**1,153**	577	**1,268**

Bold indicates vehicle queue spillback to roadway.
Notes: 1. Metered at two vehicles per green
2. Does not include the HOV by-pass volume
Source: Fehr & Peers, 2019.

Table 22: Ramp Meter Analysis – Near-Term Condition

On-Ramp	Peak Hour	Storage Length	Meter Rate	Near-Term without Project		Near-Term with Project	
				Metered Volume	Max Queue (ft)	Metered Volume	Max Queue (ft)
SB San Marco to WB 4	AM	750	950[1]	1,290	**10,665**	1,383	**12,990**
NB Bailey to EB 4[2]	PM	1,150	560	594	**1,672**	614	**2,162**

Bold indicates vehicle queue spillback to roadway.
Notes: 1. Metered at two vehicles per green
2. Does not include the HOV by-pass volume
Source: Fehr & Peers, 2019.

Table 23: Ramp Meter Analysis – Cumulative Condition

On-Ramp	Peak Hour	Storage Length	Meter Rate	Cumulative without Project		Cumulative with Project	
				Metered Volume	Max Queue (ft)	Metered Volume	Max Queue (ft)
SB San Marco to WB 4	AM	750	950[1]	1,100	**5,946**	1,122	**6,492**
NB Bailey to EB 4[2]	PM	1,150	560	606	**1,960**	631	**2,551**

Bold indicates vehicle queue spillback to roadway.
Notes: 1. Metered at two vehicles per green
2. Does not include the HOV by-pass volume
Source: Fehr & Peers, 2019.

Impact TR-9: Ramp Meter Impact – San Marco Boulevard southbound loop ramp to State Route 4 Westbound

Based on the ramp metering rate of 950 vehicles per hour, vehicle queues during both the morning and evening peak hours spillback from beyond the State Route 4 westbound on-ramp to San Marco Boulevard and along West Leland Road. The addition of project traffic in the existing, near-term and cumulative conditions would further increase the extent and duration of vehicle queues spillback from the ramp meter operations. As the addition of project traffic would increase a queue already exceeding the ramp storage, the impact is considered ***significant***.

> ***Mitigation TR-9:*** To mitigate the existing, near-term and cumulative ramp metering impact, the following improvements would need to occur:
>
> - Construct a second mixed-flow on-ramp lane
> - Construct an HOV by-pass lane
> - Extend West Leland Road to Willow Pass Road
> - Increase the metering rate to approximately 1,040 vehicles per hour
>
> This improvement would require widening of the on-ramp to accommodate two additional lanes at the ramp meter, as well as widening to provide additional merge space on the freeway mainline. The widening of the freeway on-ramp could result in secondary impacts to pedestrians and bicyclists by increasing pedestrian crossing distances through the interchange, and bicycle/vehicle conflicts. The Project Applicant should pay their fair share towards this improvement.
>
> As this improvement is within the Caltrans right-of-way and the City of Pittsburg does not have control over the on-ramp, there are no assurances that this improvement could be implemented. Therefore, the impact is considered ***significant-and-unavoidable***.

Impact TR-10: Ramp Meter Impact – Bailey Road at Eastbound State Route 4

Based on the ramp metering rate of 560 vehicles per hour, vehicles queues during the evening peak hour spillback from beyond the on-ramp to Bailey Road. The addition of project traffic in the existing, near-term and cumulative conditions would further increase the extent and duration of vehicle queues spillback from the ramp meter to Bailey Road. As the addition of project traffic would further exacerbate vehicle queue spillback, this is considered a ***significant impact***.

> ***Mitigation TR-10:*** In the existing, near-term and cumulative conditions, increasing the metering rate at this location from 560 vehicles per hour to between 570 and 625 vehicles per hour (depending on time period and analysis scenario) would reduce the duration and severity of vehicle

queue spillback to Bailey Road such that queues could be contained within the available ramp storage. The City of Pittsburg shall work with Caltrans to evaluate ramp-metering rates along the SR 4 corridor to minimize the potential for vehicle queue spillback to city streets. As the City of Pittsburg does not have control over ramp meter rates in the project vicinity, this impact is considered ***significant-and-unavoidable***.

8. Site Plan Review

This section evaluates the circulation of vehicles, bicycles and pedestrians around the project site and on the roadways adjacent to the project site based on the site plan presented on Figure 2. A parking assessment was also conducted.

Vehicle Access and Circulation

Access to the site is proposed from three locations on West Leland Road, including an extension of Alves Ranch Road north into the site that forms the fourth leg of an existing signalized intersection with West Leland Road. As part of the project, this intersection would be modified to provide two left-turn lanes and a through-right shared lane on both the northbound and southbound approaches and a new crosswalk would be provided across the east leg of the intersection. The traffic signal would be modified to accommodate a new pedestrian phase and the changed lane geometries on the north and south legs of the intersection. As detailed in the prior sections, this intersection would operate at acceptable service levels as proposed to be modified as part of the project.

A full access unsignalized intersection is proposed on West Leland Road, west of Alves Ranch Road. This intersection would be off-set with Tomales Bay Drive on the south side of West Leland Road, which would remain a right-in/right-out side-street stop controlled intersection. As detailed in the previous sections, this access roadway would operate at an overall acceptable LOS A through the cumulative with project condition. However, poor operations may be experienced during the morning peak hour for vehicles turning left from the project site to eastbound West Leland Road in the near-term and cumulative condition. Neither turn restrictions or signalization is recommended as the intersection is projected to operate at an overall acceptable service level and vehicles have an alternative signalized access point to enter/exit the project site.

A secondary right-in/right-out access to the commercial site would also be provided from West Leland Road between Alves Ranch Road and roadway off-set with Tomales Bay Drive. The exact location of this driveway would be identified as the commercial parcel site plans are developed.

In addition to the vehicular access locations, an emergency vehicle access location would be provided on the eastern portion of the site, approximately 500 feet east of Alves Ranch Road.

Daily traffic volumes were forecast for numerous locations throughout the site. The northerly extension of Alves Ranch Road (Street A) into the project site is expected to carry over 3,000 vehicles per day between Leland Road and the commercial entrance. Remaining streets are projected to accommodate lower traffic

volumes, with Street B on the eastern portion of the site experiencing less than 1,700 vehicles per day, Street B connecting to the western portion of the site experiencing less than 1,000 vehicles per day, and Street E connecting the western neighborhood to West Leland Road experiencing less than 1,200 vehicles per day.

The proposed street design deviate from the City's Street Standards. However, the widths are adequate to provide for emergency vehicle access and the narrower vehicle travel lanes are appropriate for the land use context.

Internal traffic controls are not shown on the conceptual site plan. It is expected that as the plan is further refined, all-way and side-street stop-controlled intersections would be incorporated into the overall site plan, including the Street A/Commercial Center driveway, Street E/Street F intersections, and other intersections along primary routes of travel through the site.

As part of the project, a 12-foot wide sidewalk would be constructed on the north side of West Leland Road along the residential project frontage, connecting to an existing sidewalk in the west; a temporary pedestrian connection would be constructed along the future commercial frontage with full improvements constructed once the commercial site is developed. A new crosswalk across the east leg of Leland Road would be constructed as part of the site access improvements, and the signal modified to accommodate the additional pedestrian phase. Class II bicycle facilities are provided on West Leland Road, which would not be altered as a result of the project.

Loading Zone Requirements

The City of Pittsburg Code also outlines off-street loading zone requirements for a variety of uses, as detailed in Section 18.78. For single-family homes, no off-street loading facilities are required. For commercial uses over 100,000, three loading spaces are required.

> ***Recommendation 1:*** As the commercial plan is developed, accommodate at least three loading areas for large trucks, with the final number and size of loading zones based on the final commercial project size, land uses and Code requirements.

Refuse collection would be provided by Mount Diablo Resource Recovery, with each home provided a garbage cart, recycling cart and green waste cart for weekly pick-up. For some homes, along A Street for example, it is not clear where refuse containers would be staged as an alley is located on one side of the home, and a collector street on the other. For other homes, refuse container staging may need to occur where on-street parking is provided and there could be conflicts on trash collection days between parked vehicles and refuse carts.

Recommendation 2: Consult with Mount Diablo Resource Recovery to ensure that each home has a clear refuse collection staging area that considers the need for some on-street parking to be provided on refuse collection days.

Pedestrian Access and Circulation

Pedestrian access to the project would be from West Leland Road. A 12-foot wide sidewalk would be constructed along the West Leland Road residential project frontage as part of the project, with pedestrian connections provided at numerous locations, including a paseo between lots 169 and 170, as well as sidewalks connecting from the neighborhoods to West Leland Road via Street A and Street E. A temporary pedestrian connection would be constructed along the future commercial frontage with full improvements constructed once the commercial site is developed. A new crosswalk would be constructed as part of the project on the east leg of the West Leland Road at Alves Ranch Road intersection to provide a more direct connection to the transit stops on the south side of West Leland Road. This new crosswalk would also connect pedestrians to the sidewalk on the south side of West Leland Road connecting to the east.

The project would also provide a pedestrian and bicycle only connection to the parcel on the east side of the site such that when the parcel to the east of the site is developed, a more direct pedestrian and bicycle connection would be provided to the BART station.

As the commercial site plan is developed, it would include pedestrian connections from West Leland Road, Street A, and at least one connection from Street B and Street F.

Sidewalks are proposed on both sides of Street A and Street E throughout the site. For other streets, sidewalks are proposed on at least one side of the street. Given the low volume of vehicle traffic, on the local neighborhood streets, vehicle and pedestrian conflicts are expected to be minimal. The plan also shows curb extensions (bulbout) and directional curb ramps at several locations in the project site; the final site plan will include some additional designated pedestrian crossing locations, and where crosswalks only cross one leg of an intersection, directional curb ramps (as opposed to diagonal) will be provided.

With the construction of a new access roadway on the western edge of the project, off-set from Tomales Bay Drive, a new legal pedestrian crossing of West Leland Road would be created.

Recommendation 3: Either install signage and barricades prohibiting pedestrian crossing movements of West Leland Road at the new project roadway/Tomales Bay Drive on both the east and west legs of the intersection, or install a high visibility crosswalk with a pedestrian actuated flashing beacons or pedestrian hybrid signal across the west leg of the intersection and prohibit

pedestrian crossings of the east leg through signage and barricades. This is also noted as Mitigation Measure 13 in **Table 24.**

Bicycle Access and Circulation

Bicycle access to the site would be provided from existing Class II bicycle facilities on West Leland Road. No designated bicycle facilities are proposed on any of the roadways internal to the site.

Short term and long term bicycle parking is required for the commercial portion of the project, and is based on the required amount of automobile parking, pursuant to Section 18.78.045 of the Pittsburg Municipal Code.

> ***Recommendation 4:*** As the commercial site plan is developed, provide a mixture of short-term (racks) and long-term (lockers or secure room) bicycle parking based on the requirements outlined in Section 18.78.045 of the Pittsburg Municipal Code. Approximately 20 percent of the required bicycle parking shall be long-term parking for employee use.

Transit Access and Circulation

The center of the project site is located approximately 1/2-mile from a BART station and is adjacent to a TriDelta Transit stop. It is expected that given the project's proximity to transit, some future site residents and employees would use transit on a regular basis. Pedestrian connections are provided from the project site to both the TriDelta Transit stops as well as the BART station.

> ***Recommendation 5:*** Provide transit information to prospective and new residents to encourage transit use to/from the site.

Parking

City of Pittsburg Code specifies off-street parking requirements for a variety of uses, including residential and commercial. For the residential portion of the project, two off-street spaces per unit are required, which is being accommodated by the proposed project. Additionally, on-street parking is provided to accommodate guest and additional resident parking. Overall, two off-street spaces would be provided per unit (692 spaces) and a total of 170 on-street parking spaces would be provided, for an overall parking ratio of 2.49 spaces per unit, or 2 off-street spaces and 0.49 on-street spaces per residential unit.

Given the site's close proximity to the Pittsburg/Bay Point BART station, there is the potential for overflow vehicle parking demand within the project site.

> ***Recommendation 6:*** To manage the on-site residential parking supplies, consider requiring that for residents who own vehicles, garages must be used for vehicle storage

As the commercial site plan is developed, it is expected that parking would be provided based on the existing City code requirements outlined in Section 18.78.040 of the Pittsburg Municipal Code.

> ***Recommendation 7***: As the commercial site plan is developed, evaluate the potential to reduce the overall parking requirement by up to 10 percent to account for walk/bike/transit trips to the commercial portion of the site. Consider allowing on-street parking along the commercial parcel boundaries to count towards the off-street parking requirement provided the site plan provides direct pedestrian connections from those parking spaces to the commercial center. Provisions for ADA parking should also be incorporated into the commercial site plan.

Emergency Vehicle Access

The proposed project is not expected to result in inadequate emergency as access to the site would be provided from multiple access locations and if one location where to be blocked other means of access are provided. Additionally, the Fire Department has reviewed the site plan and has indicated that the proposed internal street cross-sections are sufficient for emergency vehicle circulation.

CEQA Checklist Review

This section provides a summary of the potential project impacts related to bicycles, pedestrians, and transit based on the discussions in previous chapters as compared to the significance criteria outlined in Chapter 1, and summarized for each topic area, as presented in **Table 24**:

Table 24: CEQA Checklist Review

Significance Criteria	Discussion	Mitigation
A pedestrian impact is considered significant if the project would:		
Disrupt existing pedestrian facilities	Pedestrian access is not currently provided along the north side of West Leland Road, such that pedestrian access in the area is not expected to be disrupted during the project construction phase. Mitigation measures proposed as mitigation for project impacts were reviewed for their potential impact to pedestrians. Widening of one intersection beyond the already planned cross-sections is proposed as project mitigation (Mitigation Measure 9), which could increase the pedestrian crossing distance through the San Marco Boulevard interchange area (Impact 11). No pedestrian facilities are proposed to be removed as part of project mitigation.	This impact is ***less-than-significant***. ***Mitigation Measure 11:*** Should Mitigation Measure 10 be implemented, the overall design of the improvement shall include pedestrian and bicycle crossing treatments through the San Marco Road with SR 4 interchange area. Implementation of this measure would reduce the impact to a ***less-than-significant*** level.
Interfere with planned pedestrian facilities	The project would construct pedestrian facilities along all roadways within the project site, completing a portion of sidewalk network in this area.	This impact is ***less-than-significant***.

Table 24: CEQA Checklist Review

Significance Criteria	Discussion	Mitigation
Create inconsistencies with adopted pedestrian system plans, guidelines, policies, or standards	Sidewalks along the project boundary and through the project site would be constructed to current City standards. With the construction of a new access roadway on the western edge of the project, off-set from Tomales Bay Drive, a new legal pedestrian crossing of West Leland Road would be created (Impact 12).	This impact is ***less-than-significant.*** ***Mitigation Measure 12:*** Either install signage and barricades prohibiting pedestrian crossing movements of West Leland Road at the new project roadway/Tomales Bay Drive on both the east and west legs of the intersection, or install a high visibility crosswalk with a pedestrian actuated flashing beacons or pedestrian hybrid signal across the west leg of the intersection and prohibit pedestrian crossings of the east leg through signage and barricades. Implementation of this measure would reduce the impact to a ***less-than-significant*** level.
A bicycle impact is considered significant if the project would:		
Disrupt existing bicycle facilities	Existing Class II bicycle facilities are provided in the immediate vicinity of the project site on West Leland Road . The project does not propose to eliminate existing bicycle facilities in the vicinity of project. Mitigation measures proposed as mitigation for project impacts were reviewed for their potential impact to bicyclists. Widening of one intersection beyond the already planned cross-sections is proposed as project mitigation (Mitigation Measure 9), which could increase bicycle exposure through the San Marco Boulevard interchange area (Impact 13). No bicycle facilities are proposed to be removed as part of project mitigation.	This impact is ***less-than-significant***. ***Mitigation Measure 13:*** Implement Mitigation Measure 11, which would incorporate bicycle and pedestrian improvement through the San Marco Boulevard interchange, if improvements identified as part of Mitigation Measure 10 are constructed. Implementation of this measure would reduce the impact to a ***less-than-significant*** level.
Interfere with planned bicycle facilities	The project does not preclude the construction of planned bicycle facilities.	This impact is ***less-than-significant.***

Table 24: CEQA Checklist Review

Significance Criteria	Discussion	Mitigation
Create inconsistencies with adopted bicycle system plans, guidelines, policies, or standards	Bicycle detection at the signalized intersection to be modified as part of the project, is required. (Impact 14)	***Mitigation Measure 14:*** Install bicycle detection as part of the signal modifications to the intersection of West Leland Road at Alves Ranch Road. Implementation of this measure would reduce the impact to a ***less-than-significant*** level.
A transit impact is considered significant if the project would:		
Result in development that is inaccessible to transit riders	Bus stops are provided on West Leland Road on the northwest and southeast corner of the Alves Ranch Road at West Leland Road intersection. As part of the project, a new crosswalk would be constructed on the east leg of the Alves Ranch Road at West Leland Road intersection, improving the connection to transit facilities in the area. This new crosswalk would also provide an improved connection to the BART station until development occurs on the parcel east of the project site and sidewalks on the north side of West Leland Road between the eastern project boundary and BART property are provided.	This impact is ***less-than-significant.***
Generate transit demand that cannot be met by existing or planned transit in the area.	Based on the existing travel patterns in the area, it is not expected that the project would generate significant levels of transit ridership that cannot be accommodated by existing transit services in the area.	This impact is ***less-than-significant***.
Other Transportation Effects not addressed in other Chapters		
An impact could occur if the project substantially increases traffic hazards due to a design feature (e.g. sharp curves or dangerous intersections) or incompatible uses.	An increase in hazardous road conditions could occur if the site circulation design does not meet City of Pittsburg standards.	This impact is ***less-than-significant.***
An impact could occur if the project results in inadequate emergency access	Access to the site is proposed from three locations from West Leland Road If one access is blocked, additional access locations are provided.	This impact is ***less-than-significant.***

Source: Fehr & Peers, 2019.

9. Vehicle Miles of Travel

In response to Senate Bill 743 (SB 743), the Office of Planning and Research (OPR) has updated California Environmental Quality Act (CEQA) guidelines to include new transportation-related evaluation metrics. Draft guidelines were developed in August 2014, with updated draft guidelines prepared January 2016, which incorporated public comments from the August 2014 guidelines. OPR released final Guidelines on November 27, 2017, with an associated Technical Advisory Document on Evaluating Transportation Impacts in CEQA dated December 2018. The updated guidelines were finalized in January 2019 by the Natural Resources Agency, which includes a new Section 15064.3 on VMT analysis and thresholds for land use developments. New Guidelines section 15064.3 states that they do not take effect until July 1, 2020 unless the lead agency adopts them earlier. Neither the City of Pittsburg nor the Contra Costa Transportation Authority has established any standards or thresholds on VMT. Therefore, the new guidelines have not yet been adopted and are not in effect at this time.

Since there are no standards in effect on VMT analysis, a preliminary assessment of the vehicle miles of travel (VMT) generated by the proposed project was prepared for informational and disclosure purposes only. No determination on the significance of VMT impacts is made in this document since none is legally required.

CEQA Guidelines

Changes to Appendix G of the CEQA guidelines were finalized in January 2019, with methods for evaluating transportation impacts detailed in the *Technical Advisory on Evaluating Transportation Impacts in CEQA* (December 2018)[4] The following provides the information relevant to this project:

> **Text of Amendments to Appendix G**
>
> *b) For a land use project, would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)(1)?*
>
> **(b) Criteria for Analyzing Transportation Impacts.**
>
> **(1) Land Use Projects.** Vehicle miles traveled exceeding an applicable threshold of significance may indicate a significant impact. Generally, projects within one-half mile of either an existing major

[4] Full document can be found here:
http://opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf

transit stop or a stop along an existing high quality transit corridor should be presumed to cause a less than significant transportation impact. Projects that decrease vehicle miles traveled in the project area compared to existing conditions should be considered to have a less than significant transportation impact.

OPR has established a draft threshold for the evaluation of different land use types. For residential uses, new developments that have an estimated vehicle miles of travel 15 percent below **existing** regional **and** city VMT/capita (household or home-based) would be considered less than significant.

Local-serving retail may be less than significant (projects less than 50,000 square feet). Retail which increases VMT compared to previous shopping patterns may be considered significant.

Since the new Guidelines do not take effect until July 1, 2020 unless the lead agency adopts them earlier, and neither the City of Pittsburg nor the Contra Costa Transportation Authority has established any standards or thresholds on VMT the following analysis is being prepared for informational purposes only.

Analysis Methods and Results

To conduct the VMT assessment, Fehr & Peers used the CCTA travel demand model to estimate the VMT generated by the proposed project uses, as presented in **Table 25.** In total, the project is expected to generate approximately 49,075 vehicle miles of travel per day. For the residential portion of the project, the level of vehicle travel was normalized by the expected number of residents to estimate a VMT per capita, which was then compared to the VMT per capita for the City of Pittsburg, as well as the Countywide and Bay Area wide average, as presented in **Table 26.** Home based trips per capita in Pittsburg are slightly lower than the Bay Area average and about 17 percent lower than the Contra Costa County average. The residential portion of the project could slightly increase VMT per capita in the City of Pittsburg, although it would be less than the Bay Area or County-wide average.

Table 25: Project Generated VMT Summary

Land Use	Daily VMT
Residential	14,812
Retail	34,263
Total	49,075

Source: CCTA, Fehr & Peers, 2019.

Table 26: Average VMT Per Capita Existing Conditions (Residential Uses)

Land Use Type	Project	Pittsburg	Contra Costa County	Bay Area
Home Based VMT	15.2	14.9	18.0	15.3

Source: CCTA, Fehr & Peers, 2019.

The retail portion of the project has the potential to generate approximately 34,200 vehicle miles of travel on an average daily basis, and accounting for patrons, employees and deliveries. However, as noted in the Technical Advisory, "*lead agencies should analyze the effects of a retail project by assessing the change in total VMT because retail projects typically re-route travel from other retail destinations. A retail project might lead to increases or decreases in VMT, depending on previously existing retail travel patterns*".

To assess the retail portion of the project's effect on vehicle miles of travel, the CCTA was executed for the without and with retail condition for cumulative scenario, with the results presented in **Table 27.** The analysis results indicate that the retail portion of the project could increase overall vehicle miles of travel, although the net change in VMT at the City-wide level is less than the total VMT generated by the proposed retail uses.

Table 27: Citywide VMT – Cumulative Condition

Scenario	Daily VMT
Year 2040 without Retail	2,715,787
Year 2040 with Retail	2,739,759
Net Change	23,972

Source: CCTA Model, Fehr & Peers, 2019.

VMT Conclusions

Results of the VMT analysis indicate that the project would contribute to an increase in vehicle miles of travel on a per-capita basis. Additionally, the proposed commercial uses could also result in a slight increase in overall VMT, although the net-change in VMT is less than the overall total generated by the commercial portion of the project, indicating that provision of an additional retail center in this area would provide other alternatives for existing and future residents of the area to meet their daily needs.

As there are no thresholds of significance, this analysis is being prepared for informational purposes only.

Appendix

Appendix A: Traffic Counts

Prepared by National Data & Surveying Services

San Marco Blvd & SR 4 WB Ramps

Peak Hour Turning Movement Count

ID: 18-08299-001
City: Pittsburg

Day: Thursday
Date: 05/31/2018

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

San Marco Blvd – SOUTHBOUND

	Right	Through	Left	U-Turn	Outbound
AM	175	1680	0	4	416
NOON	0	0	0	0	0
PM	31	609	0	0	1194
	0	4	0	0	

SR 4 WB Ramps – EASTBOUND

Movement	AM	NOON	PM	
Outbound	448	0	235	
U-Turn	0	0	0	0
Left	17	0	68	2
Through	0	0	0	0
Right	311	0	136	1

SR 4 WB Ramps – WESTBOUND

Movement		PM	NOON	AM
Right	1	243	0	11
Through	0.5	81	0	18
Left	0.5	121	0	7
U-Turn	0	0	0	0
Outbound		0	0	0

San Marco Blvd – NORTHBOUND

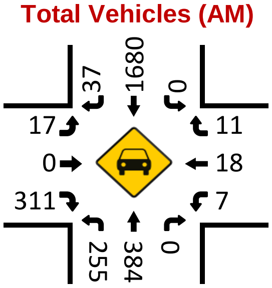
	Outbound	U-Turn	Left	Through	Right
		0	1	3	0
PM	866	0	123	883	0
NOON	0	0	0	0	0
AM	2063	65	255	384	0

CONTROL

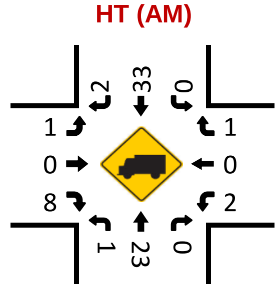
Signalized

	AM	NOON	PM
TEV	2927	0	2295
PHF	0.94		0.92

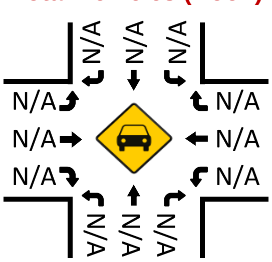
Total Vehicles (AM)



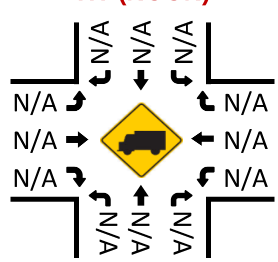
HT (AM)



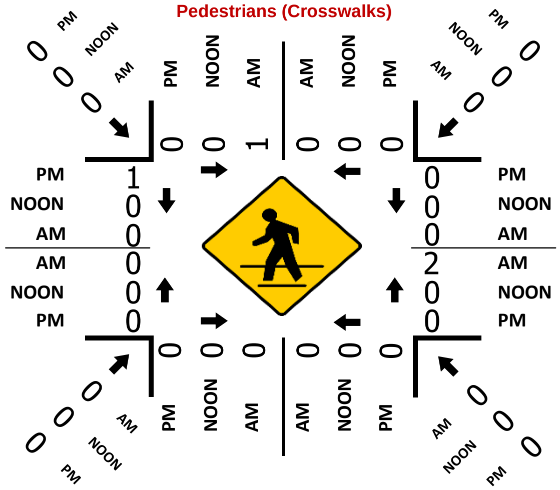
Total Vehicles (Noon)



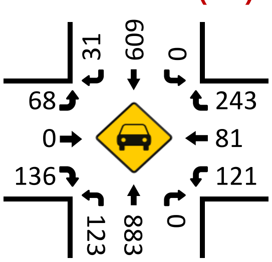
HT (NOON)



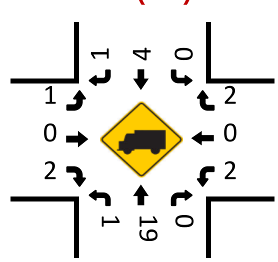
Pedestrians (Crosswalks)



Total Vehicles (PM)



HT (PM)



Prepared by National Data & Surveying Services

San Marco Blvd & SR 4 EB Ramps

Peak Hour Turning Movement Count

ID: 18-08299-002
City: Pittsburg

Day: Thursday
Date: 05/31/2018

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

San Marco Blvd — SOUTHBOUND

	Right	Thru	Left	U-Turn	Out
AM	263	242	0	0	1674
NOON	0	0	0	0	0
PM	218	297	0	0	1255
Lanes	1	2	0	0	

SR 4 EB Ramps — EASTBOUND

	AM	NOON	PM	Lanes
Out	263	0	218	
U-Turn	0	0	0	0
Left	254	0	800	2
Thru	0	0	0	0
Right	212	0	605	1

SR 4 EB Ramps — WESTBOUND

	PM	NOON	AM	Lanes
Right	0	0	0	0
Thru	0	0	0	0
Left	0	0	0	0
U-Turn	0	0	0	0
Out	107	0	103	

San Marco Blvd — NORTHBOUND

	Out	U-Turn	Left	Thru	Right
Lanes		0	0	2	0
PM	902	0	0	455	107
NOON	0	0	0	0	0
AM	454	0	0	1420	103

CONTROL

Signalized

	AM	NOON	PM
TEV	2494	0	2482
PHF	0.92		0.96

Total Vehicles (AM)

Approach	Left	Thru	Right	U-Turn
SB	0	242	263	0
EB	254	0	212	
WB	0	0	0	0
NB	0	1420	103	0

Total Vehicles (Noon)

All movements: N/A

Total Vehicles (PM)

Approach	Left	Thru	Right	U-Turn
SB	0	297	218	0
EB	800	0	605	
WB	0	0	0	0
NB	0	455	107	0

HT (AM)

Approach	Left	Thru	Right	U-Turn
SB	0	0	7	
EB	13	0	5	
WB	0	0	0	0
NB	0	12	0	

HT (NOON)

All movements: N/A

HT (PM)

Approach	Left	Thru	Right	U-Turn
SB	0	0	1	
EB	19	0	4	
WB	0	0	0	0
NB	0	8	0	

Pedestrians (Crosswalks)

Crosswalk	AM	NOON	PM
North leg	0	0	0
South leg	0	0	0
West leg	0	0	0
East leg	2	0	0
Diagonals (each)	0	0	0

Prepared by National Data & Surveying Services

San Marco Blvd & W Leland Rd

Peak Hour Turning Movement Count

ID: 18-08299-003
City: Pittsburg

Day: Thursday
Date: 05/31/2018

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

San Marco Blvd — SOUTHBOUND

AM	16	176	204	0	1464	AM
NOON	0	0	0	0	0	NOON
PM	88	264	453	0	536	PM

W Leland Rd — EASTBOUND

AM	NOON	PM		
194	0	189		
1	0	1	0	
215	0	132	1	
46	0	74	2	
63	0	18	0	

W Leland Rd — WESTBOUND

PM	NOON	AM		
222	0	809	1	
78	0	142	2	
129	0	234	1	
0	0	0	0	
628	0	473		

San Marco Blvd — NORTHBOUND

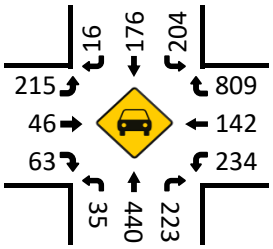
PM	411	0	22	182	101	PM
NOON	0	0	0	0	0	NOON
AM	474	1	35	440	223	AM

	0	2	2	0
	0	1	1.5	0.5

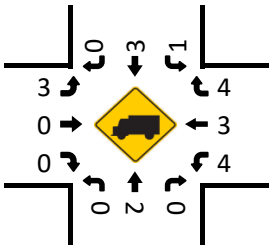
CONTROL: Signalized

TEV	2605	0	1764
	AM	NOON	PM
PHF	0.86		0.94

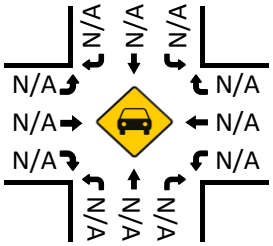
Total Vehicles (AM)



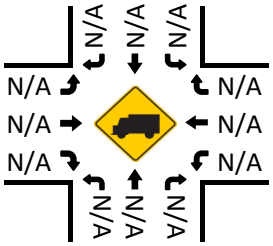
HT (AM)



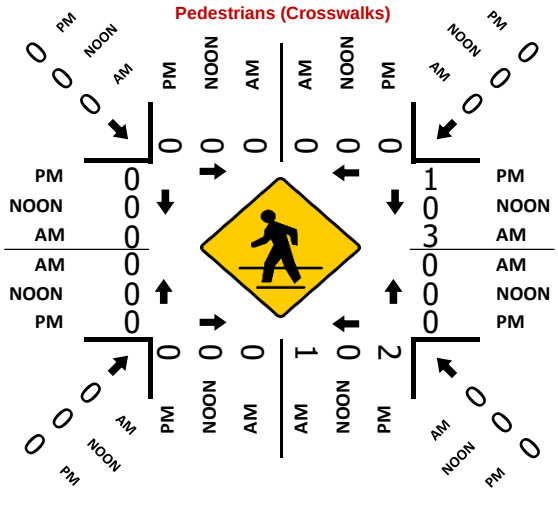
Total Vehicles (Noon)



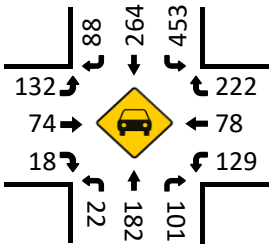
HT (NOON)



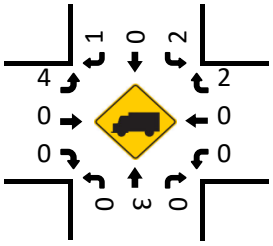
Pedestrians (Crosswalks)



Total Vehicles (PM)



HT (PM)



Prepared by National Data & Surveying Services

Tomales Bay Dr & W Leland Rd

Peak Hour Turning Movement Count

ID: 18-08299-004
City: Pittsburg

Day: Thursday
Date: 05/31/2018

PEAK HOURS

AM: 07:00 AM - 08:00 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

Tomales Bay Dr — SOUTHBOUND

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

W Leland Rd — EASTBOUND

AM	NOON	PM	
1209	0	442	⇦
0	0	0	↶ 0
0	0	0	↱ 0
451	0	569	→ 2
22	0	32	↴ 0
AM	NOON	PM	

W Leland Rd — WESTBOUND

PM	NOON	AM	
0	0	0	0 ↰
442	0	1209	2 ←
0	0	0	0 ↰
0	0	0	0 ↰
580	0	468	⇨
PM	NOON	AM	

CONTROL

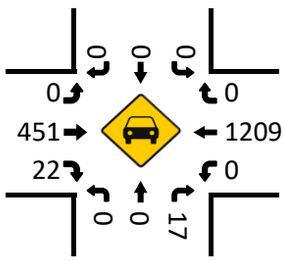
1-Way Stop(NB)

TEV	1699	0	1054
	AM	NOON	PM
PHF	0.86		0.99

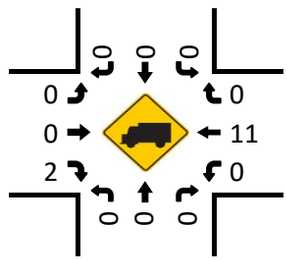
Tomales Bay Dr — NORTHBOUND

PM	32	0	0	0	11	PM
NOON	0	0	0	0	0	NOON
AM	22	0	0	0	17	AM

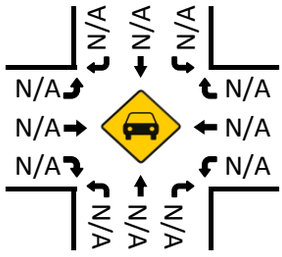
Total Vehicles (AM)



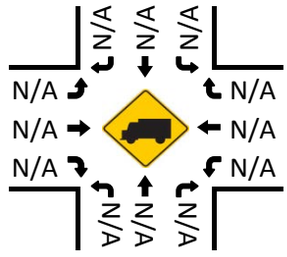
HT (AM)



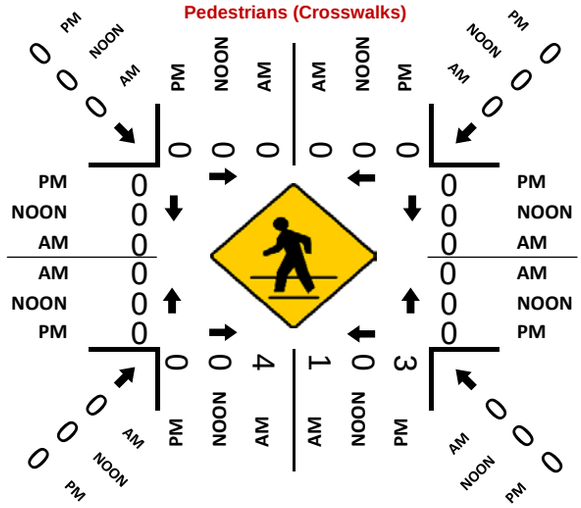
Total Vehicles (Noon)



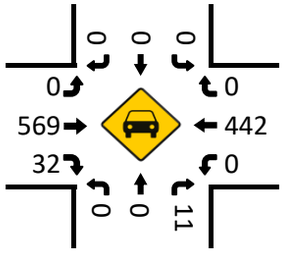
HT (NOON)



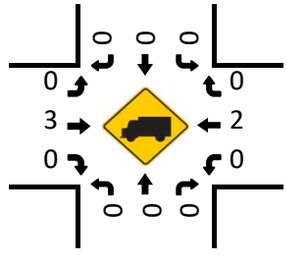
Pedestrians (Crosswalks)



Total Vehicles (PM)



HT (PM)



Prepared by National Data & Surveying Services

Alves Ranch Rd & W Leland Rd

Peak Hour Turning Movement Count

ID: 18-08299-005
City: Pittsburg

Day: Thursday
Date: 05/31/2018

PEAK HOURS

AM: 07:00 AM - 08:00 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

Alves Ranch Rd

SOUTHBOUND

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

EASTBOUND

AM	NOON	PM	
1201	0	452	
10	0	8	0
0	0	0	1
415	0	500	2
30	0	63	1
AM	NOON	PM	

WESTBOUND

PM	NOON	AM	
0	0	0	0
400	0	1076	2
92	0	30	1
1	0	0	0
551	0	509	
PM	NOON	AM	

CONTROL

Signalized

TEV	1770 AM	0 NOON	1158 PM
PHF	0.84		0.97

PM	155	0	44	0	50	PM
NOON	0	0	0	0	0	NOON
AM	60	0	115	0	94	AM

0 1 1 1

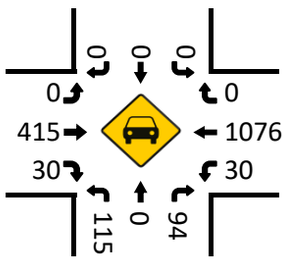
NORTHBOUND

Alves Ranch Rd

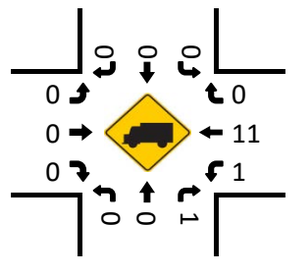
W Leland Rd

W Leland Rd

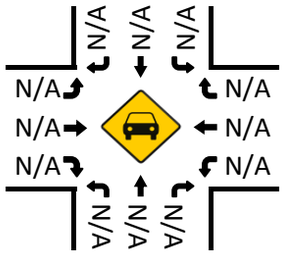
Total Vehicles (AM)



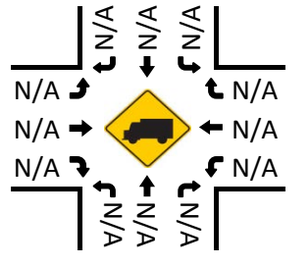
HT (AM)



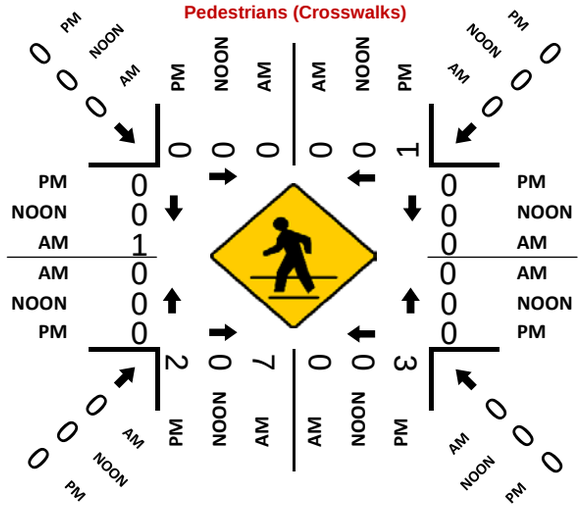
Total Vehicles (Noon)



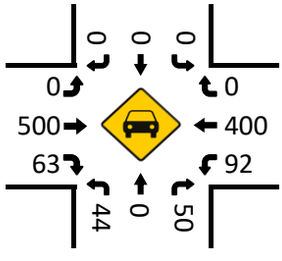
HT (NOON)



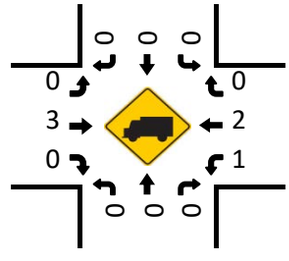
Pedestrians (Crosswalks)



Total Vehicles (PM)



HT (PM)



Prepared by National Data & Surveying Services

Bailey Rd & W Leland Rd

Peak Hour Turning Movement Count

ID: 18-08299-006
City: Pittsburg

Day: Thursday
Date: 05/31/2018

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

SOUTHBOUND — Bailey Rd

AM	92	413	166	0	993	AM
NOON	0	0	0	0	0	NOON
PM	181	186	474	3	851	PM
	1	1	2	0		

EASTBOUND — W Leland Rd

AM	NOON	PM	
1052	0	578	
0	0	0	0
178	0	145	1
124	0	353	2
364	0	77	0
AM	NOON	PM	

WESTBOUND — W Leland Rd

PM	NOON	AM	
264	0	613	1
192	0	887	2
26	0	293	1
0	0	0	0
984	0	309	
PM	NOON	AM	

NORTHBOUND — Bailey Rd

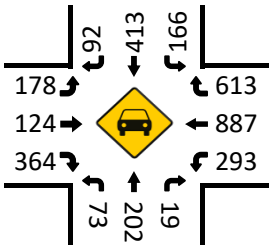
PM	289	0	205	439	157	PM
NOON	0	0	0	0	0	NOON
AM	1071	1	73	202	19	AM
		0	1	2.5	0.5	

CONTROL

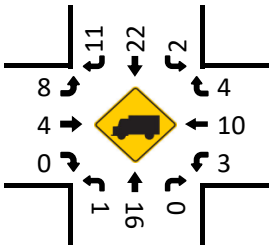
Signalized

TEV	3425	0	2702
	AM	NOON	PM
PHF	0.94		0.97

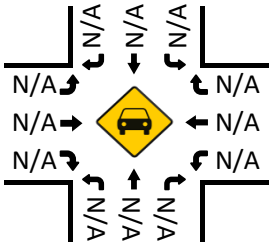
Total Vehicles (AM)



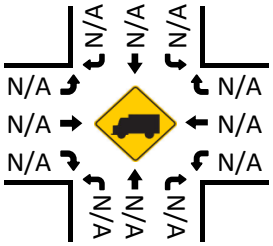
HT (AM)



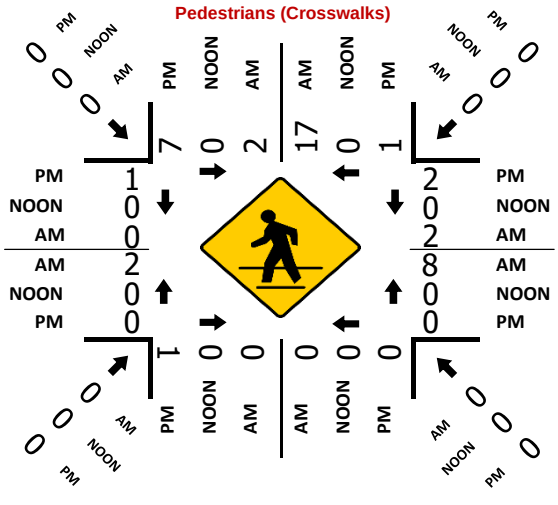
Total Vehicles (Noon)



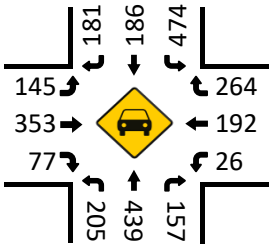
HT (NOON)



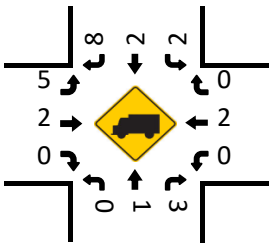
Pedestrians (Crosswalks)



Total Vehicles (PM)



HT (PM)



Prepared by National Data & Surveying Services

San Marco Blvd & SR 4 EB On Ramps

Peak Hour Turning Movement Count

ID: 18-08299-101
City: Pittsburg

Day: Thursday
Date: 05/31/2018

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

San Marco Blvd – SOUTHBOUND

	Right	Thru	Left	U-Turn	Exit
AM	1533	493	0	0	711
NOON	0	0	0	0	0
PM	363	498	0	0	994
HT %	1.5	2.5	0	0	

SR 4 EB On Ramps – EASTBOUND

	AM	NOON	PM	HT %
Exit	1533	0	363	
U-Turn	0	0	0	0
Left	0	0	0	0
Thru	0	0	0	0
Right	0	0	0	0

SR 4 EB On Ramps – WESTBOUND

	HT %	PM	NOON	AM
U-Turn	0	0	0	0
Thru	0	0	0	0
Left	0	0	0	0
U-Turn (left)	0	0	0	0
Exit		267	0	997

San Marco Blvd – NORTHBOUND

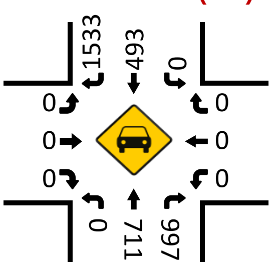
	Exit	U-Turn	Left	Thru	Right
HT %		0	0	3.5	0.5
PM	498	0	0	994	267
NOON	0	0	0	0	0
AM	493	0	0	711	997

CONTROL

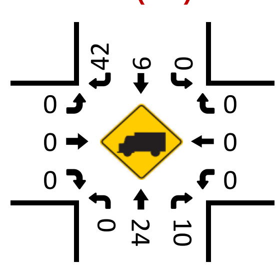
No Control

	AM	NOON	PM
TEV	3734	0	2122
PHF	0.96		0.95

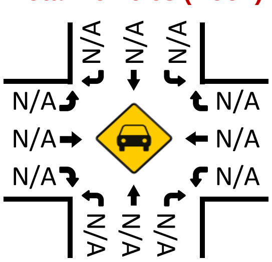
Total Vehicles (AM)



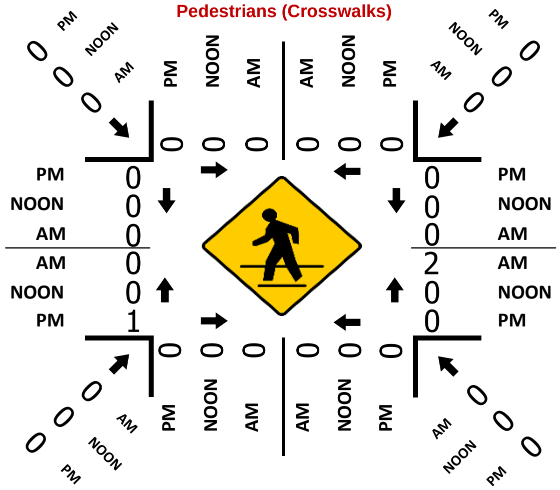
HT (AM)



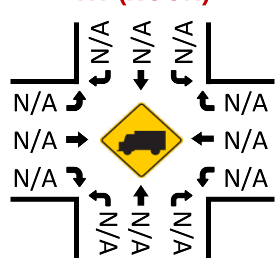
Total Vehicles (Noon)



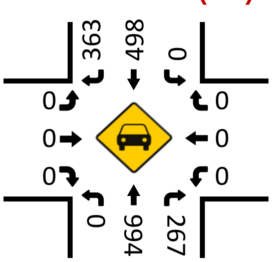
Pedestrians (Crosswalks)



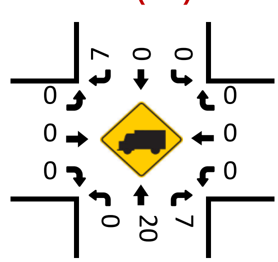
HT (NOON)



Total Vehicles (PM)



HT (PM)



Prepared by National Data & Surveying Services

Willow Pass Rd & Evora Rd

Peak Hour Turning Movement Count

ID: 18-08487-001
City: Bay Point

Day: Wednesday
Date: 09/26/2018

PEAK HOURS

AM	07:00 AM - 08:00 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

Willow Pass Rd

SOUTHBOUND

AM	81	1488	0	0	396	AM
NOON	0	0	0	0	0	NOON
PM	29	597	0	0	1055	PM

EASTBOUND (Evora Rd)

AM	NOON	PM		
324	0	238		
0	0	0	0	
19	0	49	2	
0	0	0	0	
457	0	130	1	

WESTBOUND (Evora Rd)

				PM	NOON	AM
			1	205	0	11
			0.5	86	0	11
			0.5	114	0	12
			0	0	0	0
				0	0	0

NORTHBOUND

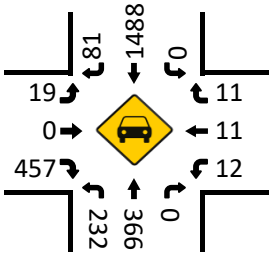
PM	843	2	123	801	0	PM
NOON	0	0	0	0	0	NOON
AM	2037	80	232	366	0	AM

Willow Pass Rd

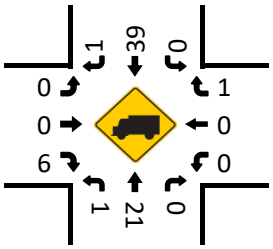
	AM	NOON	PM	
	0	4	0	0
	0	1	3	0

CONTROL			
Signalized			
TEV	2757	0	2136
PHF	AM 0.92	NOON	PM 0.93

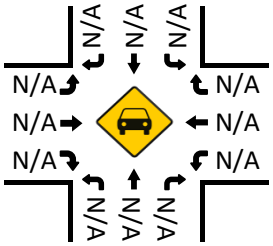
Total Vehicles (AM)



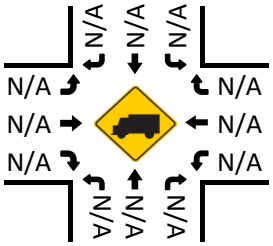
HT (AM)



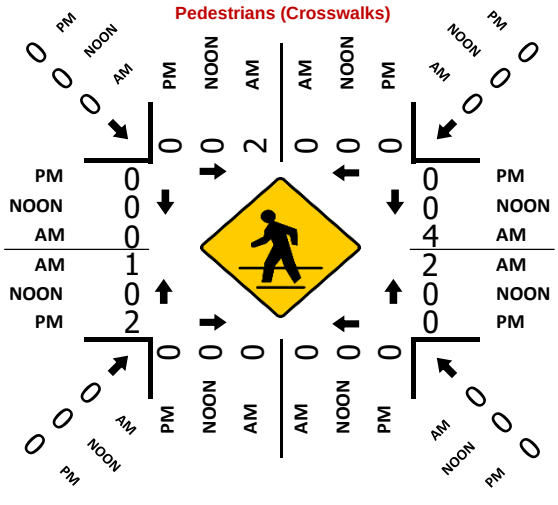
Total Vehicles (Noon)



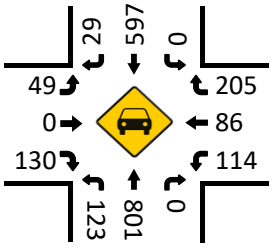
HT (NOON)



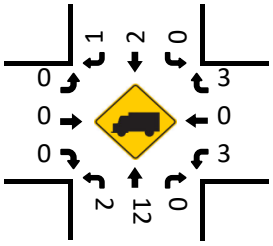
Pedestrians (Crosswalks)



Total Vehicles (PM)



HT (PM)



Prepared by National Data & Surveying Services

Woodhill Dr & W Leland Rd

Peak Hour Turning Movement Count

ID: 18-08487-002
City: Pittsburg

Day: Wednesday
Date: 09/26/2018

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

Woodhill Dr — SOUTHBOUND

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

W Leland Rd — EASTBOUND

AM	NOON	PM		
974	0	497	⇦	
0	0	0	↶	0
0	0	0	↱	0
520	0	429	→	2
49	0	87	↴	0
AM	NOON	PM		

W Leland Rd — WESTBOUND

PM	NOON	AM		
0	0	0	↰	0
452	0	862	←	2
53	0	19	↰	1
0	0	0	↰	0
463	0	562	⇨	
PM	NOON	AM		

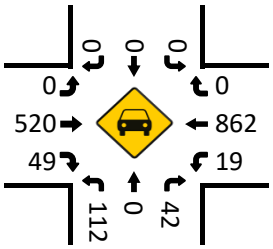
Woodhill Dr — NORTHBOUND

PM	140	0	45	0	34	PM
NOON	0	0	0	0	0	NOON
AM	68	0	112	0	42	AM

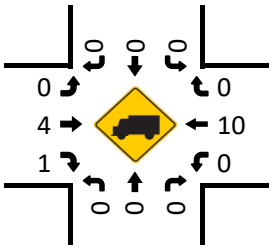
0	1	0	1
↶	↰	↑	↱

CONTROL			
Signalized			
TEV	1604	0	1100
	AM	NOON	PM
PHF	0.88		0.88

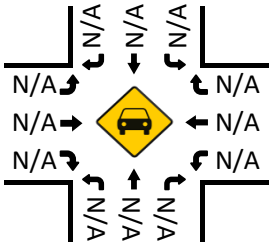
Total Vehicles (AM)



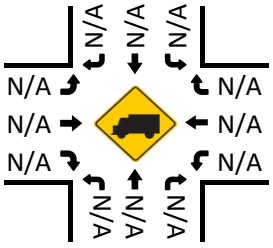
HT (AM)



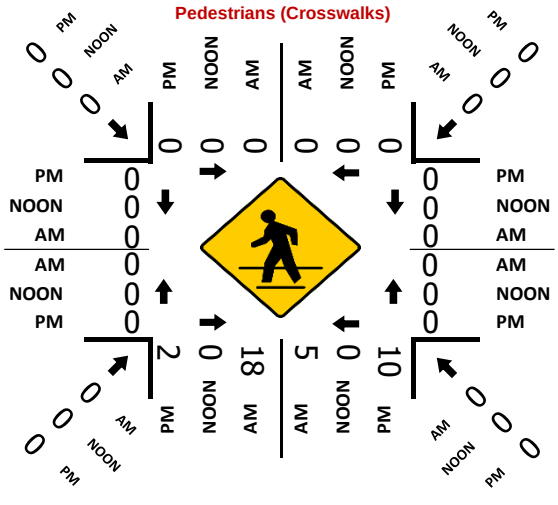
Total Vehicles (Noon)



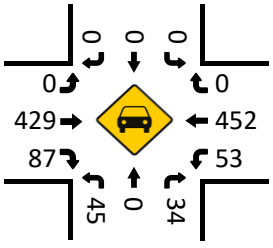
HT (NOON)



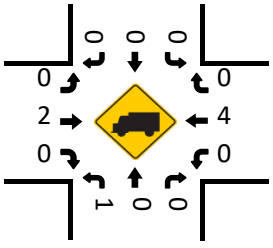
Pedestrians (Crosswalks)



Total Vehicles (PM)



HT (PM)



Prepared by National Data & Surveying Services

Southwood Dr & W Leland Rd

Peak Hour Turning Movement Count

ID: 18-08487-003
City: Pittsburg

Day: Wednesday
Date: 09/26/2018

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

Southwood Dr — SOUTHBOUND

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

W Leland Rd — EASTBOUND

AM	NOON	PM	
897	0	498	
0	0	0	0
0	0	0	0
492	0	396	2
73	0	73	0
AM	NOON	PM	

W Leland Rd — WESTBOUND

	PM	NOON	AM
0	0	0	0
2	450	0	773
1	114	0	34
0	0	0	0
	469	0	595
	PM	NOON	AM

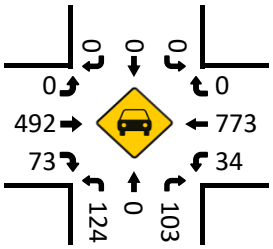
CONTROL			
Signalized			
TEV	1599	0	1154
	AM	NOON	PM
PHF	0.90		0.89

Southwood Dr — NORTHBOUND

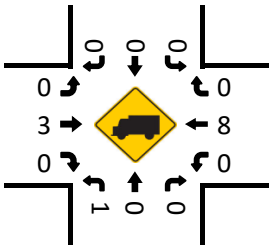
PM	187	0	48	0	73	PM
NOON	0	0	0	0	0	NOON
AM	107	0	124	0	103	AM

0 0 0 0 — 0 0 1 0

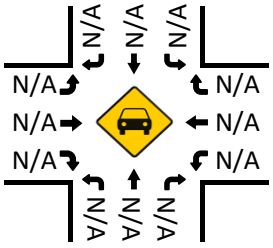
Total Vehicles (AM)



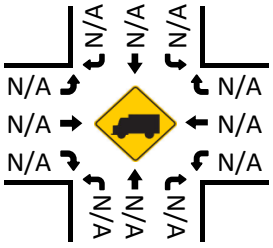
HT (AM)



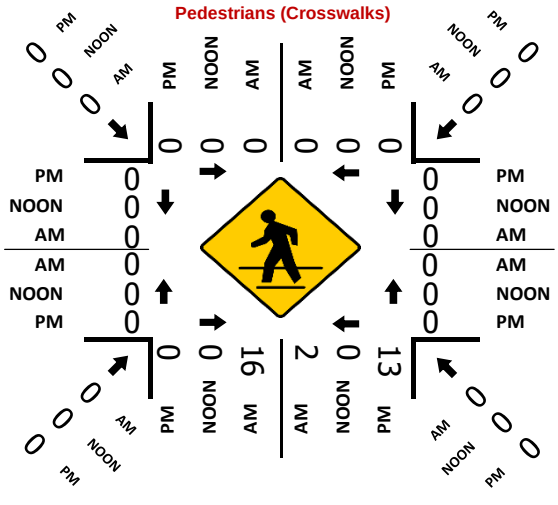
Total Vehicles (Noon)



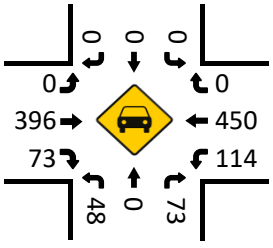
HT (NOON)



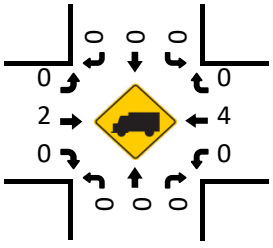
Pedestrians (Crosswalks)



Total Vehicles (PM)



HT (PM)



Prepared by National Data & Surveying Services

BART Exit & W Leland Rd

Peak Hour Turning Movement Count

ID: 18-08487-004
City: Pittsburg

Day: Wednesday
Date: 09/26/2018

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

BART Exit — SOUTHBOUND

AM	88	0	79	0	0	AM
NOON	0	0	0	0	0	NOON
PM	133	0	187	0	0	PM
	1	0	1	0		

W Leland Rd — EASTBOUND

AM	NOON	PM	
810	0	567	
0	0	0	0
0	0	0	0
598	0	463	2
0	0	0	0
AM	NOON	PM	

CONTROL

Signalized

	AM	NOON	PM
TEV	1487	0	1217
PHF	0.94		0.84

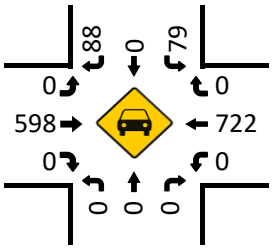
W Leland Rd — WESTBOUND

	PM	NOON	AM
0	0	0	0
3	434	0	722
0	0	0	0
0	0	0	0
	650	0	677
	PM	NOON	AM

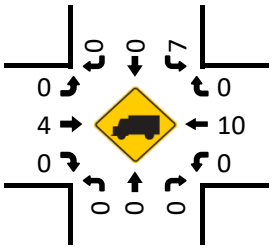
		0	0	0	0	
PM	0	0	0	0	0	PM
NOON	0	0	0	0	0	NOON
AM	0	0	0	0	0	AM

NORTHBOUND — BART Exit

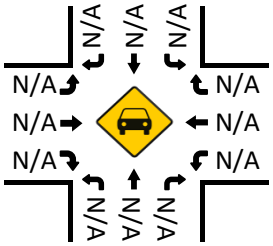
Total Vehicles (AM)



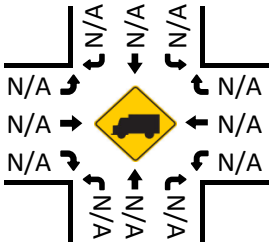
HT (AM)



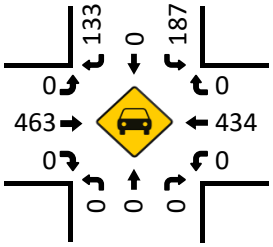
Total Vehicles (Noon)



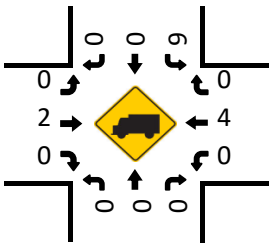
HT (NOON)



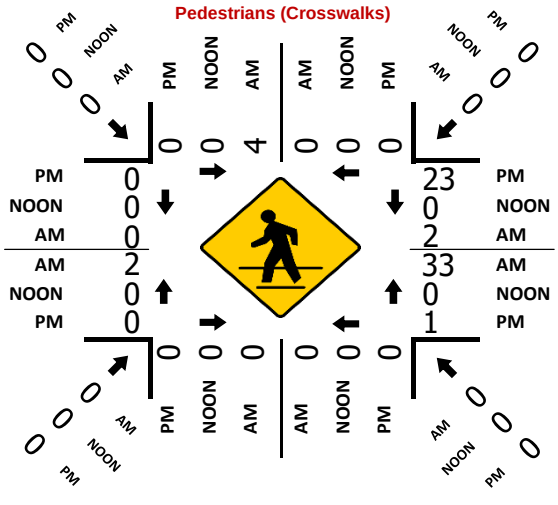
Total Vehicles (PM)



HT (PM)



Pedestrians (Crosswalks)



Prepared by National Data & Surveying Services

BART Entrance & W Leland Rd

Peak Hour Turning Movement Count

ID: 18-08487-005
City: Pittsburg

Day: Wednesday
Date: 09/26/2018

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

BART Entrance — SOUTHBOUND

AM	0	0	0	0	400	AM
NOON	0	0	0	0	0	NOON
PM	0	0	0	0	159	PM

W Leland Rd — EASTBOUND

AM	NOON	PM	
718	0	435	
0	0	0	0
138	0	82	1
541	0	577	2
0	0	0	0
AM	NOON	PM	

W Leland Rd — WESTBOUND

PM	NOON	AM	
77	0	262	0.5
435	0	718	1.5
0	0	0	0
0	0	0	0
577	0	541	
PM	NOON	AM	

BART Entrance — NORTHBOUND

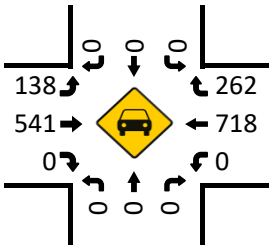
PM	0	0	0	0	0	PM
NOON	0	0	0	0	0	NOON
AM	0	0	0	0	0	AM

	0	1	0	0
	0	0	0	0

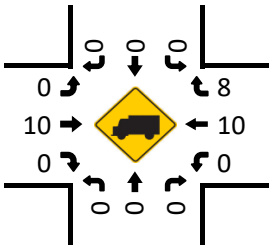
CONTROL: Signalized

TEV	1659 AM	0 NOON	1171 PM
PHF	0.92		0.90

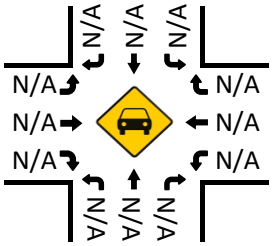
Total Vehicles (AM)



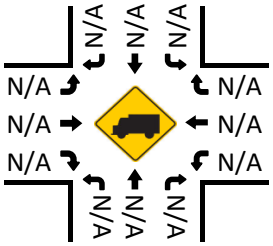
HT (AM)



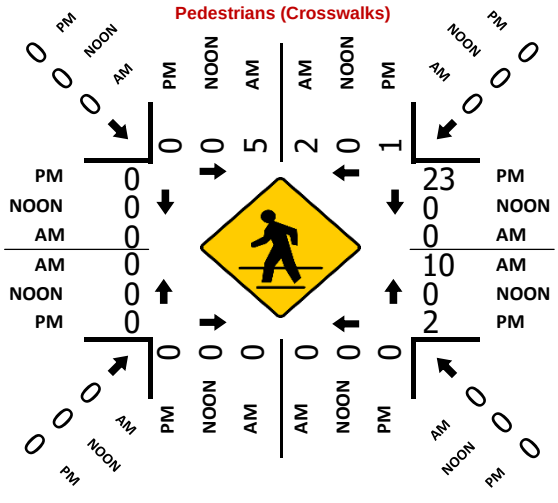
Total Vehicles (Noon)



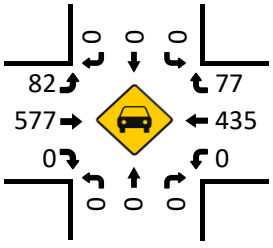
HT (NOON)



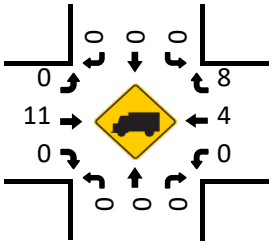
Pedestrians (Crosswalks)



Total Vehicles (PM)



HT (PM)



Prepared by National Data & Surveying Services

Oak Hills Dr & W Leland Rd

Peak Hour Turning Movement Count

ID: 18-08487-006
City: Pittsburg

Day: Wednesday
Date: 09/26/2018

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

SOUTHBOUND — Oak Hills Dr

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

EASTBOUND — W Leland Rd

AM	NOON	PM	
971	0	513	
0	0	0	0
0	0	0	0
520	0	534	2
25	0	38	0

WESTBOUND — W Leland Rd

PM	NOON	AM	
0	0	0	0
489	0	930	2
156	0	90	1
0	0	0	0
651	0	718	

NORTHBOUND — Oak Hills Dr

PM	194	0	24	0	117	PM
NOON	0	0	0	0	0	NOON
AM	115	0	41	0	198	AM

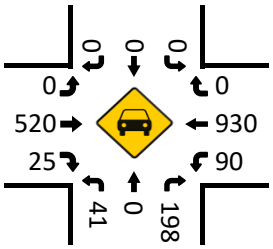
	0	0	1	0

CONTROL

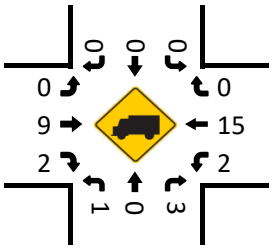
Signalized

TEV	1804	0	1358
	AM	NOON	PM
PHF	0.94		0.92

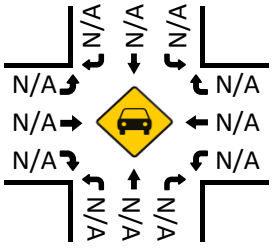
Total Vehicles (AM)



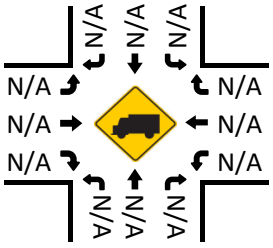
HT (AM)



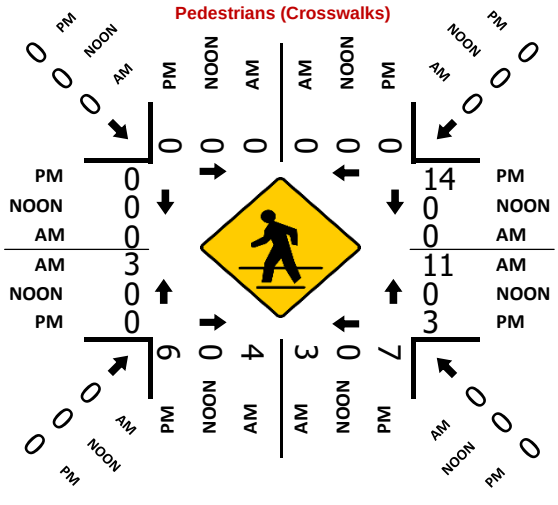
Total Vehicles (Noon)



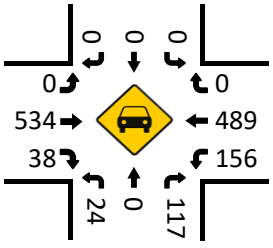
HT (NOON)



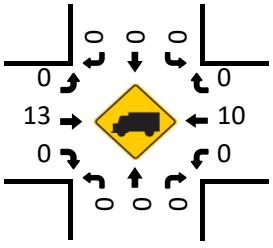
Pedestrians (Crosswalks)



Total Vehicles (PM)



HT (PM)



Prepared by National Data & Surveying Services

Bailey Rd & Canal Rd

Peak Hour Turning Movement Count

ID: 18-08487-007
City: Bay Point

Day: Wednesday
Date: 09/26/2018

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

SOUTHBOUND — Bailey Rd

AM	193	476	88	1	602	AM
NOON	0	0	0	0	0	NOON
PM	119	513	72	3	973	PM
	0.5	1.5	1	0		

EASTBOUND — Canal Rd

AM	NOON	PM	
1068	0	466	
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
AM	NOON	PM	

WESTBOUND — Canal Rd

PM	NOON	AM	
106	0	127	0.5
128	0	338	1
176	0	283	0.5
0	0	0	0
705	0	333	
PM	NOON	AM	

NORTHBOUND — Bailey Rd

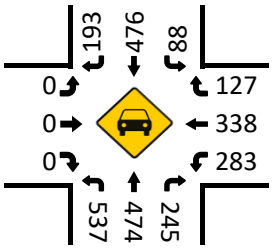
PM	706	17	219	864	633	PM
NOON	0	0	0	0	0	NOON
AM	768	9	537	474	245	AM
		0	2	3	0	

CONTROL

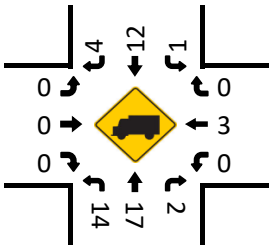
Signalized

TEV	2771	0	2850
	AM	NOON	PM
PHF	0.96		0.90

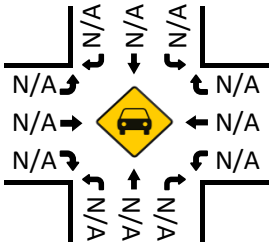
Total Vehicles (AM)



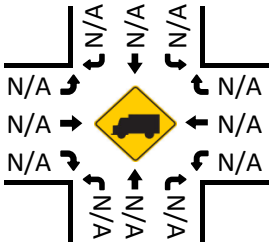
HT (AM)



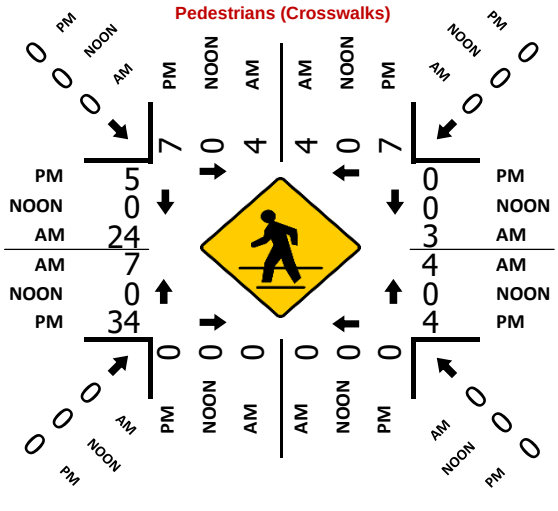
Total Vehicles (Noon)



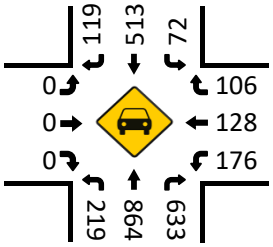
HT (NOON)



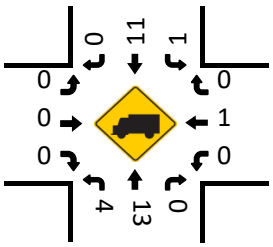
Pedestrians (Crosswalks)



Total Vehicles (PM)



HT (PM)



Prepared by National Data & Surveying Services

Bailey Rd & SR 4 WB Ramps

Peak Hour Turning Movement Count

ID: 18-08487-008
City: Bay Point

Day: Wednesday
Date: 09/26/2018

Bailey Rd

SOUTHBOUND

AM	0	761	0	0	1288	AM
NOON	0	0	0	0	0	NOON
PM	0	702	0	0	1767	PM

0 2 0 0

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

SR 4 WB Ramps — **EASTBOUND**

AM	NOON	PM	
0	0	0	
0	0	0	0
0	0	0	0
0	0	0	0
217	0	401	1
AM	NOON	PM	

CONTROL

1-Way Stop(WB)

	AM	NOON	PM
TEV	2266	0	2870
PHF	0.95		0.92

WESTBOUND — **SR 4 WB Ramps**

PM	NOON	AM	
306	0	84	1
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	
PM	NOON	AM	

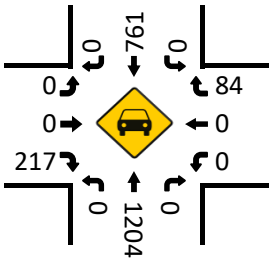
0 0 3 0

PM	1103	0	0	1461	0	PM
NOON	0	0	0	0	0	NOON
AM	978	0	0	1204	0	AM

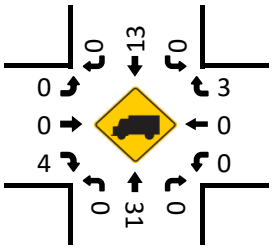
NORTHBOUND

Bailey Rd

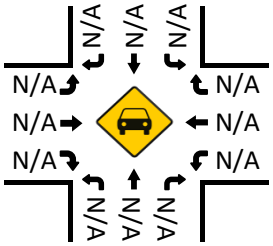
Total Vehicles (AM)



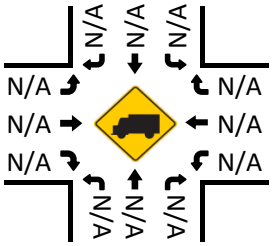
HT (AM)



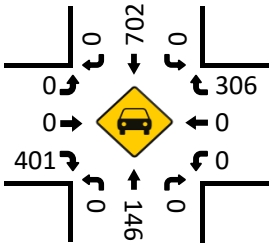
Total Vehicles (Noon)



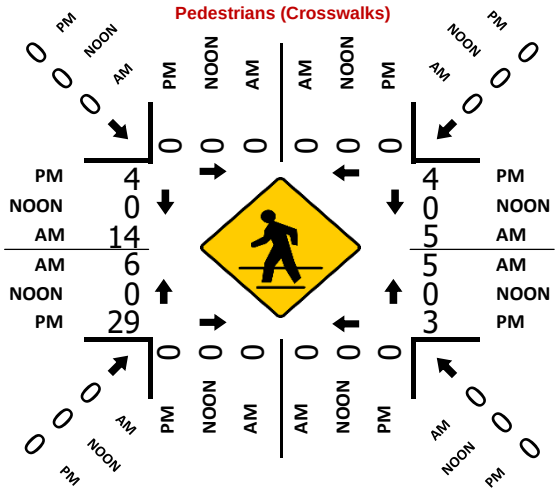
HT (NOON)



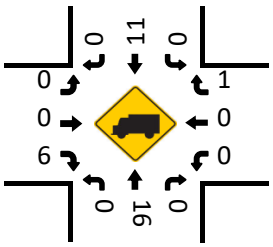
Total Vehicles (PM)



Pedestrians (Crosswalks)



HT (PM)



Prepared by National Data & Surveying Services

Bailey Rd & SR 4 EB Ramps

Peak Hour Turning Movement Count

ID: 18-08487-009
City: Pittsburg

Day: Wednesday
Date: 09/26/2018

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

Bailey Rd — SOUTHBOUND

AM	198	574	208	2	1204	AM
NOON	0	0	0	0	0	NOON
PM	134	690	262	14	1457	PM

SR 4 EB Ramps — EASTBOUND

AM	NOON	PM	
198	0	134	
0	0	0	0
52	0	109	0.5
48	0	263	1.5
187	0	369	1
AM	NOON	PM	

WESTBOUND — SR 4 EB Ramps

PM	NOON	AM	
525	0	214	1
0	0	0	0
0	0	0	0
0	0	0	0
914	0	519	
PM	NOON	AM	

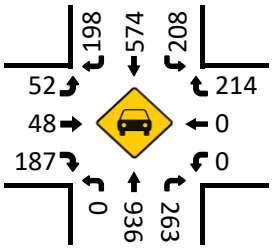
Bailey Rd — NORTHBOUND

PM	1059	0	0	809	389	PM
NOON	0	0	0	0	0	NOON
AM	761	0	0	936	263	AM

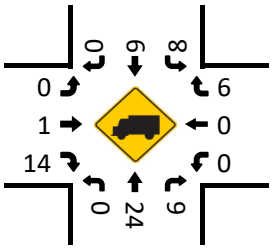
1	2	2	0	
			0	0	2	1

CONTROL			
Signalized			
TEV	2682 AM	0 NOON	3564 PM
PHF	0.97		0.90

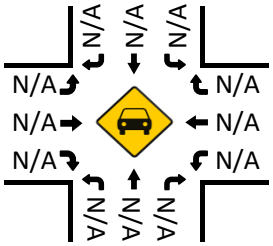
Total Vehicles (AM)



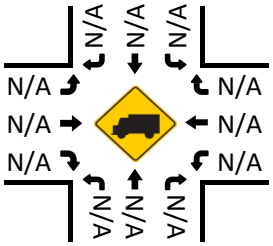
HT (AM)



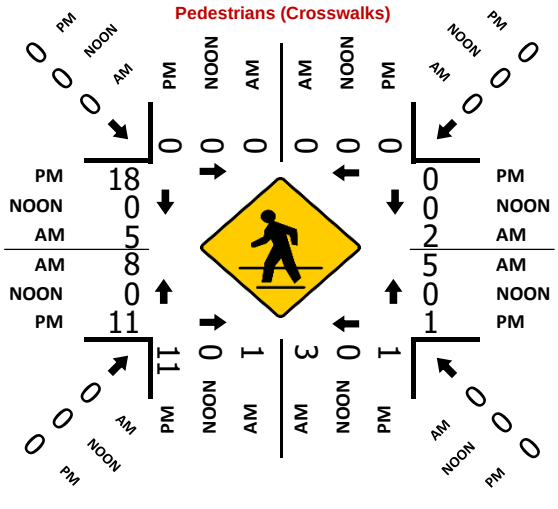
Total Vehicles (Noon)



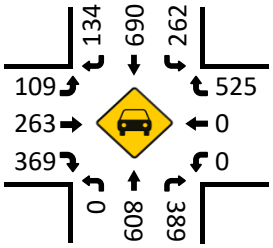
HT (NOON)



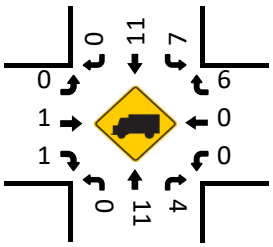
Pedestrians (Crosswalks)



Total Vehicles (PM)



HT (PM)



Prepared by National Data & Surveying Services

Chestnut Dr & W Leland Road

Peak Hour Turning Movement Count

ID: 18-08487-010
City: Pittsburg

Day: Wednesday
Date: 09/26/2018

PEAK HOURS

AM: 07:15 AM - 08:15 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

Chestnut Dr — SOUTHBOUND

AM	11	0	4	0	10	AM
NOON	0	0	0	0	0	NOON
PM	4	0	1	0	4	PM

W Leland Road — EASTBOUND

AM	NOON	PM		
1902	0	462	⇦	
0	0	0	↶	0
6	0	4	↱	1
318	0	879	→	2
18	0	25	↳	0
AM	NOON	PM		

W Leland Road — WESTBOUND

PM	NOON	AM		
0	0	3	↰	0
438	0	1802	←	2
2	0	1	↰	1
0	0	0	↶	0
885	0	325	⇨	
PM	NOON	AM		

Chestnut Dr — NORTHBOUND

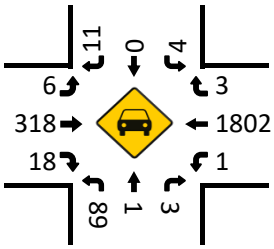
PM	27	0	20	0	5	PM
NOON	0	0	0	0	0	NOON
AM	19	0	89	1	3	AM

	0	1	0	0
	0	0	1	0

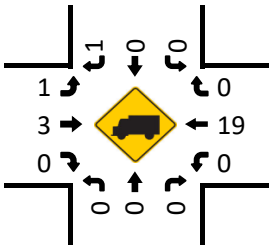
CONTROL: Signalized

		AM	NOON	PM
TEV	2256		0	1378
PHF	0.94			0.89

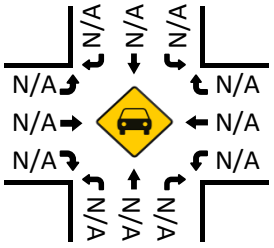
Total Vehicles (AM)



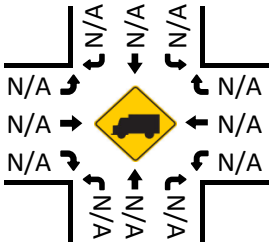
HT (AM)



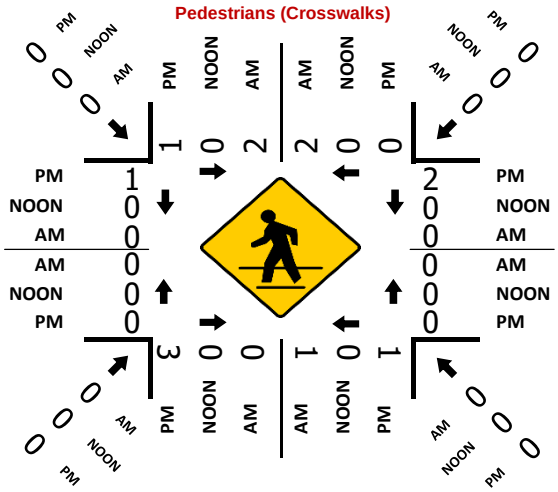
Total Vehicles (Noon)



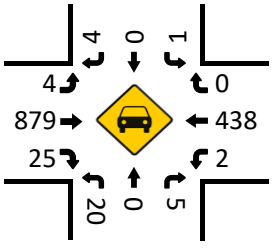
HT (NOON)



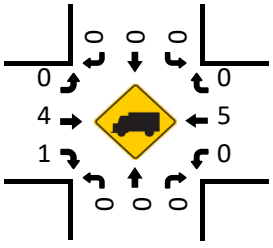
Pedestrians (Crosswalks)



Total Vehicles (PM)



HT (PM)



Prepared by National Data & Surveying Services

Bailey Rd & Myrtle Dr

Peak Hour Turning Movement Count

ID: 18-08487-011
City: Concord

Day: Wednesday
Date: 09/26/2018

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

Bailey Rd — SOUTHBOUND

AM	0	998	202	0	309	AM
NOON	0	0	0	0	0	NOON
PM	0	274	23	0	880	PM
	0	1	0	0		

Myrtle Dr — EASTBOUND

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

CONTROL

1-Way Stop(WB)

	AM	NOON	PM
TEV	1593	0	1242
PHF	0.94		0.94

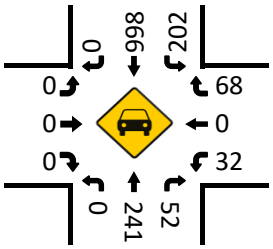
Myrtle Dr — WESTBOUND

	PM	NOON	AM
0	60	0	68
1	0	0	0
0	17	0	32
0	0	0	0
	71	0	254
	PM	NOON	AM

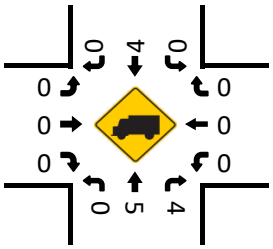
		0	0	1	0	
PM	291	0	0	820	48	PM
NOON	0	0	0	0	0	NOON
AM	1030	0	0	241	52	AM

NORTHBOUND — Bailey Rd

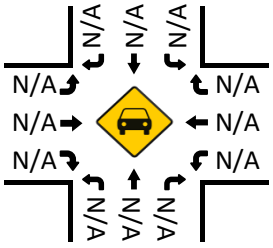
Total Vehicles (AM)



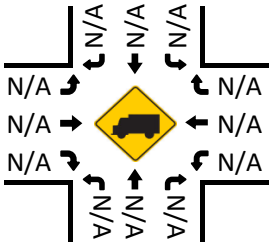
HT (AM)



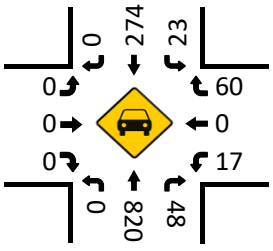
Total Vehicles (Noon)



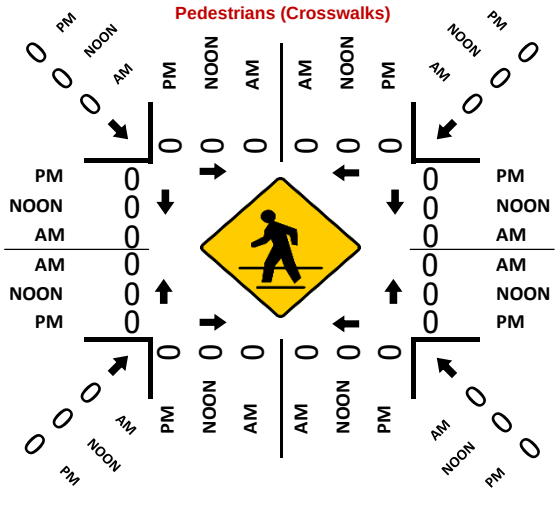
HT (NOON)



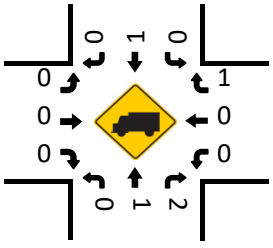
Total Vehicles (PM)



Pedestrians (Crosswalks)



HT (PM)



Prepared by National Data & Surveying Services

Bailey Rd & Concord Blvd

Peak Hour Turning Movement Count

ID: 18-08487-012
City: Concord

Day: Wednesday
Date: 09/26/2018

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

Bailey Rd — SOUTHBOUND

AM	566	287	101	0	326	AM
NOON	0	0	0	0	0	NOON
PM	95	139	78	0	872	PM
	1	1	0	0		

Concord Blvd — EASTBOUND

AM	NOON	PM	
1650	0	475	
0	0	0	0
127	0	388	1
324	0	748	2
72	0	64	0
AM	NOON	PM	

CONTROL

Signalized

TEV	2898	0	2433
	AM	NOON	PM
PHF	0.95		0.95

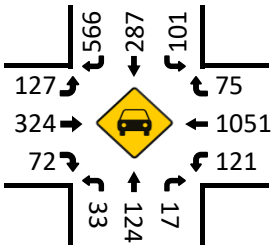
Concord Blvd — WESTBOUND

	PM	NOON	AM
0	114	0	75
2	341	0	1051
1	28	0	121
0	0	0	0
	855	0	442
	PM	NOON	AM

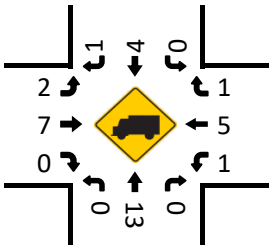
Bailey Rd — NORTHBOUND

	0	0	1	0		
PM	231	0	39	370	29	PM
NOON	0	0	0	0	0	NOON
AM	480	0	33	124	17	AM

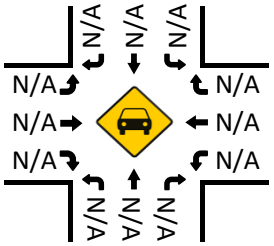
Total Vehicles (AM)



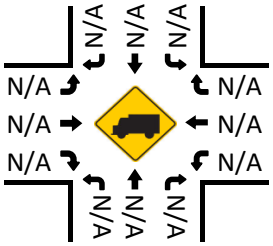
HT (AM)



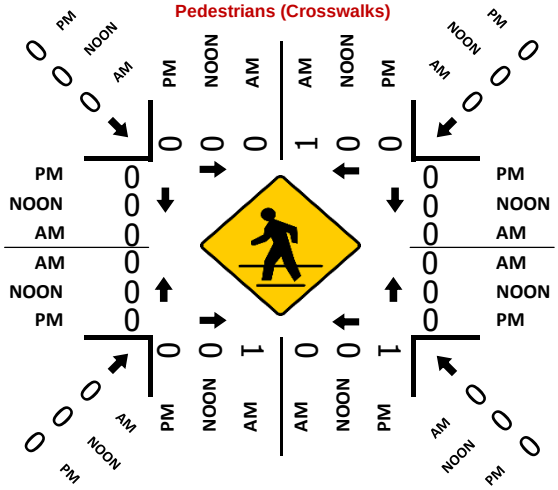
Total Vehicles (Noon)



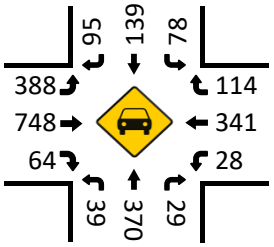
HT (NOON)



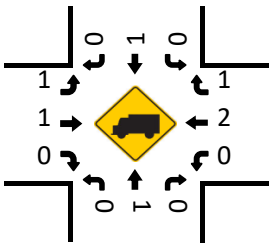
Pedestrians (Crosswalks)



Total Vehicles (PM)



HT (PM)



Prepared by National Data & Surveying Services

Willow Pass Rd & Avila Rd

Peak Hour Turning Movement Count

ID: 18-08487-013
City: Concord

Day: Wednesday
Date: 09/26/2018

PEAK HOURS	COUNT PERIODS
07:15 AM - 08:15 AM	07:00 AM - 09:00 AM
NONE	NONE
04:45 PM - 05:45 PM	04:00 PM - 06:00 PM

SOUTHBOUND — Willow Pass Rd

AM	0	1217	6	0	594	AM
NOON	0	0	0	0	0	NOON
PM	0	414	13	1	1603	PM

EASTBOUND — Avila Rd

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

WESTBOUND — Avila Rd

PM	NOON	AM	
13	0	11	0
0	0	0	1
6	0	1	0
0	0	0	0
13	0	7	
PM	NOON	AM	

NORTHBOUND — Willow Pass Rd

PM	421	1	0	1589	0	PM
NOON	0	0	0	0	0	NOON
AM	1219	1	0	583	1	AM

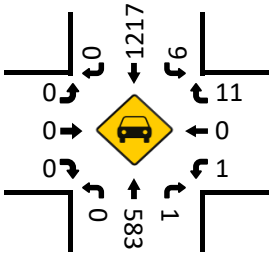
0	2	0	0
0	0	2	0

CONTROL

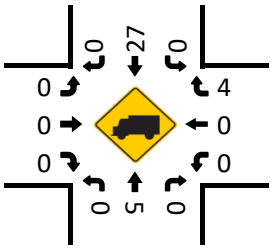
1-Way Stop(WB)

TEV	1820	0	2037
	AM	NOON	PM
PHF	0.94		0.96

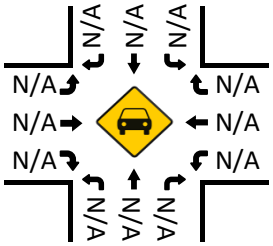
Total Vehicles (AM)



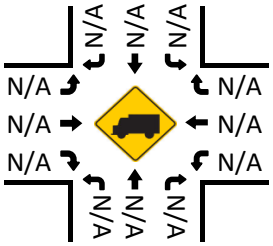
HT (AM)



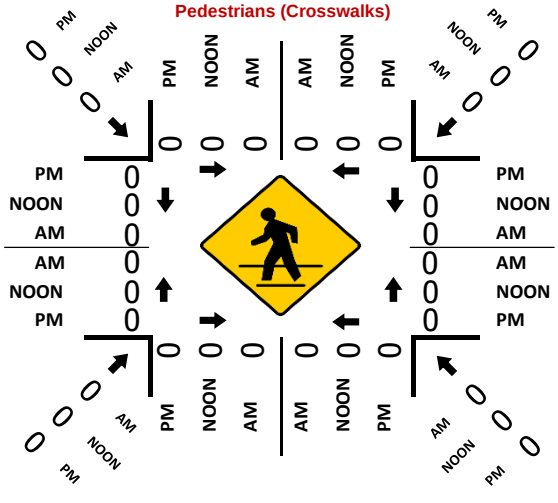
Total Vehicles (Noon)



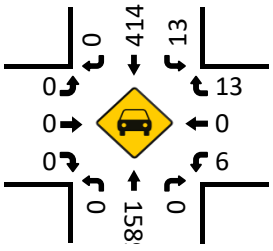
HT (NOON)



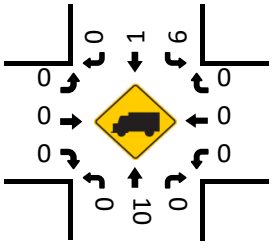
Pedestrians (Crosswalks)



Total Vehicles (PM)



HT (PM)



Appendix B: HCM 2010 LOS Worksheets

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	0	311	7	18	11	320	384	0	0	1680	175
Future Volume (veh/h)	17	0	311	7	18	11	320	384	0	0	1680	175
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	80	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	1845	1845	1845	1900	1759	1759	1845	1845	0	0	1863	1900
Adj Flow Rate, veh/h	18	0	31	7	19	1	340	409	0	0	1787	176
Adj No. of Lanes	2	0	1	0	1	1	1	3	0	0	4	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	8	8	8	3	3	0	0	2	2
Cap, veh/h	159	0	71	12	33	39	389	3741	0	0	2487	177
Arrive On Green	0.05	0.00	0.05	0.03	0.03	0.03	0.22	0.74	0.00	0.00	0.45	0.44
Sat Flow, veh/h	3514	0	1568	467	1269	1488	1757	5202	0	0	5734	510
Grp Volume(v), veh/h	18	0	31	26	0	1	340	409	0	0	1351	612
Grp Sat Flow(s),veh/h/ln	1757	0	1568	1736	0	1488	1757	1679	0	0	1304	1773
Q Serve(g_s), s	0.3	0.0	1.2	0.9	0.0	0.0	11.9	1.5	0.0	0.0	18.3	18.4
Cycle Q Clear(g_c), s	0.3	0.0	1.2	0.9	0.0	0.0	11.9	1.5	0.0	0.0	18.3	18.4
Prop In Lane	1.00		1.00	0.27		1.00	1.00		0.00	0.00		0.29
Lane Grp Cap(c), veh/h	159	0	71	46	0	39	389	3741	0	0	1801	822
V/C Ratio(X)	0.11	0.00	0.44	0.57	0.00	0.03	0.87	0.11	0.00	0.00	0.75	0.74
Avail Cap(c_a), veh/h	1106	0	494	547	0	469	553	3722	0	0	1909	865
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	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	29.6	0.0	30.1	31.1	0.0	30.7	24.3	2.3	0.0	0.0	16.1	15.6
Incr Delay (d2), s/veh	0.2	0.0	3.1	4.1	0.0	0.1	8.1	0.0	0.0	0.0	1.6	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	31.9	16.7
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.6	0.5	0.0	0.0	6.7	0.7	0.0	0.0	14.4	15.6
LnGrp Delay(d),s/veh	29.9	0.0	33.2	35.2	0.0	30.8	32.4	2.3	0.0	0.0	49.6	35.6
LnGrp LOS	C		C	D		C	C	A			D	D
Approach Vol, veh/h		49			27			749			1963	
Approach Delay, s/veh		32.0			35.0			16.0			45.3	
Approach LOS		C			D			B			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		50.9		5.7	18.1	32.8		6.9
Change Period (Y+Rc), s		5.0		4.0	4.0	5.0		4.0
Max Green Setting (Gmax), s		30.0		20.0	20.0	30.0		20.0
Max Q Clear Time (g_c+I1), s		3.5		2.9	13.9	20.4		3.2
Green Ext Time (p_c), s		2.6		0.0	0.3	7.5		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	37.1
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	254	0	212	0	0	0	0	1447	103	0	267	263
Future Volume (veh/h)	254	0	212	0	0	0	0	1447	103	0	267	263
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	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
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1827	1827				0	1881	1900	0	1881	1881
Adj Flow Rate, veh/h	276	0	53				0	1573	109	0	290	0
Adj No. of Lanes	2	0	1				0	3	0	0	2	1
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4				0	1	1	0	1	1
Cap, veh/h	574	0	256				0	2168	150	0	2228	912
Arrive On Green	0.16	0.00	0.16				0.00	0.62	0.57	0.00	0.62	0.00
Sat Flow, veh/h	3480	0	1553				0	4419	241	0	3668	1599
Grp Volume(v), veh/h	276	0	53				0	851	831	0	290	0
Grp Sat Flow(s),veh/h/ln	1740	0	1553				0	941	1838	0	1787	1599
Q Serve(g_s), s	2.7	0.0	1.1				0.0	11.7	11.9	0.0	1.3	0.0
Cycle Q Clear(g_c), s	2.7	0.0	1.1				0.0	11.7	11.9	0.0	1.3	0.0
Prop In Lane	1.00		1.00				0.00		0.13	0.00		1.00
Lane Grp Cap(c), veh/h	574	0	256				0	1172	1146	0	2228	912
V/C Ratio(X)	0.48	0.00	0.21				0.00	0.73	0.73	0.00	0.13	0.00
Avail Cap(c_a), veh/h	5114	0	2282				0	1345	1314	0	2556	1059
HCM Platoon Ratio	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	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	14.3	0.0	13.6				0.0	4.9	5.0	0.0	2.9	0.0
Incr Delay (d2), s/veh	0.6	0.0	0.4				0.0	1.7	1.7	0.0	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
%ile BackOfQ(50%),veh/ln	1.4	0.0	0.5				0.0	3.2	6.4	0.0	0.6	0.0
LnGrp Delay(d),s/veh	14.9	0.0	14.0				0.0	6.6	6.7	0.0	2.9	0.0
LnGrp LOS	B		B					A	A		A	
Approach Vol, veh/h		329						1682			290	
Approach Delay, s/veh		14.8						6.7			2.9	
Approach LOS		B						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		27.5		10.2		27.5		
Change Period (Y+Rc), s		6.0		4.5		6.0		
Max Green Setting (Gmax), s		25.0		55.0		25.0		
Max Q Clear Time (g_c+I1), s		13.9		4.7		3.3		
Green Ext Time (p_c), s		7.7		1.2		1.7		

Intersection Summary	
HCM 2010 Ctrl Delay	7.4
HCM 2010 LOS	A

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	216	46	63	234	142	809	36	440	223	204	176	16
Future Volume (veh/h)	216	46	63	234	142	809	36	440	223	204	176	16
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		0.99	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	1900	1900	1900	1881	1881	1900
Adj Flow Rate, veh/h	251	53	10	272	165	860	42	512	225	237	205	16
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	2	2	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	1	1	1	1	1	1	0	0	0	1	1	1
Cap, veh/h	293	1060	194	321	1313	587	91	641	280	330	1033	80
Arrive On Green	0.16	0.35	0.33	0.18	0.37	0.37	0.05	0.26	0.24	0.09	0.31	0.29
Sat Flow, veh/h	1792	3011	551	1792	3574	1599	1810	2443	1069	3476	3362	260
Grp Volume(v), veh/h	251	31	32	272	165	860	42	378	359	237	108	113
Grp Sat Flow(s),veh/h/ln	1792	1787	1775	1792	1787	1599	1810	1805	1707	1738	1787	1835
Q Serve(g_s), s	19.5	1.6	1.7	21.1	4.4	52.7	3.2	28.0	28.3	9.5	6.4	6.5
Cycle Q Clear(g_c), s	19.5	1.6	1.7	21.1	4.4	52.7	3.2	28.0	28.3	9.5	6.4	6.5
Prop In Lane	1.00		0.31	1.00		1.00	1.00		0.63	1.00		0.14
Lane Grp Cap(c), veh/h	293	629	625	321	1313	587	91	474	448	330	549	564
V/C Ratio(X)	0.86	0.05	0.05	0.85	0.13	1.46	0.46	0.80	0.80	0.72	0.20	0.20
Avail Cap(c_a), veh/h	393	629	625	462	1313	587	334	541	512	642	660	678
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	58.3	30.6	30.9	57.0	30.1	45.4	66.3	49.4	50.4	63.0	36.6	36.8
Incr Delay (d2), s/veh	13.1	0.0	0.0	9.8	0.0	218.0	3.6	8.3	9.0	2.9	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.8	0.8	0.9	11.3	2.2	58.9	1.7	15.0	14.5	4.7	3.2	3.3
LnGrp Delay(d),s/veh	71.4	30.7	31.0	66.8	30.1	263.4	69.9	57.6	59.4	66.0	36.9	37.1
LnGrp LOS	E	C	C	E	C	F	E	E	E	E	D	D
Approach Vol, veh/h		314			1297			779			458	
Approach Delay, s/veh		63.3			192.5			59.1			52.0	
Approach LOS		E			F			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.6	41.6	29.7	54.5	11.2	48.1	27.5	56.7
Change Period (Y+Rc), s	5.5	7.0	6.0	6.7	5.5	7.0	5.5	6.7
Max Green Setting (Gmax), s	25.0	40.0	35.0	40.0	25.0	50.0	30.0	50.0
Max Q Clear Time (g_c+I1), s	11.5	30.3	23.1	3.7	5.2	8.5	21.5	54.7
Green Ext Time (p_c), s	0.6	4.3	0.6	0.3	0.1	2.0	0.4	0.0

Intersection Summary		
HCM 2010 Ctrl Delay		119.2
HCM 2010 LOS		F

Notes

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	451	22	0	1209	0	17
Future Vol, veh/h	451	22	0	1209	0	17
Conflicting Peds, #/hr	0	5	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	86	86	86	86	86	86
Heavy Vehicles, %	0	0	1	1	0	0
Mvmt Flow	524	26	0	1406	0	20

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	280
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	-	-	0	-	0	723
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	720
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	10.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	720	-	-	-
HCM Lane V/C Ratio	0.027	-	-	-
HCM Control Delay (s)	10.1	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.1	-	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	415	30	30	1076	0	115	0	94	0	0	0
Future Volume (veh/h)	10	415	30	30	1076	0	115	0	94	0	0	0
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	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	1900	1900	1881	1881	1900	1900	1900	1900	1863	1863	1900
Adj Flow Rate, veh/h	12	494	21	36	1281	0	137	0	29	0	0	0
Adj No. of Lanes	1	2	1	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	0	0	0	1	1	1	0	0	0	2	2	2
Cap, veh/h	75	1894	822	135	1995	0	253	302	256	4	4	0
Arrive On Green	0.04	0.52	0.52	0.08	0.56	0.00	0.14	0.00	0.16	0.00	0.00	0.00
Sat Flow, veh/h	1810	3610	1568	1792	3668	0	1810	1900	1612	1774	1863	0
Grp Volume(v), veh/h	12	494	21	36	1281	0	137	0	29	0	0	0
Grp Sat Flow(s),veh/h/ln	1810	1805	1568	1792	1787	0	1810	1900	1612	1774	1863	0
Q Serve(g_s), s	0.3	3.7	0.3	0.9	12.3	0.0	3.5	0.0	0.8	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.3	3.7	0.3	0.9	12.3	0.0	3.5	0.0	0.8	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	75	1894	822	135	1995	0	253	302	256	4	4	0
V/C Ratio(X)	0.16	0.26	0.03	0.27	0.64	0.00	0.54	0.00	0.11	0.00	0.00	0.00
Avail Cap(c_a), veh/h	946	3464	1504	937	3429	0	946	1781	1511	928	1746	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)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	23.0	6.5	5.7	21.7	7.6	0.0	19.9	0.0	17.9	0.0	0.0	0.0
Incr Delay (d2), s/veh	1.0	0.1	0.0	1.0	0.3	0.0	1.8	0.0	0.2	0.0	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	0.2	1.9	0.1	0.5	6.0	0.0	1.9	0.0	0.4	0.0	0.0	0.0
LnGrp Delay(d),s/veh	24.0	6.6	5.7	22.7	7.9	0.0	21.7	0.0	18.1	0.0	0.0	0.0
LnGrp LOS	C	A	A	C	A		C		B			
Approach Vol, veh/h		527			1317			166			0	
Approach Delay, s/veh		6.9			8.3			21.1			0.0	
Approach LOS		A			A			C				

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.1	31.8	0.0	11.9	7.7	30.1	10.9	0.9
Change Period (Y+Rc), s	5.0	6.7	5.0	5.6	5.0	6.7	5.0	5.6
Max Green Setting (Gmax), s	25.0	45.0	25.0	45.0	25.0	45.0	25.0	45.0
Max Q Clear Time (g_c+I1), s	2.3	14.3	0.0	2.8	2.9	5.7	5.5	0.0
Green Ext Time (p_c), s	0.0	10.5	0.0	0.1	0.1	3.3	0.3	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	9.0
HCM 2010 LOS	A

Notes

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	532	49	19	868	112	42
Future Volume (veh/h)	532	49	19	868	112	42
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.96	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	1900	1881	1881	1900	1900
Adj Flow Rate, veh/h	605	51	22	986	127	6
Adj No. of Lanes	2	0	1	2	1	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	1	1	1	1	0	0
Cap, veh/h	2461	207	75	2912	178	159
Arrive On Green	0.74	0.71	0.01	0.27	0.10	0.10
Sat Flow, veh/h	3420	280	1792	3668	1810	1615
Grp Volume(v), veh/h	325	331	22	986	127	6
Grp Sat Flow(s),veh/h/ln	1787	1819	1792	1787	1810	1615
Q Serve(g_s), s	5.8	5.9	1.2	22.2	6.8	0.3
Cycle Q Clear(g_c), s	5.8	5.9	1.2	22.2	6.8	0.3
Prop In Lane		0.15	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1322	1346	75	2912	178	159
V/C Ratio(X)	0.25	0.25	0.29	0.34	0.71	0.04
Avail Cap(c_a), veh/h	1322	1346	215	2912	380	339
HCM Platoon Ratio	1.00	1.00	0.33	0.33	1.00	1.00
Upstream Filter(I)	0.99	0.99	0.91	0.91	1.00	1.00
Uniform Delay (d), s/veh	4.1	4.2	47.8	14.9	43.7	40.8
Incr Delay (d2), s/veh	0.4	0.4	1.9	0.3	5.3	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	3.0	3.1	0.6	11.1	3.6	0.2
LnGrp Delay(d),s/veh	4.6	4.6	49.8	15.2	49.0	40.9
LnGrp LOS	A	A	D	B	D	D
Approach Vol, veh/h	656			1008	133	
Approach Delay, s/veh	4.6			15.9	48.6	
Approach LOS	A			B	D	

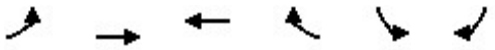
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	8.2	78.0				86.2		13.8
Change Period (Y+Rc), s	5.0	6.7				* 6.7		5.0
Max Green Setting (Gmax), s	1.6	52.3				* 69		20.0
Max Q Clear Time (g_c+I1), s	3.2	7.9				24.2		8.8
Green Ext Time (p_c), s	0.0	6.1				12.7		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	14.2
HCM 2010 LOS	B

Notes

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	501	73	34	763	124	103
Future Volume (vph)	501	73	34	763	124	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0		4.0	4.0	4.0	
Lane Util. Factor	0.95		1.00	0.95	1.00	
Frpb, ped/bikes	0.99		1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00	1.00	1.00	
Frt	0.98		1.00	1.00	0.94	
Flt Protected	1.00		0.95	1.00	0.97	
Satd. Flow (prot)	3478		1787	3574	1736	
Flt Permitted	1.00		0.95	1.00	0.97	
Satd. Flow (perm)	3478		1787	3574	1736	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	557	81	38	848	138	114
RTOR Reduction (vph)	9	0	0	0	30	0
Lane Group Flow (vph)	629	0	38	848	222	0
Confl. Peds. (#/hr)		18				
Confl. Bikes (#/hr)		5				
Heavy Vehicles (%)	1%	1%	1%	1%	0%	0%
Turn Type	NA		Prot	NA	Prot	
Protected Phases	2		1	6 3	7	
Permitted Phases						
Actuated Green, G (s)	40.6		8.6	73.3	16.6	
Effective Green, g (s)	42.6		9.6	74.3	17.6	
Actuated g/C Ratio	0.43		0.10	0.74	0.18	
Clearance Time (s)	5.0		5.0		5.0	
Vehicle Extension (s)	3.0		3.0		3.0	
Lane Grp Cap (vph)	1481		171	2655	305	
v/s Ratio Prot	c0.18		0.02	c0.24	c0.13	
v/s Ratio Perm						
v/c Ratio	0.42		0.22	0.32	0.73	
Uniform Delay, d1	20.1		41.8	4.3	38.9	
Progression Factor	0.78		1.22	0.15	1.00	
Incremental Delay, d2	0.9		0.6	0.1	8.3	
Delay (s)	16.6		51.4	0.7	47.3	
Level of Service	B		D	A	D	
Approach Delay (s)	16.6			2.9	47.3	
Approach LOS	B			A	D	

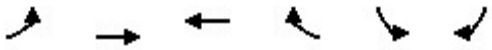
Intersection Summary			
HCM 2000 Control Delay	14.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.1
Intersection Capacity Utilization	48.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	604	709	0	79	88
Future Volume (vph)	0	604	709	0	79	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	4.0		4.0	4.0
Lane Util. Factor		0.95	*0.70		1.00	1.00
Frpb, ped/bikes		1.00	1.00		1.00	1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3574	3950		1736	1553
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3574	3950		1736	1553
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	643	754	0	84	94
RTOR Reduction (vph)	0	0	0	0	0	80
Lane Group Flow (vph)	0	643	754	0	84	14
Confl. Peds. (#/hr)					35	
Heavy Vehicles (%)	1%	1%	1%	1%	4%	4%
Turn Type		NA	NA		Prot	Perm
Protected Phases		2 1 7	6		3	
Permitted Phases						3
Actuated Green, G (s)		75.8	54.2		14.1	14.1
Effective Green, g (s)		77.8	55.2		15.2	15.2
Actuated g/C Ratio		0.78	0.55		0.15	0.15
Clearance Time (s)			5.0		5.1	5.1
Vehicle Extension (s)			3.0		3.0	3.0
Lane Grp Cap (vph)		2780	2180		263	236
v/s Ratio Prot		c0.18	c0.19		c0.05	
v/s Ratio Perm						0.01
v/c Ratio		0.23	0.35		0.32	0.06
Uniform Delay, d1		3.0	12.4		37.8	36.3
Progression Factor		0.21	0.58		1.00	1.00
Incremental Delay, d2		0.0	0.4		0.7	0.1
Delay (s)		0.7	7.6		38.5	36.4
Level of Service		A	A		D	D
Approach Delay (s)		0.7	7.6		37.4	
Approach LOS		A	A		D	

Intersection Summary			
HCM 2000 Control Delay	8.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	29.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	138	545	709	262	0	0
Future Volume (vph)	138	545	709	262	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0			
Lane Util. Factor	1.00	0.95	0.95			
Frpb, ped/bikes	1.00	1.00	0.99			
Flpb, ped/bikes	1.00	1.00	1.00			
Frt	1.00	1.00	0.96			
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	1787	3574	3373			
Flt Permitted	0.95	1.00	1.00			
Satd. Flow (perm)	1787	3574	3373			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	150	592	771	285	0	0
RTOR Reduction (vph)	0	0	21	0	0	0
Lane Group Flow (vph)	150	592	1035	0	0	0
Confl. Peds. (#/hr)				7	10	
Confl. Bikes (#/hr)				2		
Heavy Vehicles (%)	1%	1%	2%	2%	2%	2%
Turn Type	Prot	NA	NA			
Protected Phases	5	2	6			
Permitted Phases						
Actuated Green, G (s)	10.9	85.4	69.9			
Effective Green, g (s)	11.5	86.0	70.5			
Actuated g/C Ratio	0.12	0.86	0.70			
Clearance Time (s)	4.6	4.6	4.6			
Vehicle Extension (s)	3.0	3.0	3.0			
Lane Grp Cap (vph)	205	3073	2377			
v/s Ratio Prot	c0.08	0.17	c0.31			
v/s Ratio Perm						
v/c Ratio	0.73	0.19	0.44			
Uniform Delay, d1	42.8	1.2	6.3			
Progression Factor	0.78	2.75	0.78			
Incremental Delay, d2	12.5	0.1	0.6			
Delay (s)	45.9	3.4	5.5			
Level of Service	D	A	A			
Approach Delay (s)		12.0	5.5		0.0	
Approach LOS		B	A		A	

Intersection Summary			
HCM 2000 Control Delay	8.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.6
Intersection Capacity Utilization	42.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	520	25	90	930	41	198
Future Volume (veh/h)	520	25	90	930	41	198
Number	2	12	1	6	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1900	1863	1863	1863	1900
Adj Flow Rate, veh/h	553	25	96	989	44	28
Adj No. of Lanes	2	0	1	2	0	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	0	0
Cap, veh/h	2371	107	152	2879	107	68
Arrive On Green	0.23	0.22	0.09	0.81	0.11	0.10
Sat Flow, veh/h	3540	156	1774	3632	1008	641
Grp Volume(v), veh/h	284	294	96	989	73	0
Grp Sat Flow(s),veh/h/ln	1770	1832	1774	1770	1672	0
Q Serve(g_s), s	13.1	13.1	5.2	7.2	4.1	0.0
Cycle Q Clear(g_c), s	13.1	13.1	5.2	7.2	4.1	0.0
Prop In Lane		0.08	1.00		0.60	0.38
Lane Grp Cap(c), veh/h	1218	1261	152	2879	178	0
V/C Ratio(X)	0.23	0.23	0.63	0.34	0.41	0.00
Avail Cap(c_a), veh/h	1218	1261	284	2879	518	0
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.99	0.99	0.62	0.62	1.00	0.00
Uniform Delay (d), s/veh	17.1	17.1	44.2	2.4	41.9	0.0
Incr Delay (d2), s/veh	0.4	0.4	2.7	0.2	1.5	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	6.6	6.8	2.7	3.5	2.0	0.0
LnGrp Delay(d),s/veh	17.6	17.6	46.9	2.6	43.4	0.0
LnGrp LOS	B	B	D	A	D	
Approach Vol, veh/h	578			1085	73	
Approach Delay, s/veh	17.6			6.5	43.4	
Approach LOS	B			A	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	12.5	72.8		14.7		85.3		
Change Period (Y+Rc), s	5.1	5.5		5.1		5.5		
Max Green Setting (Gmax), s	14.9	39.5		29.9		59.5		
Max Q Clear Time (g_c+I1), s	7.2	15.1		6.1		9.2		
Green Ext Time (p_c), s	0.1	3.5		0.2		8.7		

Intersection Summary	
HCM 2010 Ctrl Delay	11.8
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	283	338	127	546	497	245	89	485	193
Future Volume (veh/h)	0	0	0	283	338	127	546	497	245	89	485	193
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.98	1.00		0.99	1.00		0.97
Parking Bus, Adj				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	1900	1900	1845	1845	1900	1863	1863	1900
Adj Flow Rate, veh/h				295	352	132	569	518	198	93	505	201
Adj No. of Lanes				0	2	0	2	3	0	1	2	0
Peak Hour Factor				0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				0	0	0	3	3	3	2	2	2
Cap, veh/h				338	430	166	656	2092	774	124	1118	442
Arrive On Green				0.26	0.26	0.25	0.19	0.58	0.57	0.07	0.46	0.45
Sat Flow, veh/h				1305	1658	641	3408	3618	1338	1774	2452	970
Grp Volume(v), veh/h				415	0	364	569	479	237	93	364	342
Grp Sat Flow(s),veh/h/ln				1835	0	1770	1704	1679	1599	1774	1770	1652
Q Serve(g_s), s				28.1	0.0	25.0	21.0	9.1	9.7	6.7	18.3	18.6
Cycle Q Clear(g_c), s				28.1	0.0	25.0	21.0	9.1	9.7	6.7	18.3	18.6
Prop In Lane				0.71		0.36	1.00		0.84	1.00		0.59
Lane Grp Cap(c), veh/h				476	0	459	656	1942	925	124	807	753
V/C Ratio(X)				0.87	0.00	0.79	0.87	0.25	0.26	0.75	0.45	0.45
Avail Cap(c_a), veh/h				594	0	573	1224	1942	925	237	807	753
HCM Platoon Ratio				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
Uniform Delay (d), s/veh				46.1	0.0	45.1	50.9	13.5	13.8	59.3	24.2	24.5
Incr Delay (d2), s/veh				9.8	0.0	4.8	2.0	0.3	0.7	3.4	1.8	2.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				15.6	0.0	12.9	10.1	4.3	4.4	3.4	9.3	8.9
LnGrp Delay(d),s/veh				55.8	0.0	49.9	52.9	13.8	14.5	62.7	26.0	26.5
LnGrp LOS				E		D	D	B	B	E	C	C
Approach Vol, veh/h					779			1285			799	
Approach Delay, s/veh					53.0			31.2			30.5	
Approach LOS					D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2			5	6		8
Phs Duration (G+Y+Rc), s	13.1	79.2			29.0	63.3		37.7
Change Period (Y+Rc), s	* 4.7	5.1			* 4.7	5.1		5.1
Max Green Setting (Gmax), s	13.3	57.4			* 46	28.1		41.0
Max Q Clear Time (g_c+I1), s	8.7	11.7			23.0	20.6		30.1
Green Ext Time (p_c), s	0.0	5.7			1.3	2.6		2.5

Intersection Summary	
HCM 2010 Ctrl Delay	37.0
HCM 2010 LOS	D

Notes

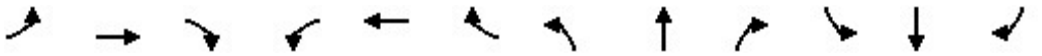
Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	217	0	0	84	0	1204	0	0	768	0
Future Vol, veh/h	0	0	217	0	0	84	0	1204	0	0	768	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	10	0	0	0
Sign Control	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	4	4	4	3	3	3	2	2	2
Mvmt Flow	0	0	228	0	0	88	0	1267	0	0	808	0

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	-	-	634	-	0	-	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.18	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.94	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	358	0	-	0	0	-	0
Stage 1	0	0	-	0	-	0	0	-	0
Stage 2	0	0	-	0	-	0	0	-	0
Platoon blocked, %					-			-	
Mov Cap-1 Maneuver	-	0	358	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	0	-	-	-	-	-	-	-
Stage 1	-	0	-	-	-	-	-	-	-
Stage 2	-	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.3	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	358	-
HCM Lane V/C Ratio	-	0.247	-
HCM Control Delay (s)	-	18.3	-
HCM Lane LOS	-	C	-
HCM 95th %tile Q(veh)	-	1	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	52	48	187	0	0	214	0	938	263	210	577	198
Future Volume (vph)	52	48	187	0	0	214	0	938	263	210	577	198
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0			4.0		4.0	2.0	4.0	2.0	2.0
Lane Util. Factor		0.95	1.00			1.00		0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes		1.00	0.99			1.00		1.00	0.97	1.00	1.00	0.93
Flpb, ped/bikes		1.00	1.00			1.00		1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.85			0.85		1.00	0.85	1.00	1.00	0.85
Flt Protected		0.97	1.00			1.00		1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		3350	1520			1568		3505	1528	3433	3539	1479
Flt Permitted		0.97	1.00			1.00		1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		3350	1520			1568		3505	1528	3433	3539	1479
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	54	49	193	0	0	221	0	967	271	216	595	204
RTOR Reduction (vph)	0	0	147	0	0	0	0	0	64	0	0	60
Lane Group Flow (vph)	0	103	46	0	0	221	0	967	207	216	595	144
Confl. Peds. (#/hr)			4						7			13
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	3%	3%	3%	2%	2%	2%
Turn Type	Split	NA	custom			custom		NA	custom	Prot	NA	custom
Protected Phases	4!	4	5	3!	3!	1 2 4!		2 3!	3	1	3 6!	3!
Permitted Phases			4						2			6
Actuated Green, G (s)		16.2	22.2			107.7		89.3	84.3	12.5	94.8	89.8
Effective Green, g (s)		17.2	24.2			102.7		90.3	86.3	12.5	91.8	91.8
Actuated g/C Ratio		0.13	0.19			0.79		0.69	0.66	0.10	0.71	0.71
Clearance Time (s)		5.0	5.0						3.0	4.0		3.0
Vehicle Extension (s)		2.0	2.0						2.0	2.0		2.0
Lane Grp Cap (vph)		443	329			1238		2434	1014	330	2499	1044
v/s Ratio Prot		c0.03	0.01			0.14		c0.28	0.02	c0.06	0.17	0.02
v/s Ratio Perm			0.02						0.11			0.08
v/c Ratio		0.23	0.14			0.18		0.40	0.20	0.65	0.24	0.14
Uniform Delay, d1		50.5	44.2			3.3		8.4	8.5	56.7	6.7	6.2
Progression Factor		1.00	1.00			1.00		1.00	1.00	0.89	1.28	2.85
Incremental Delay, d2		0.1	0.1			0.0		0.0	0.0	3.2	0.0	0.0
Delay (s)		50.6	44.3			3.4		8.4	8.5	53.5	8.6	17.7
Level of Service		D	D			A		A	A	D	A	B
Approach Delay (s)		46.5			3.4			8.4			20.0	
Approach LOS		D			A			A			C	

Intersection Summary			
HCM 2000 Control Delay	16.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	61.1%	ICU Level of Service	B
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	178	124	364	293	887	613	74	202	19	166	413	92
Future Volume (veh/h)	178	124	364	293	887	613	74	202	19	166	413	92
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		0.97	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1881	1881	1881	1792	1792	1900	1810	1810	1810
Adj Flow Rate, veh/h	189	132	100	312	944	437	79	215	16	177	439	29
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	2	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	1	1	1	6	6	6	5	5	5
Cap, veh/h	240	561	395	365	1277	555	119	874	65	285	520	441
Arrive On Green	0.14	0.28	0.27	0.20	0.36	0.36	0.07	0.27	0.26	0.09	0.29	0.29
Sat Flow, veh/h	1774	1985	1400	1792	3574	1554	1707	3213	237	3343	1810	1535
Grp Volume(v), veh/h	189	117	115	312	944	437	79	113	118	177	439	29
Grp Sat Flow(s),veh/h/ln	1774	1770	1616	1792	1787	1554	1707	1703	1747	1672	1810	1535
Q Serve(g_s), s	11.0	5.4	6.0	17.9	24.6	26.8	4.8	5.5	5.6	5.5	24.3	1.5
Cycle Q Clear(g_c), s	11.0	5.4	6.0	17.9	24.6	26.8	4.8	5.5	5.6	5.5	24.3	1.5
Prop In Lane	1.00		0.87	1.00		1.00	1.00		0.14	1.00		1.00
Lane Grp Cap(c), veh/h	240	500	456	365	1277	555	119	463	475	285	520	441
V/C Ratio(X)	0.79	0.23	0.25	0.85	0.74	0.79	0.66	0.24	0.25	0.62	0.84	0.07
Avail Cap(c_a), veh/h	434	855	780	556	1549	673	498	663	680	1069	721	612
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	44.6	29.4	30.1	40.9	29.9	30.6	48.4	30.3	30.4	47.1	35.7	27.6
Incr Delay (d2), s/veh	5.7	0.2	0.3	8.1	1.5	5.1	6.2	0.3	0.3	2.2	6.6	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	5.8	2.7	2.7	9.7	12.3	12.3	2.5	2.6	2.8	2.6	13.1	0.6
LnGrp Delay(d),s/veh	50.3	29.6	30.4	49.0	31.4	35.7	54.6	30.5	30.6	49.3	42.3	27.6
LnGrp LOS	D	C	C	D	C	D	D	C	C	D	D	C
Approach Vol, veh/h		421			1693			310			645	
Approach Delay, s/veh		39.1			35.8			36.7			43.6	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.1	33.0	25.7	34.8	11.4	34.7	18.4	42.1
Change Period (Y+Rc), s	5.1	5.5	5.1	* 6.2	5.1	5.5	5.1	6.2
Max Green Setting (Gmax), s	33.0	40.0	32.0	* 50	30.0	41.0	25.0	44.0
Max Q Clear Time (g_c+I1), s	7.5	7.6	19.9	8.0	6.8	26.3	13.0	28.8
Green Ext Time (p_c), s	0.6	1.4	0.7	1.4	0.2	2.5	0.4	7.1

Intersection Summary	
HCM 2010 Ctrl Delay	38.0
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	318	18	1	1802	3	89	1	3	4	0	11
Future Volume (veh/h)	6	318	18	1	1802	3	89	1	3	4	0	11
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	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	1900	1900	1900	1900	1776	1900
Adj Flow Rate, veh/h	6	338	16	1	1917	3	95	1	1	4	0	1
Adj No. of Lanes	1	2	0	1	2	0	0	1	1	0	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	1	1	1	1	1	0	0	0	7	7	7
Cap, veh/h	19	2076	98	3	2158	3	493	5	470	334	6	70
Arrive On Green	0.01	0.60	0.58	0.00	0.59	0.57	0.29	0.29	0.29	0.29	0.00	0.29
Sat Flow, veh/h	1792	3471	164	1792	3661	6	1470	17	1615	944	21	241
Grp Volume(v), veh/h	6	173	181	1	935	985	96	0	1	5	0	0
Grp Sat Flow(s),veh/h/ln	1792	1787	1848	1792	1787	1880	1487	0	1615	1207	0	0
Q Serve(g_s), s	0.4	4.8	4.8	0.1	49.6	49.7	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.4	4.8	4.8	0.1	49.6	49.7	4.5	0.0	0.0	4.5	0.0	0.0
Prop In Lane	1.00		0.09	1.00		0.00	0.99		1.00	0.80		0.20
Lane Grp Cap(c), veh/h	19	1069	1105	3	1053	1108	498	0	470	410	0	0
V/C Ratio(X)	0.31	0.16	0.16	0.29	0.89	0.89	0.19	0.00	0.00	0.01	0.00	0.00
Avail Cap(c_a), veh/h	195	1069	1105	195	1053	1108	498	0	470	410	0	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)	0.87	0.87	0.87	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	54.0	9.8	9.9	54.8	19.5	19.5	29.3	0.0	27.7	27.9	0.0	0.0
Incr Delay (d2), s/veh	7.9	0.3	0.3	41.3	11.1	10.7	0.9	0.0	0.0	0.0	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	0.2	2.4	2.5	0.1	27.4	28.7	2.3	0.0	0.0	0.1	0.0	0.0
LnGrp Delay(d),s/veh	61.9	10.1	10.2	96.1	30.6	30.2	30.1	0.0	27.7	27.9	0.0	0.0
LnGrp LOS	E	B	B	F	C	C	C		C	C		
Approach Vol, veh/h		360			1921			97			5	
Approach Delay, s/veh		11.0			30.4			30.1			27.9	
Approach LOS		B			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.2	69.8		36.0	5.2	68.8		36.0
Change Period (Y+Rc), s	4.0	5.7		4.6	4.0	5.7		4.6
Max Green Setting (Gmax), s	12.6	52.3		31.4	12.0	52.3		31.4
Max Q Clear Time (g_c+I1), s	2.1	6.8		6.5	2.4	51.7		6.5
Green Ext Time (p_c), s	0.0	2.0		0.0	0.0	0.6		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	27.5
HCM 2010 LOS	C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	32	68	241	52	202	998
Future Volume (Veh/h)	32	68	241	52	202	998
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	34	72	256	55	215	1062
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1776	284			311	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1776	284			311	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	55	91			83	
cM capacity (veh/h)	76	760			1261	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	106	311	1277
Volume Left	34	0	215
Volume Right	72	55	0
cSH	196	1700	1261
Volume to Capacity	0.54	0.18	0.17
Queue Length 95th (ft)	71	0	15
Control Delay (s)	43.1	0.0	4.6
Lane LOS	E		A
Approach Delay (s)	43.1	0.0	4.6
Approach LOS	E		

Intersection Summary			
Average Delay		6.2	
Intersection Capacity Utilization		95.5%	ICU Level of Service F
Analysis Period (min)		15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	127	324	72	121	1051	75	33	124	17	101	287	566
Future Volume (veh/h)	127	324	72	121	1051	75	33	124	17	101	287	566
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1881	1881	1900	1900	1776	1900	1900	1881	1881
Adj Flow Rate, veh/h	134	341	65	127	1106	76	35	131	15	106	302	198
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	1	1	1	7	7	7	1	1	1
Cap, veh/h	172	1145	216	165	1288	88	44	164	19	122	346	403
Arrive On Green	0.10	0.39	0.38	0.09	0.38	0.38	0.13	0.13	0.13	0.25	0.25	0.25
Sat Flow, veh/h	1774	2972	560	1792	3388	233	335	1255	144	482	1375	1599
Grp Volume(v), veh/h	134	202	204	127	583	599	181	0	0	408	0	198
Grp Sat Flow(s),veh/h/ln	1774	1770	1763	1792	1787	1834	1734	0	0	1857	0	1599
Q Serve(g_s), s	8.4	9.0	9.2	7.9	34.2	34.3	11.6	0.0	0.0	24.0	0.0	12.1
Cycle Q Clear(g_c), s	8.4	9.0	9.2	7.9	34.2	34.3	11.6	0.0	0.0	24.0	0.0	12.1
Prop In Lane	1.00		0.32	1.00		0.13	0.19		0.08	0.26		1.00
Lane Grp Cap(c), veh/h	172	682	679	165	680	697	227	0	0	468	0	403
V/C Ratio(X)	0.78	0.30	0.30	0.77	0.86	0.86	0.80	0.00	0.00	0.87	0.00	0.49
Avail Cap(c_a), veh/h	404	791	788	408	799	820	547	0	0	586	0	504
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	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	50.4	24.3	24.5	50.6	32.5	32.6	48.1	0.0	0.0	40.9	0.0	36.4
Incr Delay (d2), s/veh	7.5	0.2	0.2	7.4	8.2	8.1	6.3	0.0	0.0	11.5	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	4.5	4.5	4.3	18.4	18.9	5.9	0.0	0.0	13.8	0.0	5.4
LnGrp Delay(d),s/veh	57.8	24.6	24.7	58.1	40.7	40.6	54.5	0.0	0.0	52.4	0.0	37.4
LnGrp LOS	E	C	C	E	D	D	D			D		D
Approach Vol, veh/h		540			1309			181			606	
Approach Delay, s/veh		32.9			42.4			54.5			47.5	
Approach LOS		C			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	14.5	48.0		32.7	15.0	47.4		18.9
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	25.5	50.5		35.5	25.5	50.5		35.5
Max Q Clear Time (g_c+I1), s	9.9	11.2		26.0	10.4	36.3		13.6
Green Ext Time (p_c), s	0.3	2.5		2.2	0.3	6.6		0.9

Intersection Summary	
HCM 2010 Ctrl Delay	42.4
HCM 2010 LOS	D

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	11	584	1	6	1217
Future Vol, veh/h	1	11	584	1	6	1217
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	-	-	350	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	33	33	1	1	2	2
Mvmt Flow	1	12	621	1	6	1295

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1282	311	0	0	622	0
Stage 1	622	-	-	-	-	-
Stage 2	660	-	-	-	-	-
Critical Hdwy	7.46	7.56	-	-	4.14	-
Critical Hdwy Stg 1	6.46	-	-	-	-	-
Critical Hdwy Stg 2	6.46	-	-	-	-	-
Follow-up Hdwy	3.83	3.63	-	-	2.22	-
Pot Cap-1 Maneuver	121	601	-	-	955	-
Stage 1	421	-	-	-	-	-
Stage 2	400	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	118	601	-	-	955	-
Mov Cap-2 Maneuver	118	-	-	-	-	-
Stage 1	412	-	-	-	-	-
Stage 2	400	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.3	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	448	955	-
HCM Lane V/C Ratio	-	-	0.028	0.007	-
HCM Control Delay (s)	-	-	13.3	8.8	0.1
HCM Lane LOS	-	-	B	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)	68	0	136	121	81	243	123	883	0	0	621	31
Future Volume (veh/h)	68	0	136	121	81	243	123	883	0	0	621	31
Number	3	8	18	7	4	14	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	1900	1881	1881	1863	1863	0	0	1881	1900
Adj Flow Rate, veh/h	74	0	16	132	88	63	134	960	0	0	675	27
Adj No. of Lanes	2	0	1	0	1	1	1	3	0	0	4	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, %	1	1	1	1	1	1	2	2	0	0	1	1
Cap, veh/h	278	0	124	187	125	273	175	2357	0	0	1731	69
Arrive On Green	0.08	0.00	0.08	0.17	0.17	0.17	0.10	0.46	0.00	0.00	0.27	0.24
Sat Flow, veh/h	3583	0	1599	1096	731	1599	1774	5253	0	0	6697	255
Grp Volume(v), veh/h	74	0	16	220	0	63	134	960	0	0	508	194
Grp Sat Flow(s),veh/h/ln	1792	0	1599	1826	0	1599	1774	1695	0	0	1618	1836
Q Serve(g_s), s	0.8	0.0	0.4	4.7	0.0	1.4	3.1	5.2	0.0	0.0	3.6	3.6
Cycle Q Clear(g_c), s	0.8	0.0	0.4	4.7	0.0	1.4	3.1	5.2	0.0	0.0	3.6	3.6
Prop In Lane	1.00		1.00	0.60		1.00	1.00		0.00	0.00		0.14
Lane Grp Cap(c), veh/h	278	0	124	311	0	273	175	2357	0	0	1306	494
V/C Ratio(X)	0.27	0.00	0.13	0.71	0.00	0.23	0.77	0.41	0.00	0.00	0.39	0.39
Avail Cap(c_a), veh/h	1722	0	768	878	0	768	853	3788	0	0	3615	1367
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	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	18.1	0.0	17.9	16.3	0.0	14.9	18.3	7.4	0.0	0.0	12.4	12.5
Incr Delay (d2), s/veh	0.4	0.0	0.3	1.1	0.0	0.2	2.7	0.1	0.0	0.0	0.2	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.2	2.5	0.0	0.6	1.6	2.4	0.0	0.0	1.6	1.9
LnGrp Delay(d),s/veh	18.4	0.0	18.2	17.4	0.0	15.1	21.0	7.5	0.0	0.0	12.6	13.0
LnGrp LOS	B		B	B		B	C	A			B	B
Approach Vol, veh/h		90			283			1094			702	
Approach Delay, s/veh		18.4			16.9			9.1			12.7	
Approach LOS		B			B			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		23.3		11.1	8.1	15.2		7.2
Change Period (Y+Rc), s		5.0		4.0	4.0	5.0		4.0
Max Green Setting (Gmax), s		30.0		20.0	20.0	30.0		20.0
Max Q Clear Time (g_c+I1), s		7.2		6.7	5.1	5.6		2.8
Green Ext Time (p_c), s		6.7		0.6	0.1	4.5		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	11.7
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	800	0	605	0	0	0	0	473	107	0	297	218
Future Volume (veh/h)	800	0	605	0	0	0	0	473	107	0	297	218
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	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
Parking Bus, Adj	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				0	1881	1900	0	1900	1900
Adj Flow Rate, veh/h	833	0	507				0	493	70	0	309	0
Adj No. of Lanes	2	0	1				0	3	0	0	2	1
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2				0	1	1	0	0	0
Cap, veh/h	1719	0	767				0	1330	186	0	1054	381
Arrive On Green	0.48	0.00	0.48				0.00	0.29	0.24	0.00	0.29	0.00
Sat Flow, veh/h	3548	0	1583				0	4726	636	0	3705	1615
Grp Volume(v), veh/h	833	0	507				0	368	195	0	309	0
Grp Sat Flow(s),veh/h/ln	1774	0	1583				0	1712	1769	0	1805	1615
Q Serve(g_s), s	5.7	0.0	8.7				0.0	3.1	3.2	0.0	2.4	0.0
Cycle Q Clear(g_c), s	5.7	0.0	8.7				0.0	3.1	3.2	0.0	2.4	0.0
Prop In Lane	1.00		1.00				0.00		0.36	0.00		1.00
Lane Grp Cap(c), veh/h	1719	0	767				0	999	516	0	1054	381
V/C Ratio(X)	0.48	0.00	0.66				0.00	0.37	0.38	0.00	0.29	0.00
Avail Cap(c_a), veh/h	5503	0	2456				0	2583	1335	0	2724	1128
HCM Platoon Ratio	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	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	6.2	0.0	7.0				0.0	10.1	10.4	0.0	9.8	0.0
Incr Delay (d2), s/veh	0.2	0.0	1.0				0.0	0.2	0.5	0.0	0.2	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
%ile BackOfQ(50%),veh/ln	2.7	0.0	3.9				0.0	1.5	1.6	0.0	1.2	0.0
LnGrp Delay(d),s/veh	6.4	0.0	8.0				0.0	10.3	10.8	0.0	10.0	0.0
LnGrp LOS	A		A					B	B		A	
Approach Vol, veh/h		1340						563			309	
Approach Delay, s/veh		7.0						10.5			10.0	
Approach LOS		A						B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		14.4		21.3		14.4		
Change Period (Y+Rc), s		6.0		4.5		6.0		
Max Green Setting (Gmax), s		25.0		55.0		25.0		
Max Q Clear Time (g_c+I1), s		5.2		10.7		4.4		
Green Ext Time (p_c), s		3.2		6.1		1.7		

Intersection Summary	
HCM 2010 Ctrl Delay	8.3
HCM 2010 LOS	A

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	133	74	18	129	78	222	22	182	101	453	264	88
Future Volume (veh/h)	133	74	18	129	78	222	22	182	101	453	264	88
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		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1900	1900	1900	1881	1881	1900	1900	1900	1900
Adj Flow Rate, veh/h	141	79	3	137	83	133	23	194	33	482	281	77
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	2	2	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	0	0	0	1	1	1	0	0	0
Cap, veh/h	187	427	16	190	444	198	77	364	61	1843	1692	455
Arrive On Green	0.11	0.12	0.10	0.11	0.12	0.12	0.04	0.12	0.09	0.53	0.60	0.58
Sat Flow, veh/h	1774	3477	131	1810	3610	1615	1792	3064	512	3510	2814	757
Grp Volume(v), veh/h	141	40	42	137	83	133	23	112	115	482	178	180
Grp Sat Flow(s),veh/h/ln	1774	1770	1839	1810	1805	1615	1792	1787	1789	1755	1805	1766
Q Serve(g_s), s	9.7	2.5	2.6	9.2	2.6	9.8	1.6	7.3	7.6	9.4	5.5	5.8
Cycle Q Clear(g_c), s	9.7	2.5	2.6	9.2	2.6	9.8	1.6	7.3	7.6	9.4	5.5	5.8
Prop In Lane	1.00		0.07	1.00		1.00	1.00		0.29	1.00		0.43
Lane Grp Cap(c), veh/h	187	218	226	190	444	198	77	212	213	1843	1085	1062
V/C Ratio(X)	0.76	0.18	0.19	0.72	0.19	0.67	0.30	0.53	0.54	0.26	0.16	0.17
Avail Cap(c_a), veh/h	227	566	588	232	1155	517	172	586	587	1843	1085	1062
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	0.84	0.84	0.84
Uniform Delay (d), s/veh	54.4	49.2	49.3	54.1	49.2	52.4	58.0	51.8	52.3	16.3	11.0	11.4
Incr Delay (d2), s/veh	11.0	0.4	0.4	8.2	0.2	3.9	2.2	3.2	3.4	0.1	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	5.3	1.3	1.3	5.0	1.3	4.6	0.8	3.8	4.0	4.6	2.8	2.8
LnGrp Delay(d),s/veh	65.3	49.6	49.7	62.4	49.4	56.3	60.2	55.0	55.7	16.4	11.1	11.5
LnGrp LOS	E	D	D	E	D	E	E	D	E	B	B	B
Approach Vol, veh/h		223			353			250			840	
Approach Delay, s/veh		59.6			57.0			55.8			14.2	
Approach LOS		E			E			E			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	69.6	18.9	17.1	19.4	9.4	79.1	17.2	19.4
Change Period (Y+Rc), s	5.5	7.0	6.0	6.7	5.5	7.0	5.5	6.7
Max Green Setting (Gmax), s	10.5	38.0	14.0	37.3	10.5	38.0	14.5	37.3
Max Q Clear Time (g_c+I1), s	11.4	9.6	11.2	4.6	3.6	7.8	11.7	11.8
Green Ext Time (p_c), s	0.0	1.9	0.1	0.4	0.0	3.3	0.1	0.8

Intersection Summary	
HCM 2010 Ctrl Delay	35.6
HCM 2010 LOS	D

Notes

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	569	32	0	442	0	11
Future Vol, veh/h	569	32	0	442	0	11
Conflicting Peds, #/hr	0	3	3	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	99	99	99	99	99	99
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	575	32	0	446	0	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	307
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	-	-	0	-	0	695
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	693
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	693	-	-	-
HCM Lane V/C Ratio	0.016	-	-	-
HCM Control Delay (s)	10.3	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0	-	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	500	63	93	400	0	44	0	50	0	0	0
Future Volume (veh/h)	8	500	63	93	400	0	44	0	50	0	0	0
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1900	1900	1900	1900	1863	1863	1900
Adj Flow Rate, veh/h	8	515	50	96	412	0	45	0	3	0	0	0
Adj No. of Lanes	1	2	1	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	1	1	1	1	0	0	0	2	2	2
Cap, veh/h	39	2758	1230	133	2946	0	95	111	94	1	1	0
Arrive On Green	0.02	0.77	0.77	0.07	0.82	0.00	0.05	0.00	0.06	0.00	0.00	0.00
Sat Flow, veh/h	1792	3574	1594	1792	3668	0	1810	1900	1615	1774	1863	0
Grp Volume(v), veh/h	8	515	50	96	412	0	45	0	3	0	0	0
Grp Sat Flow(s),veh/h/ln	1792	1787	1594	1792	1787	0	1810	1900	1615	1774	1863	0
Q Serve(g_s), s	0.5	4.8	0.9	6.6	2.9	0.0	3.0	0.0	0.2	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.5	4.8	0.9	6.6	2.9	0.0	3.0	0.0	0.2	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	39	2758	1230	133	2946	0	95	111	94	1	1	0
V/C Ratio(X)	0.21	0.19	0.04	0.72	0.14	0.00	0.48	0.00	0.03	0.00	0.00	0.00
Avail Cap(c_a), veh/h	143	2758	1230	143	2946	0	145	638	543	142	626	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)	1.00	1.00	1.00	0.99	0.99	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	60.1	3.8	3.4	56.6	2.2	0.0	57.6	0.0	55.5	0.0	0.0	0.0
Incr Delay (d2), s/veh	2.6	0.1	0.1	15.1	0.1	0.0	3.7	0.0	0.1	0.0	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	0.3	2.4	0.4	3.8	1.4	0.0	1.6	0.0	0.1	0.0	0.0	0.0
LnGrp Delay(d),s/veh	62.7	4.0	3.4	71.8	2.3	0.0	61.2	0.0	55.7	0.0	0.0	0.0
LnGrp LOS	E	A	A	E	A		E		E			
Approach Vol, veh/h		573			508			48			0	
Approach Delay, s/veh		4.7			15.4			60.9			0.0	
Approach LOS		A			B			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	6.7	107.0	0.0	11.3	13.3	100.5	10.5	0.7
Change Period (Y+Rc), s	5.0	6.7	5.0	5.6	5.0	6.7	5.0	5.6
Max Green Setting (Gmax), s	9.0	44.3	9.0	40.4	9.0	44.3	9.0	40.4
Max Q Clear Time (g_c+I1), s	2.5	4.9	0.0	2.2	8.6	6.8	5.0	0.0
Green Ext Time (p_c), s	0.0	2.6	0.0	0.0	0.0	3.5	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	11.9
HCM 2010 LOS	B

Notes

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	429	87	53	452	45	34
Future Volume (veh/h)	429	87	53	452	45	34
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.97	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	1900	1900	1881	1881	1881	1881
Adj Flow Rate, veh/h	488	88	60	514	51	3
Adj No. of Lanes	2	0	1	2	1	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	0	0	1	1	1	1
Cap, veh/h	2280	409	120	3033	115	103
Arrive On Green	0.75	0.72	0.02	0.28	0.06	0.06
Sat Flow, veh/h	3139	546	1792	3668	1792	1599
Grp Volume(v), veh/h	288	288	60	514	51	3
Grp Sat Flow(s),veh/h/ln	1805	1785	1792	1787	1792	1599
Q Serve(g_s), s	4.8	5.0	3.3	10.9	2.7	0.2
Cycle Q Clear(g_c), s	4.8	5.0	3.3	10.9	2.7	0.2
Prop In Lane		0.31	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1352	1337	120	3033	115	103
V/C Ratio(X)	0.21	0.22	0.50	0.17	0.44	0.03
Avail Cap(c_a), veh/h	1352	1337	215	3033	376	336
HCM Platoon Ratio	1.00	1.00	0.33	0.33	1.00	1.00
Upstream Filter(I)	0.99	0.99	0.98	0.98	1.00	1.00
Uniform Delay (d), s/veh	3.8	3.9	47.3	9.4	45.1	43.9
Incr Delay (d2), s/veh	0.4	0.4	3.2	0.1	2.6	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	2.5	2.6	1.8	5.5	1.4	0.1
LnGrp Delay(d),s/veh	4.1	4.3	50.4	9.5	47.7	44.0
LnGrp LOS	A	A	D	A	D	D
Approach Vol, veh/h	576			574	54	
Approach Delay, s/veh	4.2			13.8	47.5	
Approach LOS	A			B	D	

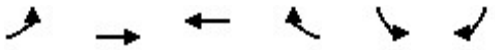
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	10.7	78.9				89.6		10.4
Change Period (Y+Rc), s	5.0	6.7				* 6.7		5.0
Max Green Setting (Gmax), s	10.0	52.3				* 69		20.0
Max Q Clear Time (g_c+I1), s	5.3	7.0				12.9		4.7
Green Ext Time (p_c), s	0.0	5.3				5.5		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	10.7
HCM 2010 LOS	B

Notes

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	396	73	114	450	48	73
Future Volume (vph)	396	73	114	450	48	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0		4.0	4.0	4.0	
Lane Util. Factor	0.95		1.00	0.95	1.00	
Frpb, ped/bikes	0.99		1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00	1.00	1.00	
Frt	0.98		1.00	1.00	0.92	
Flt Protected	1.00		0.95	1.00	0.98	
Satd. Flow (prot)	3499		1787	3574	1711	
Flt Permitted	1.00		0.95	1.00	0.98	
Satd. Flow (perm)	3499		1787	3574	1711	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	445	82	128	506	54	82
RTOR Reduction (vph)	13	0	0	0	58	0
Lane Group Flow (vph)	514	0	128	506	78	0
Confl. Peds. (#/hr)		13				
Confl. Bikes (#/hr)		1				
Heavy Vehicles (%)	0%	0%	1%	1%	0%	0%
Turn Type	NA		Prot	NA	Prot	
Protected Phases	2		1	6 3	7	
Permitted Phases						
Actuated Green, G (s)	38.0		9.6	77.6	12.3	
Effective Green, g (s)	40.0		10.6	78.6	13.3	
Actuated g/C Ratio	0.40		0.11	0.79	0.13	
Clearance Time (s)	5.0		5.0		5.0	
Vehicle Extension (s)	3.0		3.0		3.0	
Lane Grp Cap (vph)	1399		189	2809	227	
v/s Ratio Prot	c0.15		c0.07	c0.14	c0.05	
v/s Ratio Perm						
v/c Ratio	0.37		0.68	0.18	0.34	
Uniform Delay, d1	21.1		43.1	2.7	39.4	
Progression Factor	0.81		1.00	0.17	1.00	
Incremental Delay, d2	0.7		9.1	0.0	0.9	
Delay (s)	17.8		52.1	0.5	40.3	
Level of Service	B		D	A	D	
Approach Delay (s)	17.8			10.9	40.3	
Approach LOS	B			B	D	

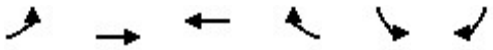
Intersection Summary			
HCM 2000 Control Delay	16.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.1
Intersection Capacity Utilization	42.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	463	434	0	187	133
Future Volume (vph)	0	463	434	0	187	133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	4.0		4.0	4.0
Lane Util. Factor		0.95	*0.70		1.00	1.00
Frpb, ped/bikes		1.00	1.00		1.00	1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3610	3950		1752	1568
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3610	3950		1752	1568
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	0	551	517	0	223	158
RTOR Reduction (vph)	0	0	0	0	0	125
Lane Group Flow (vph)	0	551	517	0	223	33
Confl. Peds. (#/hr)					24	
Heavy Vehicles (%)	0%	0%	1%	1%	3%	3%
Turn Type		NA	NA		Prot	Perm
Protected Phases		2 1 7	6		3	
Permitted Phases						3
Actuated Green, G (s)		69.9	52.6		20.0	20.0
Effective Green, g (s)		71.9	53.6		21.1	21.1
Actuated g/C Ratio		0.72	0.54		0.21	0.21
Clearance Time (s)			5.0		5.1	5.1
Vehicle Extension (s)			3.0		3.0	3.0
Lane Grp Cap (vph)		2595	2117		369	330
v/s Ratio Prot		c0.15	c0.13		c0.13	
v/s Ratio Perm						0.02
v/c Ratio		0.21	0.24		0.60	0.10
Uniform Delay, d1		4.7	12.4		35.7	31.8
Progression Factor		0.26	0.43		1.00	1.00
Incremental Delay, d2		0.0	0.3		2.8	0.1
Delay (s)		1.3	5.6		38.5	31.9
Level of Service		A	A		D	C
Approach Delay (s)		1.3	5.6		35.8	
Approach LOS		A	A		D	

Intersection Summary			
HCM 2000 Control Delay	11.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	29.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	82	577	435	77	0	0
Future Volume (vph)	82	577	435	77	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0			
Lane Util. Factor	1.00	0.95	0.95			
Frpb, ped/bikes	1.00	1.00	1.00			
Flpb, ped/bikes	1.00	1.00	1.00			
Frt	1.00	1.00	0.98			
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	1770	3539	3452			
Flt Permitted	0.95	1.00	1.00			
Satd. Flow (perm)	1770	3539	3452			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	91	641	483	86	0	0
RTOR Reduction (vph)	0	0	10	0	0	0
Lane Group Flow (vph)	91	641	559	0	0	0
Confl. Peds. (#/hr)				1	25	
Turn Type	Prot	NA	NA			
Protected Phases	5	2	6			
Permitted Phases						
Actuated Green, G (s)	8.4	74.6	61.6			
Effective Green, g (s)	9.0	75.2	62.2			
Actuated g/C Ratio	0.09	0.75	0.62			
Clearance Time (s)	4.6	4.6	4.6			
Vehicle Extension (s)	3.0	3.0	3.0			
Lane Grp Cap (vph)	159	2661	2147			
v/s Ratio Prot	c0.05	0.18	c0.16			
v/s Ratio Perm						
v/c Ratio	0.57	0.24	0.26			
Uniform Delay, d1	43.7	3.8	8.5			
Progression Factor	0.76	2.07	0.82			
Incremental Delay, d2	4.8	0.2	0.3			
Delay (s)	37.9	8.0	7.2			
Level of Service	D	A	A			
Approach Delay (s)		11.7	7.2		0.0	
Approach LOS		B	A		A	

Intersection Summary			
HCM 2000 Control Delay	9.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.24		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.6
Intersection Capacity Utilization	29.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	534	38	156	489	24	117
Future Volume (veh/h)	534	38	156	489	24	117
Number	2	12	1	6	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1900	1863	1863	1900	1900
Adj Flow Rate, veh/h	580	37	170	532	26	20
Adj No. of Lanes	2	0	1	2	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	0	0
Cap, veh/h	2178	139	220	2866	103	79
Arrive On Green	0.21	0.21	0.12	0.81	0.11	0.10
Sat Flow, veh/h	3468	215	1774	3632	930	716
Grp Volume(v), veh/h	304	313	170	532	47	0
Grp Sat Flow(s),veh/h/ln	1770	1820	1774	1770	1682	0
Q Serve(g_s), s	14.3	14.4	9.3	3.4	2.6	0.0
Cycle Q Clear(g_c), s	14.3	14.4	9.3	3.4	2.6	0.0
Prop In Lane		0.12	1.00		0.55	0.43
Lane Grp Cap(c), veh/h	1142	1175	220	2866	186	0
V/C Ratio(X)	0.27	0.27	0.77	0.19	0.25	0.00
Avail Cap(c_a), veh/h	1142	1175	284	2866	521	0
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.98	0.98	0.92	0.92	1.00	0.00
Uniform Delay (d), s/veh	19.6	19.6	42.4	2.1	40.9	0.0
Incr Delay (d2), s/veh	0.6	0.5	8.6	0.1	0.7	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	7.2	7.4	5.1	1.7	1.2	0.0
LnGrp Delay(d),s/veh	20.1	20.2	51.1	2.3	41.6	0.0
LnGrp LOS	C	C	D	A	D	
Approach Vol, veh/h	617			702	47	
Approach Delay, s/veh	20.2			14.1	41.6	
Approach LOS	C			B	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	16.4	68.5		15.0		85.0		
Change Period (Y+Rc), s	5.1	5.5		5.1		5.5		
Max Green Setting (Gmax), s	11.3	39.5		29.9		59.5		
Max Q Clear Time (g_c+I1), s	11.3	16.4		4.6		5.4		
Green Ext Time (p_c), s	0.1	3.7		0.1		3.9		

Intersection Summary	
HCM 2010 Ctrl Delay	17.8
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	176	128	106	236	894	633	75	530	119
Future Volume (veh/h)	0	0	0	176	128	106	236	894	633	75	530	119
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.98	1.00		0.97	1.00		0.96
Parking Bus, Adj				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	1900	1900	1881	1881	1900	1863	1863	1900
Adj Flow Rate, veh/h				196	142	118	262	993	596	83	589	132
Adj No. of Lanes				0	2	0	2	3	0	1	2	0
Peak Hour Factor				0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %				0	0	0	1	1	1	2	2	2
Cap, veh/h				296	226	192	417	1796	816	165	1420	317
Arrive On Green				0.20	0.20	0.19	0.12	0.52	0.51	0.09	0.50	0.48
Sat Flow, veh/h				1465	1117	952	3476	3424	1556	1774	2854	638
Grp Volume(v), veh/h				244	0	212	262	993	596	83	365	356
Grp Sat Flow(s),veh/h/ln				1827	0	1706	1738	1712	1556	1774	1770	1722
Q Serve(g_s), s				8.2	0.0	7.6	4.8	12.9	19.9	3.0	8.7	8.8
Cycle Q Clear(g_c), s				8.2	0.0	7.6	4.8	12.9	19.9	3.0	8.7	8.8
Prop In Lane				0.80		0.56	1.00		1.00	1.00		0.37
Lane Grp Cap(c), veh/h				369	0	345	417	1796	816	165	880	857
V/C Ratio(X)				0.66	0.00	0.61	0.63	0.55	0.73	0.50	0.41	0.42
Avail Cap(c_a), veh/h				552	0	516	2649	2218	1008	685	1146	1116
HCM Platoon Ratio				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
Uniform Delay (d), s/veh				24.4	0.0	24.5	27.9	10.6	12.7	28.7	10.6	10.7
Incr Delay (d2), s/veh				0.8	0.0	0.7	0.8	0.3	2.1	0.9	0.3	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
%ile BackOfQ(50%),veh/ln				4.2	0.0	3.6	2.3	6.1	9.0	1.5	4.2	4.3
LnGrp Delay(d),s/veh				25.2	0.0	25.1	28.7	10.9	14.8	29.6	10.9	11.1
LnGrp LOS				C		C	C	B	B	C	B	B
Approach Vol, veh/h					456			1851			804	
Approach Delay, s/veh					25.2			14.7			12.9	
Approach LOS					C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2			5	6		8
Phs Duration (G+Y+Rc), s	10.2	38.9			12.0	37.1		17.4
Change Period (Y+Rc), s	* 4.7	5.1			* 4.7	5.1		5.1
Max Green Setting (Gmax), s	* 5	42.0			* 50	42.0		19.0
Max Q Clear Time (g_c+I1), s	5.0	21.9			6.8	10.8		10.2
Green Ext Time (p_c), s	0.0	11.9			0.6	4.9		1.2

Intersection Summary	
HCM 2010 Ctrl Delay	15.7
HCM 2010 LOS	B

Notes

Intersection	
Int Delay, s/veh	17.4

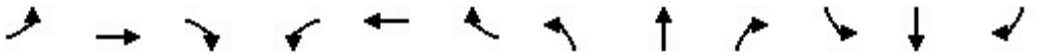
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	401	0	0	306	0	1457	0	0	706	0
Future Vol, veh/h	0	0	401	0	0	306	0	1457	0	0	706	0
Conflicting Peds, #/hr	0	0	0	0	0	0	33	0	7	7	0	33
Sign Control	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	0	0	0	1	1	1	2	2	2
Mvmt Flow	0	0	436	0	0	333	0	1584	0	0	767	0

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	-	-	792	-	0	-	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.1	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.9	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	~ 288	0	-	0	0	-	0
Stage 1	0	0	-	0	-	0	0	-	0
Stage 2	0	0	-	0	-	0	0	-	0
Platoon blocked, %					-			-	
Mov Cap-1 Maneuver	-	0	~ 288	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	0	-	-	-	-	-	-	-
Stage 1	-	0	-	-	-	-	-	-	-
Stage 2	-	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	140.2	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	288	-
HCM Lane V/C Ratio	-	1.155	-
HCM Control Delay (s)	-	140.2	-
HCM Lane LOS	-	F	-
HCM 95th %tile Q(veh)	-	14.3	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	109	263	369	0	0	525	0	823	389	276	697	134
Future Volume (vph)	109	263	369	0	0	525	0	823	389	276	697	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0			4.0		4.0	2.0	4.0	2.0	2.0
Lane Util. Factor		0.95	1.00			1.00		0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes		1.00	0.98			1.00		1.00	0.99	1.00	1.00	0.88
Flpb, ped/bikes		1.00	1.00			1.00		1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.85			0.85		1.00	0.85	1.00	1.00	0.85
Flt Protected		0.99	1.00			1.00		1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		3558	1588			1599		3574	1580	3433	3539	1393
Flt Permitted		0.99	1.00			1.00		1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		3558	1588			1599		3574	1580	3433	3539	1393
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	121	292	410	0	0	583	0	914	432	307	774	149
RTOR Reduction (vph)	0	0	40	0	0	0	0	0	64	0	0	58
Lane Group Flow (vph)	0	413	370	0	0	583	0	914	368	307	774	91
Confl. Peds. (#/hr)			12						1			29
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	1%	2%	2%	2%
Turn Type	Split	NA	custom			custom		NA	custom	Prot	NA	custom
Protected Phases	4!	4	5	3!	3!	1 2 4!		2 3!	3	1	3 6!	3!
Permitted Phases			4						2			6
Actuated Green, G (s)		24.1	34.2			106.3		79.7	74.7	14.2	82.8	77.8
Effective Green, g (s)		25.1	36.2			101.3		80.7	76.7	14.2	79.8	79.8
Actuated g/C Ratio		0.19	0.28			0.78		0.62	0.59	0.11	0.61	0.61
Clearance Time (s)		5.0	5.0						3.0	4.0		3.0
Vehicle Extension (s)		2.0	2.0						2.0	2.0		2.0
Lane Grp Cap (vph)		686	491			1245		2218	932	374	2172	855
v/s Ratio Prot		0.12	c0.06			c0.36		c0.26	0.05	c0.09	0.22	0.01
v/s Ratio Perm			0.17						0.18			0.05
v/c Ratio		0.60	0.75			0.47		0.41	0.40	0.82	0.36	0.11
Uniform Delay, d1		47.9	42.8			5.0		12.6	14.3	56.7	12.4	10.4
Progression Factor		1.00	1.00			1.00		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		1.0	5.7			0.1		0.0	0.1	12.9	0.0	0.0
Delay (s)		48.9	48.5			5.1		12.6	14.4	69.5	12.4	10.4
Level of Service		D	D			A		B	B	E	B	B
Approach Delay (s)		48.7			5.1			13.2			26.4	
Approach LOS		D			A			B			C	

Intersection Summary			
HCM 2000 Control Delay	23.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	82.4%	ICU Level of Service	E
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	145	353	77	26	192	264	205	439	157	477	186	181
Future Volume (veh/h)	145	353	77	26	192	264	205	439	157	477	186	181
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		0.98	1.00		0.99	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	1900	1900	1900	1900	1900	1900	1881	1881	1881
Adj Flow Rate, veh/h	149	364	69	27	198	53	211	453	142	492	192	55
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	2	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	1	0	0	0	0	0	0	1	1	1
Cap, veh/h	221	678	127	104	617	272	293	723	225	706	580	492
Arrive On Green	0.12	0.23	0.20	0.06	0.17	0.17	0.16	0.27	0.24	0.20	0.31	0.31
Sat Flow, veh/h	1792	2992	561	1810	3610	1592	1810	2711	843	3476	1881	1597
Grp Volume(v), veh/h	149	216	217	27	198	53	211	300	295	492	192	55
Grp Sat Flow(s),veh/h/ln	1792	1787	1766	1810	1805	1592	1810	1805	1749	1738	1881	1597
Q Serve(g_s), s	5.4	7.2	7.4	1.0	3.3	1.9	7.5	9.9	10.1	8.9	5.3	1.7
Cycle Q Clear(g_c), s	5.4	7.2	7.4	1.0	3.3	1.9	7.5	9.9	10.1	8.9	5.3	1.7
Prop In Lane	1.00		0.32	1.00		1.00	1.00		0.48	1.00		1.00
Lane Grp Cap(c), veh/h	221	405	400	104	617	272	293	481	466	706	580	492
V/C Ratio(X)	0.67	0.53	0.54	0.26	0.32	0.19	0.72	0.62	0.63	0.70	0.33	0.11
Avail Cap(c_a), veh/h	689	1356	1340	883	2458	1084	829	1104	1070	1747	1178	1001
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	28.4	23.1	23.4	30.6	24.7	24.1	27.0	21.9	22.3	25.1	18.1	16.8
Incr Delay (d2), s/veh	3.6	1.1	1.1	1.3	0.3	0.3	3.3	1.3	1.4	1.3	0.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	3.7	3.7	0.5	1.6	0.9	4.0	5.1	5.0	4.4	2.8	0.7
LnGrp Delay(d),s/veh	32.0	24.2	24.5	31.9	25.0	24.5	30.3	23.2	23.7	26.3	18.4	16.9
LnGrp LOS	C	C	C	C	C	C	C	C	C	C	B	B
Approach Vol, veh/h		582			278			806			739	
Approach Delay, s/veh		26.3			25.5			25.3			23.6	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.8	22.1	7.9	20.1	15.0	24.9	12.4	15.6
Change Period (Y+Rc), s	5.1	5.5	5.1	* 6.2	5.1	5.5	5.1	6.2
Max Green Setting (Gmax), s	33.0	40.0	32.0	* 50	30.0	41.0	25.0	44.0
Max Q Clear Time (g_c+I1), s	10.9	12.1	3.0	9.4	9.5	7.3	7.4	5.3
Green Ext Time (p_c), s	1.8	4.0	0.0	2.7	0.6	1.3	0.3	1.4

Intersection Summary	
HCM 2010 Ctrl Delay	25.0
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	879	25	2	438	0	20	0	5	1	0	4
Future Volume (veh/h)	4	879	25	2	438	0	20	0	5	1	0	4
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	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	0	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	4	988	26	2	492	0	22	0	2	1	0	0
Adj No. of Lanes	1	2	0	1	2	0	0	1	1	0	1	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	1	1	1	1	1	0	0	0	0	0	0	0
Cap, veh/h	13	2120	56	7	2118	0	487	0	469	470	0	0
Arrive On Green	0.01	0.60	0.58	0.00	0.59	0.00	0.29	0.00	0.29	0.29	0.00	0.00
Sat Flow, veh/h	1792	3555	94	1792	3668	0	1450	0	1612	1391	0	0
Grp Volume(v), veh/h	4	497	517	2	492	0	22	0	2	1	0	0
Grp Sat Flow(s),veh/h/ln	1792	1787	1862	1792	1787	0	1450	0	1612	1391	0	0
Q Serve(g_s), s	0.2	17.1	17.1	0.1	7.2	0.0	0.0	0.0	0.1	0.1	0.0	0.0
Cycle Q Clear(g_c), s	0.2	17.1	17.1	0.1	7.2	0.0	1.0	0.0	0.1	1.0	0.0	0.0
Prop In Lane	1.00		0.05	1.00		0.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	13	1066	1110	7	2118	0	487	0	469	470	0	0
V/C Ratio(X)	0.30	0.47	0.47	0.30	0.23	0.00	0.05	0.00	0.00	0.00	0.00	0.00
Avail Cap(c_a), veh/h	195	1066	1110	195	2118	0	487	0	469	470	0	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)	0.84	0.84	0.84	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	54.3	12.4	12.4	54.6	10.6	0.0	28.0	0.0	27.7	28.4	0.0	0.0
Incr Delay (d2), s/veh	10.5	1.2	1.2	22.6	0.3	0.0	0.2	0.0	0.0	0.0	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	0.2	8.8	9.1	0.1	3.6	0.0	0.5	0.0	0.0	0.0	0.0	0.0
LnGrp Delay(d),s/veh	64.8	13.6	13.6	77.2	10.8	0.0	28.2	0.0	27.7	28.4	0.0	0.0
LnGrp LOS	E	B	B	E	B		C		C	C		
Approach Vol, veh/h		1018			494			24			1	
Approach Delay, s/veh		13.8			11.1			28.1			28.4	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.4	69.6		36.0	4.8	69.2		36.0
Change Period (Y+Rc), s	4.0	5.7		4.6	4.0	5.7		4.6
Max Green Setting (Gmax), s	12.0	52.3		31.4	12.0	52.3		31.4
Max Q Clear Time (g_c+I1), s	2.1	19.1		3.0	2.2	9.2		3.0
Green Ext Time (p_c), s	0.0	7.1		0.0	0.0	3.4		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	13.2
HCM 2010 LOS	B

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	17	60	820	48	23	274
Future Volume (Veh/h)	17	60	820	48	23	274
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	18	64	872	51	24	291
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1236	898			923	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1236	898			923	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	90	81			97	
cM capacity (veh/h)	189	340			748	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	82	923	315
Volume Left	18	0	24
Volume Right	64	51	0
cSH	289	1700	748
Volume to Capacity	0.28	0.54	0.03
Queue Length 95th (ft)	28	0	2
Control Delay (s)	22.3	0.0	1.1
Lane LOS	C		A
Approach Delay (s)	22.3	0.0	1.1
Approach LOS	C		

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	57.4%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	388	748	64	28	341	114	39	370	29	78	139	95
Future Volume (veh/h)	388	748	64	28	341	114	39	370	29	78	139	95
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	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	1900	1900	1881	1881	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	408	787	63	29	359	97	41	389	30	82	146	17
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	1	1	1	0	0	0	0	0	0
Cap, veh/h	442	1309	105	57	489	130	46	437	34	103	183	247
Arrive On Green	0.24	0.39	0.38	0.03	0.18	0.17	0.28	0.28	0.27	0.15	0.15	0.15
Sat Flow, veh/h	1810	3379	270	1792	2792	745	167	1581	122	671	1195	1615
Grp Volume(v), veh/h	408	420	430	29	228	228	460	0	0	228	0	17
Grp Sat Flow(s),veh/h/ln	1810	1805	1845	1792	1787	1750	1870	0	0	1866	0	1615
Q Serve(g_s), s	23.3	19.7	19.7	1.7	12.8	13.1	25.0	0.0	0.0	12.5	0.0	1.0
Cycle Q Clear(g_c), s	23.3	19.7	19.7	1.7	12.8	13.1	25.0	0.0	0.0	12.5	0.0	1.0
Prop In Lane	1.00		0.15	1.00		0.43	0.09		0.07	0.36		1.00
Lane Grp Cap(c), veh/h	442	699	715	57	313	306	517	0	0	286	0	247
V/C Ratio(X)	0.92	0.60	0.60	0.51	0.73	0.74	0.89	0.00	0.00	0.80	0.00	0.07
Avail Cap(c_a), veh/h	444	870	889	440	861	843	636	0	0	635	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	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	39.1	25.9	25.9	50.4	41.3	41.5	36.7	0.0	0.0	43.2	0.0	38.4
Incr Delay (d2), s/veh	25.0	0.8	0.8	6.8	3.3	3.6	12.6	0.0	0.0	5.1	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.7	10.0	10.2	0.9	6.6	6.6	14.7	0.0	0.0	6.9	0.0	0.4
LnGrp Delay(d),s/veh	64.0	26.7	26.7	57.3	44.5	45.1	49.4	0.0	0.0	48.3	0.0	38.5
LnGrp LOS	E	C	C	E	D	D	D			D		D
Approach Vol, veh/h		1258			485			460			245	
Approach Delay, s/veh		38.8			45.5			49.4			47.7	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.4	45.0		20.2	29.8	22.5		33.3
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	25.5	50.5		35.5	25.5	50.5		35.5
Max Q Clear Time (g_c+I1), s	3.7	21.7		14.5	25.3	15.1		27.0
Green Ext Time (p_c), s	0.0	5.8		1.2	0.0	2.9		1.8

Intersection Summary		
HCM 2010 Ctrl Delay	43.0	
HCM 2010 LOS	D	

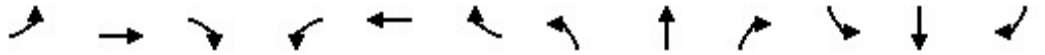
Intersection	
Int Delay, s/veh	0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	13	1590	0	14	414
Future Vol, veh/h	6	13	1590	0	14	414
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	-	-	350	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	1	1	2	2
Mvmt Flow	6	14	1656	0	15	431

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1902	828	0	0	1656	0
Stage 1	1656	-	-	-	-	-
Stage 2	246	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.14	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.22	-
Pot Cap-1 Maneuver	62	318	-	-	385	-
Stage 1	144	-	-	-	-	-
Stage 2	778	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	59	318	-	-	385	-
Mov Cap-2 Maneuver	59	-	-	-	-	-
Stage 1	137	-	-	-	-	-
Stage 2	778	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	36.7	0	0.9
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	133	385	-
HCM Lane V/C Ratio	-	-	0.149	0.038	-
HCM Control Delay (s)	-	-	36.7	14.7	0.4
HCM Lane LOS	-	-	E	B	A
HCM 95th %tile Q(veh)	-	-	0.5	0.1	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	0	314	15	18	11	329	390	0	0	1687	175
Future Volume (veh/h)	17	0	314	15	18	11	329	390	0	0	1687	175
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	80	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	1845	1845	1845	1900	1759	1759	1845	1845	0	0	1863	1900
Adj Flow Rate, veh/h	18	0	25	16	19	1	350	415	0	0	1795	176
Adj No. of Lanes	2	0	1	0	1	1	1	3	0	0	4	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	8	8	8	3	3	0	0	2	2
Cap, veh/h	146	0	65	25	30	47	398	3744	0	0	2472	172
Arrive On Green	0.04	0.00	0.04	0.03	0.03	0.03	0.23	0.74	0.00	0.00	0.45	0.43
Sat Flow, veh/h	3514	0	1568	786	934	1488	1757	5202	0	0	5736	508
Grp Volume(v), veh/h	18	0	25	35	0	1	350	415	0	0	1356	615
Grp Sat Flow(s),veh/h/ln	1757	0	1568	1720	0	1488	1757	1679	0	0	1304	1773
Q Serve(g_s), s	0.3	0.0	1.0	1.3	0.0	0.0	12.4	1.5	0.0	0.0	18.8	18.8
Cycle Q Clear(g_c), s	0.3	0.0	1.0	1.3	0.0	0.0	12.4	1.5	0.0	0.0	18.8	18.8
Prop In Lane	1.00		1.00	0.46		1.00	1.00		0.00	0.00		0.29
Lane Grp Cap(c), veh/h	146	0	65	55	0	47	398	3744	0	0	1787	816
V/C Ratio(X)	0.12	0.00	0.38	0.64	0.00	0.02	0.88	0.11	0.00	0.00	0.76	0.75
Avail Cap(c_a), veh/h	1091	0	487	534	0	462	546	3726	0	0	1883	854
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	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	30.3	0.0	30.6	31.4	0.0	30.7	24.5	2.3	0.0	0.0	16.5	16.0
Incr Delay (d2), s/veh	0.3	0.0	2.8	4.5	0.0	0.1	9.5	0.0	0.0	0.0	1.8	3.7
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	33.7	17.5
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.5	0.7	0.0	0.0	7.1	0.7	0.0	0.0	14.8	16.1
LnGrp Delay(d),s/veh	30.5	0.0	33.4	35.9	0.0	30.8	33.9	2.4	0.0	0.0	52.0	37.2
LnGrp LOS	C		C	D		C	C	A			D	D
Approach Vol, veh/h		43			36			765			1971	
Approach Delay, s/veh		32.2			35.7			16.8			47.4	
Approach LOS		C			D			B			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		51.6		6.1	18.6	33.0		6.7
Change Period (Y+Rc), s		5.0		4.0	4.0	5.0		4.0
Max Green Setting (Gmax), s		30.0		20.0	20.0	30.0		20.0
Max Q Clear Time (g_c+I1), s		3.5		3.3	14.4	20.8		3.0
Green Ext Time (p_c), s		2.7		0.0	0.3	7.2		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	38.7
HCM 2010 LOS	D

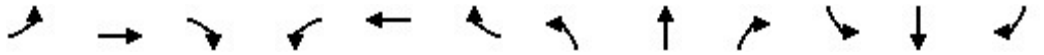
Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	254	0	254	0	0	0	0	1555	117	0	285	263
Future Volume (veh/h)	254	0	254	0	0	0	0	1555	117	0	285	263
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	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
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1827	1827				0	1881	1900	0	1881	1881
Adj Flow Rate, veh/h	276	0	64				0	1690	124	0	310	0
Adj No. of Lanes	2	0	1				0	3	0	0	2	1
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4				0	1	1	0	1	1
Cap, veh/h	569	0	254				0	2191	161	0	2261	930
Arrive On Green	0.16	0.00	0.16				0.00	0.63	0.58	0.00	0.63	0.00
Sat Flow, veh/h	3480	0	1553				0	4404	254	0	3668	1599
Grp Volume(v), veh/h	276	0	64				0	917	897	0	310	0
Grp Sat Flow(s),veh/h/ln	1740	0	1553				0	941	1836	0	1787	1599
Q Serve(g_s), s	2.8	0.0	1.4				0.0	13.7	13.9	0.0	1.4	0.0
Cycle Q Clear(g_c), s	2.8	0.0	1.4				0.0	13.7	13.9	0.0	1.4	0.0
Prop In Lane	1.00		1.00				0.00		0.14	0.00		1.00
Lane Grp Cap(c), veh/h	569	0	254				0	1190	1161	0	2261	930
V/C Ratio(X)	0.49	0.00	0.25				0.00	0.77	0.77	0.00	0.14	0.00
Avail Cap(c_a), veh/h	4924	0	2197				0	1295	1264	0	2460	1019
HCM Platoon Ratio	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	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	14.9	0.0	14.3				0.0	5.2	5.3	0.0	2.9	0.0
Incr Delay (d2), s/veh	0.6	0.0	0.5				0.0	2.7	2.8	0.0	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
%ile BackOfQ(50%),veh/ln	1.4	0.0	0.6				0.0	3.9	7.7	0.0	0.7	0.0
LnGrp Delay(d),s/veh	15.5	0.0	14.8				0.0	7.9	8.1	0.0	2.9	0.0
LnGrp LOS	B		B					A	A		A	
Approach Vol, veh/h		340						1814			310	
Approach Delay, s/veh		15.4						8.0			2.9	
Approach LOS		B						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		28.8		10.4		28.8		
Change Period (Y+Rc), s		6.0		4.5		6.0		
Max Green Setting (Gmax), s		25.0		55.0		25.0		
Max Q Clear Time (g_c+I1), s		15.9		4.8		3.4		
Green Ext Time (p_c), s		6.9		1.2		1.8		

Intersection Summary	
HCM 2010 Ctrl Delay	8.4
HCM 2010 LOS	A

Notes



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	216	46	63	272	142	931	36	440	271	264	176	16
Future Volume (veh/h)	216	46	63	272	142	931	36	440	271	264	176	16
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		0.99	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	1900	1900	1900	1881	1881	1900
Adj Flow Rate, veh/h	251	53	9	316	165	1003	42	512	264	307	205	16
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	2	2	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	1	1	1	1	1	1	0	0	0	1	1	1
Cap, veh/h	291	956	158	361	1254	561	88	614	315	396	1115	86
Arrive On Green	0.16	0.31	0.29	0.20	0.35	0.35	0.05	0.27	0.25	0.11	0.33	0.31
Sat Flow, veh/h	1792	3064	507	1792	3574	1599	1810	2306	1185	3476	3362	260
Grp Volume(v), veh/h	251	30	32	316	165	1003	42	400	376	307	108	113
Grp Sat Flow(s),veh/h/ln	1792	1787	1783	1792	1787	1599	1810	1805	1686	1738	1787	1835
Q Serve(g_s), s	20.5	1.8	1.9	25.7	4.7	52.7	3.4	31.4	31.7	12.9	6.5	6.6
Cycle Q Clear(g_c), s	20.5	1.8	1.9	25.7	4.7	52.7	3.4	31.4	31.7	12.9	6.5	6.6
Prop In Lane	1.00		0.28	1.00		1.00	1.00		0.70	1.00		0.14
Lane Grp Cap(c), veh/h	291	558	556	361	1254	561	88	480	449	396	593	609
V/C Ratio(X)	0.86	0.05	0.06	0.88	0.13	1.79	0.48	0.83	0.84	0.77	0.18	0.19
Avail Cap(c_a), veh/h	376	558	556	441	1254	561	319	517	483	613	630	647
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	61.3	36.2	36.5	58.2	33.2	48.8	69.6	52.0	53.1	64.7	35.7	35.9
Incr Delay (d2), s/veh	14.9	0.0	0.0	15.4	0.0	361.8	4.0	11.5	12.5	3.3	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.4	0.9	0.9	14.3	2.3	79.7	1.8	17.2	16.3	6.4	3.2	3.4
LnGrp Delay(d),s/veh	76.2	36.2	36.5	73.5	33.2	410.6	73.6	63.4	65.6	67.9	35.9	36.1
LnGrp LOS	E	D	D	E	C	F	E	E	E	E	D	D
Approach Vol, veh/h		313			1484			818			528	
Approach Delay, s/veh		68.3			296.9			65.0			54.6	
Approach LOS		E			F			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.1	44.0	34.2	50.9	11.3	53.8	28.4	56.7
Change Period (Y+Rc), s	5.5	7.0	6.0	6.7	5.5	7.0	5.5	6.7
Max Green Setting (Gmax), s	25.0	40.0	35.0	40.0	25.0	50.0	30.0	50.0
Max Q Clear Time (g_c+I1), s	14.9	33.7	27.7	3.9	5.4	8.6	22.5	54.7
Green Ext Time (p_c), s	0.7	3.2	0.5	0.3	0.1	2.0	0.4	0.0

Intersection Summary			
HCM 2010 Ctrl Delay		173.0	
HCM 2010 LOS		F	

Notes

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	22	546	22	0	1307	8	0	0	20	25	0	67
Future Vol, veh/h	22	546	22	0	1307	8	0	0	20	25	0	67
Conflicting Peds, #/hr	0	0	5	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	-	-	-	-	-	0	0	-	100
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	86	86	86	86	92	86	92	86	92	92	92
Heavy Vehicles, %	2	0	0	1	1	2	0	2	0	2	2	2
Mvmt Flow	24	635	26	0	1520	9	0	0	23	27	0	73

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1529	0	0	-	-	0	-	-	336	1891	-	765
Stage 1	-	-	-	-	-	-	-	-	-	1525	-	-
Stage 2	-	-	-	-	-	-	-	-	-	366	-	-
Critical Hdwy	4.14	-	-	-	-	-	-	-	6.9	7.54	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	6.54	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	6.54	-	-
Follow-up Hdwy	2.22	-	-	-	-	-	-	-	3.3	3.52	-	3.32
Pot Cap-1 Maneuver	432	-	-	0	-	-	0	0	666	43	0	346
Stage 1	-	-	-	0	-	-	0	0	-	123	0	-
Stage 2	-	-	-	0	-	-	0	0	-	626	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	432	-	-	-	-	-	-	-	663	40	-	346
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	97	-	-
Stage 1	-	-	-	-	-	-	-	-	-	116	-	-
Stage 2	-	-	-	-	-	-	-	-	-	570	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0	10.6	28.5
HCM LOS			B	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	663	432	-	-	-	-	97	346
HCM Lane V/C Ratio	0.035	0.055	-	-	-	-	0.28	0.21
HCM Control Delay (s)	10.6	13.8	-	-	-	-	56	18.2
HCM Lane LOS	B	B	-	-	-	-	F	C
HCM 95th %tile Q(veh)	0.1	0.2	-	-	-	-	1	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	108	440	30	30	1084	77	115	6	94	85	6	98
Future Volume (veh/h)	108	440	30	30	1084	77	115	6	94	85	6	98
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	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	1900	1900	1881	1881	1900	1900	1900	1900	1863	1863	1863
Adj Flow Rate, veh/h	129	524	21	36	1290	88	137	7	16	101	7	12
Adj No. of Lanes	1	2	1	1	2	0	1	1	1	1	1	1
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	0	0	0	1	1	1	0	0	0	2	2	2
Cap, veh/h	188	1887	820	108	1628	111	197	247	210	159	206	144
Arrive On Green	0.10	0.52	0.52	0.06	0.48	0.45	0.11	0.13	0.13	0.09	0.11	0.09
Sat Flow, veh/h	1810	3610	1568	1792	3396	231	1810	1900	1611	1774	1863	1578
Grp Volume(v), veh/h	129	524	21	36	678	700	137	7	16	101	7	12
Grp Sat Flow(s),veh/h/ln	1810	1805	1568	1792	1787	1840	1810	1900	1611	1774	1863	1578
Q Serve(g_s), s	5.6	6.6	0.5	1.6	25.8	26.0	5.9	0.3	0.7	4.5	0.3	0.6
Cycle Q Clear(g_c), s	5.6	6.6	0.5	1.6	25.8	26.0	5.9	0.3	0.7	4.5	0.3	0.6
Prop In Lane	1.00		1.00	1.00		0.13	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	188	1887	820	108	857	882	197	247	210	159	206	144
V/C Ratio(X)	0.69	0.28	0.03	0.33	0.79	0.79	0.69	0.03	0.08	0.63	0.03	0.08
Avail Cap(c_a), veh/h	580	2122	921	574	1050	1082	580	1091	925	568	1070	875
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	35.1	10.8	9.4	36.6	17.7	17.9	34.8	30.8	31.0	35.7	32.2	33.8
Incr Delay (d2), s/veh	4.4	0.1	0.0	1.8	3.4	3.4	4.3	0.0	0.2	4.1	0.1	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	3.0	3.3	0.2	0.8	13.4	13.9	3.2	0.1	0.3	2.4	0.1	0.3
LnGrp Delay(d),s/veh	39.5	10.9	9.4	38.4	21.1	21.3	39.2	30.9	31.2	39.8	32.3	34.0
LnGrp LOS	D	B	A	D	C	C	D	C	C	D	C	C
Approach Vol, veh/h		674			1414			160			120	
Approach Delay, s/veh		16.3			21.7			38.0			38.8	
Approach LOS		B			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	12.4	42.9	11.3	14.6	8.9	46.4	12.9	13.0
Change Period (Y+Rc), s	5.0	6.7	5.0	5.6	5.0	6.7	5.0	5.6
Max Green Setting (Gmax), s	25.0	45.0	25.0	45.0	25.0	45.0	25.0	45.0
Max Q Clear Time (g_c+I1), s	7.6	28.0	6.5	2.7	3.6	8.6	7.9	2.6
Green Ext Time (p_c), s	0.3	8.2	0.2	0.1	0.1	3.5	0.3	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	22.1
HCM 2010 LOS	C

Notes

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	636	55	19	945	121	42
Future Volume (veh/h)	636	55	19	945	121	42
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.96	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	1900	1881	1881	1900	1900
Adj Flow Rate, veh/h	723	57	22	1074	138	7
Adj No. of Lanes	2	0	1	2	1	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	1	1	1	1	0	0
Cap, veh/h	2453	193	75	2889	190	169
Arrive On Green	0.73	0.71	0.03	0.54	0.10	0.10
Sat Flow, veh/h	3440	264	1792	3668	1810	1615
Grp Volume(v), veh/h	386	394	22	1074	138	7
Grp Sat Flow(s),veh/h/ln	1787	1822	1792	1787	1810	1615
Q Serve(g_s), s	7.3	7.5	1.2	17.2	7.4	0.4
Cycle Q Clear(g_c), s	7.3	7.5	1.2	17.2	7.4	0.4
Prop In Lane		0.14	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1310	1336	75	2889	190	169
V/C Ratio(X)	0.29	0.29	0.29	0.37	0.73	0.04
Avail Cap(c_a), veh/h	1310	1336	215	2889	380	339
HCM Platoon Ratio	1.00	1.00	0.67	0.67	1.00	1.00
Upstream Filter(I)	0.96	0.96	0.90	0.90	1.00	1.00
Uniform Delay (d), s/veh	4.5	4.6	47.1	8.3	43.4	40.2
Incr Delay (d2), s/veh	0.6	0.5	1.9	0.3	5.3	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	3.7	3.9	0.6	8.7	4.0	0.2
LnGrp Delay(d),s/veh	5.1	5.2	49.0	8.7	48.7	40.3
LnGrp LOS	A	A	D	A	D	D
Approach Vol, veh/h	780			1096	145	
Approach Delay, s/veh	5.1			9.5	48.3	
Approach LOS	A			A	D	

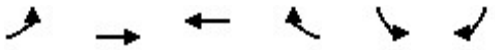
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	8.2	77.3				85.5		14.5
Change Period (Y+Rc), s	5.0	6.7				* 6.7		5.0
Max Green Setting (Gmax), s	1.6	52.3				* 69		20.0
Max Q Clear Time (g_c+I1), s	3.2	9.5				19.2		9.4
Green Ext Time (p_c), s	0.0	7.6				14.8		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	10.6
HCM 2010 LOS	B

Notes

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	600	79	34	831	133	103
Future Volume (vph)	600	79	34	831	133	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0		4.0	4.0	4.0	
Lane Util. Factor	0.95		1.00	0.95	1.00	
Frpb, ped/bikes	0.99		1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00	1.00	1.00	
Frt	0.98		1.00	1.00	0.94	
Flt Protected	1.00		0.95	1.00	0.97	
Satd. Flow (prot)	3486		1787	3574	1739	
Flt Permitted	1.00		0.95	1.00	0.97	
Satd. Flow (perm)	3486		1787	3574	1739	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	667	88	38	923	148	114
RTOR Reduction (vph)	8	0	0	0	28	0
Lane Group Flow (vph)	747	0	38	923	234	0
Confl. Peds. (#/hr)		18				
Confl. Bikes (#/hr)		5				
Heavy Vehicles (%)	1%	1%	1%	1%	0%	0%
Turn Type	NA		Prot	NA	Prot	
Protected Phases	2		1	6 3	7	
Permitted Phases						
Actuated Green, G (s)	39.3		8.8	73.0	16.9	
Effective Green, g (s)	41.3		9.8	74.0	17.9	
Actuated g/C Ratio	0.41		0.10	0.74	0.18	
Clearance Time (s)	5.0		5.0		5.0	
Vehicle Extension (s)	3.0		3.0		3.0	
Lane Grp Cap (vph)	1439		175	2644	311	
v/s Ratio Prot	c0.21		0.02	c0.26	c0.13	
v/s Ratio Perm						
v/c Ratio	0.52		0.22	0.35	0.75	
Uniform Delay, d1	21.9		41.6	4.6	38.9	
Progression Factor	0.77		1.27	0.16	1.00	
Incremental Delay, d2	1.3		0.6	0.1	9.9	
Delay (s)	18.3		53.2	0.8	48.8	
Level of Service	B		D	A	D	
Approach Delay (s)	18.3			2.9	48.8	
Approach LOS	B			A	D	

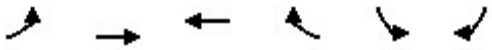
Intersection Summary			
HCM 2000 Control Delay	14.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.1
Intersection Capacity Utilization	48.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	703	777	0	79	88
Future Volume (vph)	0	703	777	0	79	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	4.0		4.0	4.0
Lane Util. Factor		0.95	*0.70		1.00	1.00
Frpb, ped/bikes		1.00	1.00		1.00	1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3574	3950		1736	1553
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3574	3950		1736	1553
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	748	827	0	84	94
RTOR Reduction (vph)	0	0	0	0	0	79
Lane Group Flow (vph)	0	748	827	0	84	15
Confl. Peds. (#/hr)					35	
Heavy Vehicles (%)	1%	1%	1%	1%	4%	4%
Turn Type		NA	NA		Prot	Perm
Protected Phases		2 1 7	6		3	
Permitted Phases						3
Actuated Green, G (s)		75.0	53.1		14.9	14.9
Effective Green, g (s)		77.0	54.1		16.0	16.0
Actuated g/C Ratio		0.77	0.54		0.16	0.16
Clearance Time (s)			5.0		5.1	5.1
Vehicle Extension (s)			3.0		3.0	3.0
Lane Grp Cap (vph)		2751	2136		277	248
v/s Ratio Prot		c0.21	c0.21		c0.05	
v/s Ratio Perm						0.01
v/c Ratio		0.27	0.39		0.30	0.06
Uniform Delay, d1		3.3	13.3		37.1	35.6
Progression Factor		0.19	0.59		1.00	1.00
Incremental Delay, d2		0.0	0.5		0.6	0.1
Delay (s)		0.7	8.3		37.7	35.7
Level of Service		A	A		D	D
Approach Delay (s)		0.7	8.3		36.7	
Approach LOS		A	A		D	

Intersection Summary			
HCM 2000 Control Delay	7.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	31.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	138	644	777	262	0	0
Future Volume (vph)	138	644	777	262	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0			
Lane Util. Factor	1.00	0.95	0.95			
Frpb, ped/bikes	1.00	1.00	0.99			
Flpb, ped/bikes	1.00	1.00	1.00			
Frt	1.00	1.00	0.96			
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	1787	3574	3384			
Flt Permitted	0.95	1.00	1.00			
Satd. Flow (perm)	1787	3574	3384			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	150	700	845	285	0	0
RTOR Reduction (vph)	0	0	18	0	0	0
Lane Group Flow (vph)	150	700	1112	0	0	0
Confl. Peds. (#/hr)				7	10	
Confl. Bikes (#/hr)				2		
Heavy Vehicles (%)	1%	1%	2%	2%	2%	2%
Turn Type	Prot	NA	NA			
Protected Phases	5	2	6			
Permitted Phases						
Actuated Green, G (s)	10.9	85.4	69.9			
Effective Green, g (s)	11.5	86.0	70.5			
Actuated g/C Ratio	0.12	0.86	0.70			
Clearance Time (s)	4.6	4.6	4.6			
Vehicle Extension (s)	3.0	3.0	3.0			
Lane Grp Cap (vph)	205	3073	2385			
v/s Ratio Prot	c0.08	0.20	c0.33			
v/s Ratio Perm						
v/c Ratio	0.73	0.23	0.47			
Uniform Delay, d1	42.8	1.2	6.5			
Progression Factor	0.72	2.87	0.77			
Incremental Delay, d2	12.4	0.2	0.6			
Delay (s)	43.2	3.7	5.6			
Level of Service	D	A	A			
Approach Delay (s)		10.6	5.6		0.0	
Approach LOS		B	A		A	

Intersection Summary			
HCM 2000 Control Delay	7.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.6
Intersection Capacity Utilization	44.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	617	27	90	995	44	198
Future Volume (veh/h)	617	27	90	995	44	198
Number	2	12	1	6	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1900	1863	1863	1863	1900
Adj Flow Rate, veh/h	656	27	96	1059	47	28
Adj No. of Lanes	2	0	1	2	0	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	0	0
Cap, veh/h	2380	98	152	2877	111	66
Arrive On Green	0.23	0.22	0.09	0.81	0.11	0.10
Sat Flow, veh/h	3555	142	1774	3632	1037	618
Grp Volume(v), veh/h	335	348	96	1059	76	0
Grp Sat Flow(s),veh/h/ln	1770	1835	1774	1770	1676	0
Q Serve(g_s), s	15.6	15.6	5.2	8.0	4.3	0.0
Cycle Q Clear(g_c), s	15.6	15.6	5.2	8.0	4.3	0.0
Prop In Lane		0.08	1.00		0.62	0.37
Lane Grp Cap(c), veh/h	1216	1261	152	2877	180	0
V/C Ratio(X)	0.28	0.28	0.63	0.37	0.42	0.00
Avail Cap(c_a), veh/h	1216	1261	284	2877	520	0
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.99	0.99	0.56	0.56	1.00	0.00
Uniform Delay (d), s/veh	18.1	18.1	44.2	2.5	41.9	0.0
Incr Delay (d2), s/veh	0.6	0.5	2.4	0.2	1.6	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	7.8	8.1	2.7	3.9	2.0	0.0
LnGrp Delay(d),s/veh	18.7	18.7	46.7	2.7	43.5	0.0
LnGrp LOS	B	B	D	A	D	
Approach Vol, veh/h	683			1155	76	
Approach Delay, s/veh	18.7			6.4	43.5	
Approach LOS	B			A	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	12.5	72.7		14.7		85.3		
Change Period (Y+Rc), s	5.1	5.5		5.1		5.5		
Max Green Setting (Gmax), s	14.9	39.5		29.9		59.5		
Max Q Clear Time (g_c+I1), s	7.2	17.6		6.3		10.0		
Green Ext Time (p_c), s	0.1	4.1		0.2		9.7		

Intersection Summary	
HCM 2010 Ctrl Delay	12.2
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	285	338	127	546	519	246	89	492	193
Future Volume (veh/h)	0	0	0	285	338	127	546	519	246	89	492	193
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.98	1.00		0.99	1.00		0.97
Parking Bus, Adj				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	1900	1900	1845	1845	1900	1863	1863	1900
Adj Flow Rate, veh/h				297	352	132	569	541	202	93	512	201
Adj No. of Lanes				0	2	0	2	3	0	1	2	0
Peak Hour Factor				0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				0	0	0	3	3	3	2	2	2
Cap, veh/h				341	430	166	656	2103	762	124	1121	438
Arrive On Green				0.26	0.26	0.25	0.19	0.58	0.57	0.07	0.46	0.45
Sat Flow, veh/h				1311	1654	639	3408	3640	1319	1774	2462	961
Grp Volume(v), veh/h				416	0	365	569	498	245	93	367	346
Grp Sat Flow(s),veh/h/ln				1834	0	1770	1704	1679	1602	1774	1770	1654
Q Serve(g_s), s				28.2	0.0	25.1	21.0	9.6	10.1	6.7	18.5	18.8
Cycle Q Clear(g_c), s				28.2	0.0	25.1	21.0	9.6	10.1	6.7	18.5	18.8
Prop In Lane				0.71		0.36	1.00		0.82	1.00		0.58
Lane Grp Cap(c), veh/h				477	0	460	656	1940	926	124	806	753
V/C Ratio(X)				0.87	0.00	0.79	0.87	0.26	0.26	0.75	0.46	0.46
Avail Cap(c_a), veh/h				594	0	573	1224	1940	926	237	806	753
HCM Platoon Ratio				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
Uniform Delay (d), s/veh				46.0	0.0	45.1	50.9	13.6	13.9	59.3	24.3	24.6
Incr Delay (d2), s/veh				9.8	0.0	4.8	2.0	0.3	0.7	3.4	1.9	2.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				15.6	0.0	12.9	10.1	4.5	4.6	3.4	9.5	9.0
LnGrp Delay(d),s/veh				55.9	0.0	49.9	52.9	13.9	14.6	62.7	26.2	26.7
LnGrp LOS				E		D	D	B	B	E	C	C
Approach Vol, veh/h					781			1312			806	
Approach Delay, s/veh					53.1			31.0			30.6	
Approach LOS					D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2			5	6		8
Phs Duration (G+Y+Rc), s	13.1	79.1			29.0	63.2		37.8
Change Period (Y+Rc), s	* 4.7	5.1			* 4.7	5.1		5.1
Max Green Setting (Gmax), s	* 13	57.4			* 46	28.1		41.0
Max Q Clear Time (g_c+I1), s	8.7	12.1			23.0	20.8		30.2
Green Ext Time (p_c), s	0.0	5.9			1.3	2.6		2.5

Intersection Summary	
HCM 2010 Ctrl Delay	36.8
HCM 2010 LOS	D

Notes

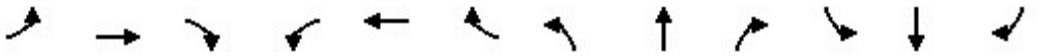
Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↱			↱		↑↑↑			↑↑	
Traffic Vol, veh/h	0	0	233	0	0	84	0	1227	0	0	777	0
Future Vol, veh/h	0	0	233	0	0	84	0	1227	0	0	777	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	10	0	0	0
Sign Control	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	4	4	4	3	3	3	2	2	2
Mvmt Flow	0	0	245	0	0	88	0	1292	0	0	818	0

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	-	-	646	-	0	-	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.18	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.94	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	351	0	-	0	0	-	0
Stage 1	0	0	-	0	-	0	0	-	0
Stage 2	0	0	-	0	-	0	0	-	0
Platoon blocked, %					-			-	
Mov Cap-1 Maneuver	-	0	351	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	0	-	-	-	-	-	-	-
Stage 1	-	0	-	-	-	-	-	-	-
Stage 2	-	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.7	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	351	-
HCM Lane V/C Ratio	-	0.252	-
HCM Control Delay (s)	-	18.7	-
HCM Lane LOS	-	C	-
HCM 95th %tile Q(veh)	-	1	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	52	48	187	0	0	214	0	961	287	210	602	198
Future Volume (vph)	52	48	187	0	0	214	0	961	287	210	602	198
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0			4.0		4.0	2.0	4.0	2.0	2.0
Lane Util. Factor		0.95	1.00			1.00		0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes		1.00	0.99			1.00		1.00	0.97	1.00	1.00	0.93
Flpb, ped/bikes		1.00	1.00			1.00		1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.85			0.85		1.00	0.85	1.00	1.00	0.85
Flt Protected		0.97	1.00			1.00		1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		3350	1520			1568		3505	1528	3433	3539	1479
Flt Permitted		0.97	1.00			1.00		1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		3350	1520			1568		3505	1528	3433	3539	1479
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	54	49	193	0	0	221	0	991	296	216	621	204
RTOR Reduction (vph)	0	0	137	0	0	0	0	0	68	0	0	60
Lane Group Flow (vph)	0	103	56	0	0	221	0	991	228	216	621	144
Confl. Peds. (#/hr)			4						7			13
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	3%	3%	3%	2%	2%	2%
Turn Type	Split	NA	custom			custom		NA	custom	Prot	NA	custom
Protected Phases	4!	4	5	3!	3!	1 2 4!		2 3!	3	1	3 6!	3!
Permitted Phases			4						2			6
Actuated Green, G (s)		16.2	22.2			107.5		89.3	84.3	12.5	94.8	89.8
Effective Green, g (s)		17.2	24.2			102.5		90.3	86.3	12.5	91.8	91.8
Actuated g/C Ratio		0.13	0.19			0.79		0.69	0.66	0.10	0.71	0.71
Clearance Time (s)		5.0	5.0						3.0	4.0		3.0
Vehicle Extension (s)		2.0	2.0						2.0	2.0		2.0
Lane Grp Cap (vph)		443	329			1236		2434	1014	330	2499	1044
v/s Ratio Prot		c0.03	0.01			0.14		c0.28	0.03	c0.06	0.18	0.02
v/s Ratio Perm			0.03						0.12			0.08
v/c Ratio		0.23	0.17			0.18		0.41	0.23	0.65	0.25	0.14
Uniform Delay, d1		50.5	44.5			3.4		8.5	8.6	56.7	6.8	6.2
Progression Factor		1.00	1.00			1.00		1.00	1.00	0.89	1.27	2.77
Incremental Delay, d2		0.1	0.1			0.0		0.0	0.0	3.2	0.0	0.0
Delay (s)		50.6	44.6			3.4		8.5	8.7	53.8	8.6	17.2
Level of Service		D	D			A		A	A	D	A	B
Approach Delay (s)		46.7			3.4			8.5			19.7	
Approach LOS		D			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	16.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	61.7%	ICU Level of Service	B
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	225	156	382	293	921	613	80	202	19	166	413	117
Future Volume (veh/h)	225	156	382	293	921	613	80	202	19	166	413	117
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		0.97	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1881	1881	1881	1792	1792	1900	1810	1810	1810
Adj Flow Rate, veh/h	239	166	149	312	980	443	85	215	16	177	439	43
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	2	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	1	1	1	6	6	6	5	5	5
Cap, veh/h	285	554	465	360	1248	542	124	868	64	276	507	430
Arrive On Green	0.16	0.30	0.29	0.20	0.35	0.35	0.07	0.27	0.26	0.08	0.28	0.28
Sat Flow, veh/h	1774	1827	1534	1792	3574	1553	1707	3213	237	3343	1810	1535
Grp Volume(v), veh/h	239	160	155	312	980	443	85	113	118	177	439	43
Grp Sat Flow(s),veh/h/ln	1774	1770	1592	1792	1787	1553	1707	1703	1747	1672	1810	1535
Q Serve(g_s), s	15.2	8.1	8.9	19.6	28.7	30.3	5.7	6.1	6.2	6.0	26.9	2.4
Cycle Q Clear(g_c), s	15.2	8.1	8.9	19.6	28.7	30.3	5.7	6.1	6.2	6.0	26.9	2.4
Prop In Lane	1.00		0.96	1.00		1.00	1.00		0.14	1.00		1.00
Lane Grp Cap(c), veh/h	285	536	483	360	1248	542	124	460	472	276	507	430
V/C Ratio(X)	0.84	0.30	0.32	0.87	0.79	0.82	0.69	0.25	0.25	0.64	0.87	0.10
Avail Cap(c_a), veh/h	397	782	703	509	1417	616	455	606	622	978	660	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	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	47.4	31.1	32.0	45.1	34.0	34.5	52.8	33.2	33.4	51.8	39.9	31.1
Incr Delay (d2), s/veh	10.7	0.3	0.4	10.9	2.6	7.6	6.6	0.3	0.3	2.5	9.4	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	8.3	4.0	4.0	10.8	14.6	14.0	2.9	2.9	3.0	2.8	14.7	1.0
LnGrp Delay(d),s/veh	58.2	31.4	32.3	55.9	36.7	42.1	59.3	33.5	33.6	54.3	49.3	31.2
LnGrp LOS	E	C	C	E	D	D	E	C	C	D	D	C
Approach Vol, veh/h		554			1735			316			659	
Approach Delay, s/veh		43.2			41.5			40.5			49.4	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.6	35.5	27.4	40.0	12.5	36.7	22.7	44.7
Change Period (Y+Rc), s	5.1	5.5	5.1	* 6.2	5.1	5.5	5.1	6.2
Max Green Setting (Gmax), s	33.0	40.0	32.0	* 50	30.0	41.0	25.0	44.0
Max Q Clear Time (g_c+I1), s	8.0	8.2	21.6	10.9	7.7	28.9	17.2	32.3
Green Ext Time (p_c), s	0.6	1.4	0.7	2.0	0.2	2.3	0.4	6.2

Intersection Summary	
HCM 2010 Ctrl Delay	43.3
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	346	21	1	1830	3	94	1	3	4	0	13
Future Volume (veh/h)	7	346	21	1	1830	3	94	1	3	4	0	13
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	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	1900	1900	1900	1900	1776	1900
Adj Flow Rate, veh/h	7	368	19	1	1947	3	100	1	1	4	0	1
Adj No. of Lanes	1	2	0	1	2	0	0	1	1	0	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	1	1	1	1	1	0	0	0	7	7	7
Cap, veh/h	22	2066	106	3	2152	3	492	5	470	330	6	69
Arrive On Green	0.01	0.60	0.58	0.00	0.59	0.57	0.29	0.29	0.29	0.29	0.00	0.29
Sat Flow, veh/h	1792	3455	178	1792	3662	6	1468	16	1615	931	21	238
Grp Volume(v), veh/h	7	190	197	1	950	1000	101	0	1	5	0	0
Grp Sat Flow(s),veh/h/ln	1792	1787	1845	1792	1787	1880	1484	0	1615	1191	0	0
Q Serve(g_s), s	0.4	5.3	5.3	0.1	51.5	51.5	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.4	5.3	5.3	0.1	51.5	51.5	4.9	0.0	0.0	4.9	0.0	0.0
Prop In Lane	1.00		0.10	1.00		0.00	0.99		1.00	0.80		0.20
Lane Grp Cap(c), veh/h	22	1069	1104	3	1050	1105	497	0	470	405	0	0
V/C Ratio(X)	0.32	0.18	0.18	0.29	0.90	0.90	0.20	0.00	0.00	0.01	0.00	0.00
Avail Cap(c_a), veh/h	195	1069	1104	195	1050	1105	497	0	470	405	0	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)	0.85	0.85	0.85	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	53.9	9.9	10.0	54.8	20.0	20.0	29.4	0.0	27.7	27.9	0.0	0.0
Incr Delay (d2), s/veh	6.9	0.3	0.3	41.3	12.6	12.1	0.9	0.0	0.0	0.0	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	0.3	2.7	2.8	0.1	28.7	30.1	2.4	0.0	0.0	0.1	0.0	0.0
LnGrp Delay(d),s/veh	60.8	10.2	10.3	96.1	32.5	32.1	30.3	0.0	27.7	27.9	0.0	0.0
LnGrp LOS	E	B	B	F	C	C	C		C	C		
Approach Vol, veh/h		394			1951			102			5	
Approach Delay, s/veh		11.2			32.3			30.3			27.9	
Approach LOS		B			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.2	69.8		36.0	5.3	68.7		36.0
Change Period (Y+Rc), s	4.0	5.7		4.6	4.0	5.7		4.6
Max Green Setting (Gmax), s	12.6	52.3		31.4	12.0	52.3		31.4
Max Q Clear Time (g_c+I1), s	2.1	7.3		6.9	2.4	53.5		6.9
Green Ext Time (p_c), s	0.0	2.2		0.0	0.0	0.0		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	28.8
HCM 2010 LOS	C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	32	68	247	52	202	1016
Future Volume (Veh/h)	32	68	247	52	202	1016
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	34	72	263	55	215	1081
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1802	290			318	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1802	290			318	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	54	90			83	
cM capacity (veh/h)	73	753			1253	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	106	318	1296
Volume Left	34	0	215
Volume Right	72	55	0
cSH	190	1700	1253
Volume to Capacity	0.56	0.19	0.17
Queue Length 95th (ft)	74	0	15
Control Delay (s)	45.6	0.0	4.7
Lane LOS	E		A
Approach Delay (s)	45.6	0.0	4.7
Approach LOS	E		

Intersection Summary			
Average Delay	6.4		
Intersection Capacity Utilization	96.8%	ICU Level of Service	F
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	129	324	72	121	1051	77	33	127	17	106	296	571
Future Volume (veh/h)	129	324	72	121	1051	77	33	127	17	106	296	571
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1881	1881	1900	1900	1776	1900	1900	1881	1881
Adj Flow Rate, veh/h	136	341	65	127	1106	78	35	134	15	112	312	203
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	1	1	1	7	7	7	1	1	1
Cap, veh/h	173	1138	215	164	1275	90	43	167	19	127	352	412
Arrive On Green	0.10	0.38	0.38	0.09	0.38	0.37	0.13	0.13	0.13	0.26	0.26	0.26
Sat Flow, veh/h	1774	2972	560	1792	3382	238	330	1263	141	490	1366	1599
Grp Volume(v), veh/h	136	202	204	127	584	600	184	0	0	424	0	203
Grp Sat Flow(s),veh/h/ln	1774	1770	1763	1792	1787	1833	1734	0	0	1857	0	1599
Q Serve(g_s), s	8.8	9.3	9.6	8.2	35.6	35.7	12.1	0.0	0.0	25.9	0.0	12.7
Cycle Q Clear(g_c), s	8.8	9.3	9.6	8.2	35.6	35.7	12.1	0.0	0.0	25.9	0.0	12.7
Prop In Lane	1.00		0.32	1.00		0.13	0.19		0.08	0.26		1.00
Lane Grp Cap(c), veh/h	173	678	675	164	674	691	229	0	0	479	0	412
V/C Ratio(X)	0.79	0.30	0.30	0.78	0.87	0.87	0.80	0.00	0.00	0.89	0.00	0.49
Avail Cap(c_a), veh/h	392	766	763	395	774	794	530	0	0	567	0	489
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	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	52.0	25.3	25.4	52.3	34.0	34.0	49.7	0.0	0.0	42.0	0.0	37.1
Incr Delay (d2), s/veh	7.7	0.2	0.2	7.7	9.3	9.2	6.5	0.0	0.0	13.8	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	4.6	4.7	4.4	19.3	19.8	6.2	0.0	0.0	15.1	0.0	5.7
LnGrp Delay(d),s/veh	59.7	25.5	25.7	60.0	43.3	43.2	56.2	0.0	0.0	55.8	0.0	38.1
LnGrp LOS	E	C	C	E	D	D	E			E		D
Approach Vol, veh/h		542			1311			184			627	
Approach Delay, s/veh		34.2			44.8			56.2			50.1	
Approach LOS		C			D			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	14.8	49.1		34.4	15.5	48.4		19.5
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	25.5	50.5		35.5	25.5	50.5		35.5
Max Q Clear Time (g_c+I1), s	10.2	11.6		27.9	10.8	37.7		14.1
Green Ext Time (p_c), s	0.3	2.5		2.0	0.3	6.2		0.9

Intersection Summary	
HCM 2010 Ctrl Delay	44.7
HCM 2010 LOS	D

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	11	587	1	6	1226
Future Vol, veh/h	1	11	587	1	6	1226
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	-	-	350	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	33	33	1	1	2	2
Mvmt Flow	1	12	624	1	6	1304

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1289	313	0	0	625	0
Stage 1	625	-	-	-	-	-
Stage 2	664	-	-	-	-	-
Critical Hdwy	7.46	7.56	-	-	4.14	-
Critical Hdwy Stg 1	6.46	-	-	-	-	-
Critical Hdwy Stg 2	6.46	-	-	-	-	-
Follow-up Hdwy	3.83	3.63	-	-	2.22	-
Pot Cap-1 Maneuver	119	599	-	-	952	-
Stage 1	419	-	-	-	-	-
Stage 2	398	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	116	599	-	-	952	-
Mov Cap-2 Maneuver	116	-	-	-	-	-
Stage 1	409	-	-	-	-	-
Stage 2	398	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.3	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	445	952	-
HCM Lane V/C Ratio	-	-	0.029	0.007	-
HCM Control Delay (s)	-	-	13.3	8.8	0.1
HCM Lane LOS	-	-	B	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)	68	0	146	143	81	243	129	890	0	0	641	31
Future Volume (veh/h)	68	0	146	143	81	243	129	890	0	0	641	31
Number	3	8	18	7	4	14	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	1900	1881	1881	1863	1863	0	0	1881	1900
Adj Flow Rate, veh/h	74	0	20	155	88	65	140	967	0	0	697	27
Adj No. of Lanes	2	0	1	0	1	1	1	3	0	0	4	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, %	1	1	1	1	1	1	2	2	0	0	1	1
Cap, veh/h	280	0	125	213	121	293	182	2352	0	0	1725	66
Arrive On Green	0.08	0.00	0.08	0.18	0.18	0.18	0.10	0.46	0.00	0.00	0.27	0.24
Sat Flow, veh/h	3583	0	1599	1163	660	1599	1774	5253	0	0	6706	248
Grp Volume(v), veh/h	74	0	20	243	0	65	140	967	0	0	524	200
Grp Sat Flow(s),veh/h/ln	1792	0	1599	1823	0	1599	1774	1695	0	0	1618	1837
Q Serve(g_s), s	0.8	0.0	0.5	5.5	0.0	1.5	3.3	5.5	0.0	0.0	3.9	3.9
Cycle Q Clear(g_c), s	0.8	0.0	0.5	5.5	0.0	1.5	3.3	5.5	0.0	0.0	3.9	3.9
Prop In Lane	1.00		1.00	0.64		1.00	1.00		0.00	0.00		0.13
Lane Grp Cap(c), veh/h	280	0	125	334	0	293	182	2352	0	0	1299	492
V/C Ratio(X)	0.26	0.00	0.16	0.73	0.00	0.22	0.77	0.41	0.00	0.00	0.40	0.41
Avail Cap(c_a), veh/h	1649	0	736	839	0	736	816	3627	0	0	3461	1310
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	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	18.9	0.0	18.7	16.7	0.0	15.1	19.0	7.8	0.0	0.0	13.1	13.1
Incr Delay (d2), s/veh	0.4	0.0	0.4	1.1	0.0	0.1	2.6	0.1	0.0	0.0	0.2	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.2	2.8	0.0	0.7	1.8	2.5	0.0	0.0	1.7	2.0
LnGrp Delay(d),s/veh	19.2	0.0	19.1	17.9	0.0	15.3	21.5	7.9	0.0	0.0	13.3	13.7
LnGrp LOS	B		B	B		B	C	A			B	B
Approach Vol, veh/h		94			308			1107			724	
Approach Delay, s/veh		19.2			17.3			9.6			13.4	
Approach LOS		B			B			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		24.1		12.0	8.5	15.6		7.4
Change Period (Y+Rc), s		5.0		4.0	4.0	5.0		4.0
Max Green Setting (Gmax), s		30.0		20.0	20.0	30.0		20.0
Max Q Clear Time (g_c+I1), s		7.5		7.5	5.3	5.9		2.8
Green Ext Time (p_c), s		6.7		0.7	0.1	4.6		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	12.3
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	800	0	722	0	0	0	0	566	116	0	348	218
Future Volume (veh/h)	800	0	722	0	0	0	0	566	116	0	348	218
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	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
Parking Bus, Adj	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				0	1881	1900	0	1900	1900
Adj Flow Rate, veh/h	833	0	662				0	590	86	0	362	0
Adj No. of Lanes	2	0	1				0	3	0	0	2	1
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2				0	1	1	0	0	0
Cap, veh/h	1925	0	859				0	1282	184	0	1020	386
Arrive On Green	0.54	0.00	0.54				0.00	0.28	0.24	0.00	0.28	0.00
Sat Flow, veh/h	3548	0	1583				0	4707	653	0	3705	1615
Grp Volume(v), veh/h	833	0	662				0	443	233	0	362	0
Grp Sat Flow(s),veh/h/ln	1774	0	1583				0	1712	1766	0	1805	1615
Q Serve(g_s), s	6.4	0.0	15.0				0.0	4.9	5.0	0.0	3.7	0.0
Cycle Q Clear(g_c), s	6.4	0.0	15.0				0.0	4.9	5.0	0.0	3.7	0.0
Prop In Lane	1.00		1.00				0.00		0.37	0.00		1.00
Lane Grp Cap(c), veh/h	1925	0	859				0	967	499	0	1020	386
V/C Ratio(X)	0.43	0.00	0.77				0.00	0.46	0.47	0.00	0.35	0.00
Avail Cap(c_a), veh/h	4309	0	1923				0	2023	1043	0	2133	884
HCM Platoon Ratio	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	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	6.3	0.0	8.2				0.0	13.5	13.9	0.0	13.1	0.0
Incr Delay (d2), s/veh	0.2	0.0	1.5				0.0	0.3	0.7	0.0	0.2	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
%ile BackOfQ(50%),veh/ln	3.2	0.0	6.8				0.0	2.3	2.5	0.0	1.8	0.0
LnGrp Delay(d),s/veh	6.4	0.0	9.7				0.0	13.9	14.6	0.0	13.3	0.0
LnGrp LOS	A		A					B	B		B	
Approach Vol, veh/h		1495						676			362	
Approach Delay, s/veh		7.9						14.1			13.3	
Approach LOS		A						B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		16.9		28.8		16.9		
Change Period (Y+Rc), s		6.0		4.5		6.0		
Max Green Setting (Gmax), s		25.0		55.0		25.0		
Max Q Clear Time (g_c+I1), s		7.0		17.0		5.7		
Green Ext Time (p_c), s		3.9		7.3		2.0		

Intersection Summary	
HCM 2010 Ctrl Delay	10.3
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	133	74	18	209	78	324	22	182	183	621	264	88
Future Volume (veh/h)	133	74	18	209	78	324	22	182	183	621	264	88
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		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1900	1900	1900	1881	1881	1900	1900	1900	1900
Adj Flow Rate, veh/h	141	79	3	222	83	192	23	194	34	661	281	76
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	2	2	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	0	0	0	1	1	1	0	0	0
Cap, veh/h	187	478	18	232	578	243	77	363	63	1711	1592	423
Arrive On Green	0.11	0.14	0.12	0.13	0.16	0.15	0.04	0.12	0.10	0.49	0.56	0.54
Sat Flow, veh/h	1774	3477	131	1810	3610	1615	1792	3049	525	3510	2823	750
Grp Volume(v), veh/h	141	40	42	222	83	192	23	112	116	661	178	179
Grp Sat Flow(s),veh/h/ln	1774	1770	1839	1810	1805	1615	1792	1787	1787	1755	1805	1768
Q Serve(g_s), s	9.7	2.5	2.5	15.2	2.5	14.3	1.6	7.4	7.7	14.9	6.0	6.3
Cycle Q Clear(g_c), s	9.7	2.5	2.5	15.2	2.5	14.3	1.6	7.4	7.7	14.9	6.0	6.3
Prop In Lane	1.00		0.07	1.00		1.00	1.00		0.29	1.00		0.42
Lane Grp Cap(c), veh/h	187	243	253	232	578	243	77	213	213	1711	1018	997
V/C Ratio(X)	0.76	0.16	0.17	0.96	0.14	0.79	0.30	0.53	0.54	0.39	0.17	0.18
Avail Cap(c_a), veh/h	227	566	588	232	1155	501	172	586	586	1711	1018	997
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	0.75	0.75	0.75
Uniform Delay (d), s/veh	54.4	47.6	47.7	54.2	45.1	51.2	58.0	51.7	52.3	20.2	13.2	13.6
Incr Delay (d2), s/veh	11.0	0.3	0.3	47.4	0.1	5.7	2.2	3.2	3.4	0.1	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	5.3	1.2	1.3	10.7	1.2	6.8	0.8	3.8	4.0	7.2	3.0	3.1
LnGrp Delay(d),s/veh	65.3	47.9	48.0	101.6	45.2	56.9	60.2	54.9	55.7	20.3	13.3	13.7
LnGrp LOS	E	D	D	F	D	E	E	D	E	C	B	B
Approach Vol, veh/h		223			497			251			1018	
Approach Delay, s/veh		58.9			74.9			55.7			17.9	
Approach LOS		E			E			E			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	64.9	18.9	20.0	21.2	9.4	74.5	17.2	24.0
Change Period (Y+Rc), s	5.5	7.0	6.0	6.7	5.5	7.0	5.5	6.7
Max Green Setting (Gmax), s	10.5	38.0	14.0	37.3	10.5	38.0	14.5	37.3
Max Q Clear Time (g_c+I1), s	16.9	9.7	17.2	4.5	3.6	8.3	11.7	16.3
Green Ext Time (p_c), s	0.0	1.9	0.0	0.4	0.0	3.3	0.1	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	41.5
HCM 2010 LOS	D

Notes

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	75	757	32	0	592	28	0	0	16	16	0	44
Future Vol, veh/h	75	757	32	0	592	28	0	0	16	16	0	44
Conflicting Peds, #/hr	0	0	3	3	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	-	-	-	-	-	0	0	-	100
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	99	99	99	99	92	99	92	99	92	92	92
Heavy Vehicles, %	2	0	0	0	0	2	0	2	0	2	2	2
Mvmt Flow	82	765	32	0	598	30	0	0	16	17	0	48

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	628	0	0	-	-	0	-	-	402	1160	-	314
Stage 1	-	-	-	-	-	-	-	-	-	613	-	-
Stage 2	-	-	-	-	-	-	-	-	-	547	-	-
Critical Hdwy	4.14	-	-	-	-	-	-	-	6.9	7.54	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	6.54	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	6.54	-	-
Follow-up Hdwy	2.22	-	-	-	-	-	-	-	3.3	3.52	-	3.32
Pot Cap-1 Maneuver	950	-	-	0	-	-	0	0	604	151	0	682
Stage 1	-	-	-	0	-	-	0	0	-	446	0	-
Stage 2	-	-	-	0	-	-	0	0	-	489	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	950	-	-	-	-	-	-	-	602	137	-	682
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	255	-	-
Stage 1	-	-	-	-	-	-	-	-	-	408	-	-
Stage 2	-	-	-	-	-	-	-	-	-	435	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	0	11.1	13.2
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	602	950	-	-	-	-	255	682
HCM Lane V/C Ratio	0.027	0.086	-	-	-	-	0.068	0.07
HCM Control Delay (s)	11.1	9.1	-	-	-	-	20.1	10.7
HCM Lane LOS	B	A	-	-	-	-	C	B
HCM 95th %tile Q(veh)	0.1	0.3	-	-	-	-	0.2	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	259	457	63	93	362	210	41	16	47	208	15	217
Future Volume (veh/h)	259	457	63	93	362	210	41	16	47	208	15	217
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1900	1900	1900	1900	1863	1863	1863
Adj Flow Rate, veh/h	267	471	36	96	373	165	42	16	3	214	15	35
Adj No. of Lanes	1	2	1	1	2	0	1	1	1	1	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	1	1	1	1	0	0	0	2	2	2
Cap, veh/h	309	2095	933	133	1183	516	92	128	109	255	299	234
Arrive On Green	0.17	0.59	0.59	0.07	0.49	0.47	0.05	0.07	0.07	0.14	0.16	0.15
Sat Flow, veh/h	1792	3574	1592	1792	2424	1057	1810	1900	1615	1774	1863	1583
Grp Volume(v), veh/h	267	471	36	96	274	264	42	16	3	214	15	35
Grp Sat Flow(s),veh/h/ln	1792	1787	1592	1792	1787	1693	1810	1900	1615	1774	1863	1583
Q Serve(g_s), s	18.1	7.9	1.2	6.6	11.6	12.1	2.8	1.0	0.2	14.7	0.9	2.4
Cycle Q Clear(g_c), s	18.1	7.9	1.2	6.6	11.6	12.1	2.8	1.0	0.2	14.7	0.9	2.4
Prop In Lane	1.00		1.00	1.00		0.62	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	309	2095	933	133	872	826	92	128	109	255	299	234
V/C Ratio(X)	0.86	0.22	0.04	0.72	0.31	0.32	0.46	0.12	0.03	0.84	0.05	0.15
Avail Cap(c_a), veh/h	416	2095	933	186	872	826	116	328	279	341	560	456
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	0.98	0.98	0.98	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.3	12.3	11.0	56.6	19.3	20.0	57.6	54.8	54.4	52.1	44.4	46.4
Incr Delay (d2), s/veh	13.3	0.2	0.1	7.7	0.9	1.0	3.5	0.4	0.1	13.0	0.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.1	3.9	0.5	3.5	5.9	5.9	1.5	0.5	0.1	8.1	0.4	1.1
LnGrp Delay(d),s/veh	63.6	12.6	11.0	64.3	20.3	21.0	61.1	55.2	54.5	65.1	44.5	46.7
LnGrp LOS	E	B	B	E	C	C	E	E	D	E	D	D
Approach Vol, veh/h		774			634			61			264	
Approach Delay, s/veh		30.1			27.2			59.2			61.5	
Approach LOS		C			C			E			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	25.6	65.0	22.0	12.5	13.3	77.3	10.4	24.1
Change Period (Y+Rc), s	5.0	6.7	5.0	5.6	5.0	6.7	5.0	5.6
Max Green Setting (Gmax), s	28.0	31.7	23.0	20.0	12.0	47.7	7.0	36.0
Max Q Clear Time (g_c+I1), s	20.1	14.1	16.7	3.0	8.6	9.9	4.8	4.4
Green Ext Time (p_c), s	0.5	2.8	0.3	0.0	0.1	3.2	0.0	0.1

Intersection Summary	
HCM 2010 Ctrl Delay	34.9
HCM 2010 LOS	C

Notes

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	573	102	53	607	59	34
Future Volume (veh/h)	573	102	53	607	59	34
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.97	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	1900	1900	1881	1881	1881	1881
Adj Flow Rate, veh/h	651	107	60	690	67	4
Adj No. of Lanes	2	0	1	2	1	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	0	0	1	1	1	1
Cap, veh/h	2296	377	120	3012	126	112
Arrive On Green	0.74	0.72	0.07	0.84	0.07	0.07
Sat Flow, veh/h	3186	507	1792	3668	1792	1599
Grp Volume(v), veh/h	380	378	60	690	67	4
Grp Sat Flow(s),veh/h/ln	1805	1793	1792	1787	1792	1599
Q Serve(g_s), s	6.8	7.1	3.2	3.8	3.6	0.2
Cycle Q Clear(g_c), s	6.8	7.1	3.2	3.8	3.6	0.2
Prop In Lane		0.28	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1341	1332	120	3012	126	112
V/C Ratio(X)	0.28	0.28	0.50	0.23	0.53	0.04
Avail Cap(c_a), veh/h	1341	1332	215	3012	376	336
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.93	0.93	0.97	0.97	1.00	1.00
Uniform Delay (d), s/veh	4.2	4.3	45.1	1.5	44.9	43.3
Incr Delay (d2), s/veh	0.5	0.5	3.1	0.2	3.5	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	3.6	3.6	1.7	1.9	1.9	0.1
LnGrp Delay(d),s/veh	4.7	4.8	48.2	1.7	48.4	43.5
LnGrp LOS	A	A	D	A	D	D
Approach Vol, veh/h	758			750	71	
Approach Delay, s/veh	4.8			5.4	48.1	
Approach LOS	A			A	D	

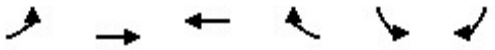
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	10.7	78.3				89.0		11.0
Change Period (Y+Rc), s	5.0	6.7				* 6.7		5.0
Max Green Setting (Gmax), s	10.0	52.3				* 69		20.0
Max Q Clear Time (g_c+I1), s	5.2	9.1				5.8		5.6
Green Ext Time (p_c), s	0.0	7.4				8.1		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	7.0
HCM 2010 LOS	A

Notes

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	525	88	114	591	62	73
Future Volume (vph)	525	88	114	591	62	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0		4.0	4.0	4.0	
Lane Util. Factor	0.95		1.00	0.95	1.00	
Frpb, ped/bikes	0.99		1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00	1.00	1.00	
Frt	0.98		1.00	1.00	0.93	
Flt Protected	1.00		0.95	1.00	0.98	
Satd. Flow (prot)	3507		1787	3574	1722	
Flt Permitted	1.00		0.95	1.00	0.98	
Satd. Flow (perm)	3507		1787	3574	1722	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	590	99	128	664	70	82
RTOR Reduction (vph)	11	0	0	0	44	0
Lane Group Flow (vph)	678	0	128	664	108	0
Confl. Peds. (#/hr)		13				
Confl. Bikes (#/hr)		1				
Heavy Vehicles (%)	0%	0%	1%	1%	0%	0%
Turn Type	NA		Prot	NA	Prot	
Protected Phases	2		1	6 3	7	
Permitted Phases						
Actuated Green, G (s)	34.4		9.8	75.0	14.9	
Effective Green, g (s)	36.4		10.8	76.0	15.9	
Actuated g/C Ratio	0.36		0.11	0.76	0.16	
Clearance Time (s)	5.0		5.0		5.0	
Vehicle Extension (s)	3.0		3.0		3.0	
Lane Grp Cap (vph)	1276		192	2716	273	
v/s Ratio Prot	c0.19		c0.07	c0.19	c0.06	
v/s Ratio Perm						
v/c Ratio	0.53		0.67	0.24	0.40	
Uniform Delay, d1	25.1		42.9	3.5	37.7	
Progression Factor	0.80		1.13	0.13	1.00	
Incremental Delay, d2	1.5		8.1	0.0	1.0	
Delay (s)	21.6		56.4	0.5	38.7	
Level of Service	C		E	A	D	
Approach Delay (s)	21.6			9.6	38.7	
Approach LOS	C			A	D	

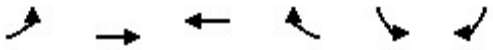
Intersection Summary			
HCM 2000 Control Delay	17.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.1
Intersection Capacity Utilization	43.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	592	575	0	187	133
Future Volume (vph)	0	592	575	0	187	133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	4.0		4.0	4.0
Lane Util. Factor		0.95	*0.70		1.00	1.00
Frpb, ped/bikes		1.00	1.00		1.00	1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3610	3950		1752	1568
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3610	3950		1752	1568
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	0	705	685	0	223	158
RTOR Reduction (vph)	0	0	0	0	0	123
Lane Group Flow (vph)	0	705	685	0	223	35
Confl. Peds. (#/hr)					24	
Heavy Vehicles (%)	0%	0%	1%	1%	3%	3%
Turn Type		NA	NA		Prot	Perm
Protected Phases		2 1 7	6		3	
Permitted Phases						3
Actuated Green, G (s)		69.1	49.2		20.8	20.8
Effective Green, g (s)		71.1	50.2		21.9	21.9
Actuated g/C Ratio		0.71	0.50		0.22	0.22
Clearance Time (s)			5.0		5.1	5.1
Vehicle Extension (s)			3.0		3.0	3.0
Lane Grp Cap (vph)		2566	1982		383	343
v/s Ratio Prot		c0.20	c0.17		c0.13	
v/s Ratio Perm						0.02
v/c Ratio		0.27	0.35		0.58	0.10
Uniform Delay, d1		5.2	15.0		35.0	31.2
Progression Factor		0.26	0.50		1.00	1.00
Incremental Delay, d2		0.1	0.5		2.3	0.1
Delay (s)		1.4	8.0		37.2	31.3
Level of Service		A	A		D	C
Approach Delay (s)		1.4	8.0		34.8	
Approach LOS		A	A		C	

Intersection Summary			
HCM 2000 Control Delay	11.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	33.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	82	706	576	77	0	0
Future Volume (vph)	82	706	576	77	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0			
Lane Util. Factor	1.00	0.95	0.95			
Frpb, ped/bikes	1.00	1.00	1.00			
Flpb, ped/bikes	1.00	1.00	1.00			
Frt	1.00	1.00	0.98			
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	1770	3539	3471			
Flt Permitted	0.95	1.00	1.00			
Satd. Flow (perm)	1770	3539	3471			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	91	784	640	86	0	0
RTOR Reduction (vph)	0	0	8	0	0	0
Lane Group Flow (vph)	91	784	718	0	0	0
Confl. Peds. (#/hr)				1	25	
Turn Type	Prot	NA	NA			
Protected Phases	5	2	6			
Permitted Phases						
Actuated Green, G (s)	8.4	74.6	61.6			
Effective Green, g (s)	9.0	75.2	62.2			
Actuated g/C Ratio	0.09	0.75	0.62			
Clearance Time (s)	4.6	4.6	4.6			
Vehicle Extension (s)	3.0	3.0	3.0			
Lane Grp Cap (vph)	159	2661	2158			
v/s Ratio Prot	c0.05	0.22	c0.21			
v/s Ratio Perm						
v/c Ratio	0.57	0.29	0.33			
Uniform Delay, d1	43.7	4.0	9.0			
Progression Factor	0.70	2.36	0.80			
Incremental Delay, d2	4.7	0.3	0.4			
Delay (s)	35.4	9.6	7.6			
Level of Service	D	A	A			
Approach Delay (s)		12.3	7.6		0.0	
Approach LOS		B	A		A	

Intersection Summary			
HCM 2000 Control Delay	10.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.6
Intersection Capacity Utilization	33.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	658	43	156	625	29	117
Future Volume (veh/h)	658	43	156	625	29	117
Number	2	12	1	6	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1900	1863	1863	1900	1900
Adj Flow Rate, veh/h	715	44	170	679	32	20
Adj No. of Lanes	2	0	1	2	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	0	0
Cap, veh/h	2175	134	220	2856	116	72
Arrive On Green	0.21	0.21	0.12	0.81	0.11	0.10
Sat Flow, veh/h	3476	208	1774	3632	1024	640
Grp Volume(v), veh/h	374	385	170	679	53	0
Grp Sat Flow(s),veh/h/ln	1770	1821	1774	1770	1696	0
Q Serve(g_s), s	17.9	17.9	9.3	4.6	2.9	0.0
Cycle Q Clear(g_c), s	17.9	17.9	9.3	4.6	2.9	0.0
Prop In Lane		0.11	1.00		0.60	0.38
Lane Grp Cap(c), veh/h	1138	1171	220	2856	192	0
V/C Ratio(X)	0.33	0.33	0.77	0.24	0.28	0.00
Avail Cap(c_a), veh/h	1138	1171	284	2856	526	0
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.97	0.97	0.87	0.87	1.00	0.00
Uniform Delay (d), s/veh	21.1	21.1	42.4	2.3	40.8	0.0
Incr Delay (d2), s/veh	0.7	0.7	8.3	0.2	0.8	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	9.0	9.3	5.0	2.2	1.4	0.0
LnGrp Delay(d),s/veh	21.9	21.9	50.7	2.5	41.6	0.0
LnGrp LOS	C	C	D	A	D	
Approach Vol, veh/h	759			849	53	
Approach Delay, s/veh	21.9			12.1	41.6	
Approach LOS	C			B	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	16.4	68.3		15.3		84.7		
Change Period (Y+Rc), s	5.1	5.5		5.1		5.5		
Max Green Setting (Gmax), s	14.3	39.5		29.9		59.5		
Max Q Clear Time (g_c+I1), s	11.3	19.9		4.9		6.6		
Green Ext Time (p_c), s	0.1	4.5		0.1		5.3		

Intersection Summary	
HCM 2010 Ctrl Delay	17.5
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	178	128	106	236	913	635	75	547	119
Future Volume (veh/h)	0	0	0	178	128	106	236	913	635	75	547	119
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.98	1.00		0.97	1.00		0.96
Parking Bus, Adj				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	1900	1900	1881	1881	1900	1863	1863	1900
Adj Flow Rate, veh/h				198	142	118	262	1014	600	83	608	132
Adj No. of Lanes				0	2	0	2	3	0	1	2	0
Peak Hour Factor				0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %				0	0	0	1	1	1	2	2	2
Cap, veh/h				298	225	192	416	1801	819	164	1434	310
Arrive On Green				0.20	0.20	0.19	0.12	0.53	0.51	0.09	0.50	0.48
Sat Flow, veh/h				1473	1112	948	3476	3424	1556	1774	2873	622
Grp Volume(v), veh/h				245	0	213	262	1014	600	83	374	366
Grp Sat Flow(s),veh/h/ln				1826	0	1707	1738	1712	1556	1774	1770	1725
Q Serve(g_s), s				8.3	0.0	7.6	4.8	13.4	20.2	3.0	9.0	9.1
Cycle Q Clear(g_c), s				8.3	0.0	7.6	4.8	13.4	20.2	3.0	9.0	9.1
Prop In Lane				0.81		0.56	1.00		1.00	1.00		0.36
Lane Grp Cap(c), veh/h				369	0	345	416	1801	819	164	883	861
V/C Ratio(X)				0.67	0.00	0.62	0.63	0.56	0.73	0.51	0.42	0.43
Avail Cap(c_a), veh/h				548	0	512	2630	2203	1001	681	1138	1110
HCM Platoon Ratio				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
Uniform Delay (d), s/veh				24.6	0.0	24.7	28.1	10.7	12.7	28.9	10.7	10.8
Incr Delay (d2), s/veh				0.8	0.0	0.7	0.8	0.3	2.2	0.9	0.3	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
%ile BackOfQ(50%),veh/ln				4.2	0.0	3.7	2.3	6.3	9.1	1.5	4.4	4.4
LnGrp Delay(d),s/veh				25.4	0.0	25.3	28.9	11.0	14.9	29.8	11.0	11.1
LnGrp LOS				C		C	C	B	B	C	B	B
Approach Vol, veh/h					458			1876			823	
Approach Delay, s/veh					25.4			14.7			13.0	
Approach LOS					C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2			5	6		8
Phs Duration (G+Y+Rc), s	10.2	39.2			12.0	37.4		17.5
Change Period (Y+Rc), s	* 4.7	5.1			* 4.7	5.1		5.1
Max Green Setting (Gmax), s	* 5	42.0			* 50	42.0		19.0
Max Q Clear Time (g_c+I1), s	5.0	22.2			6.8	11.1		10.3
Green Ext Time (p_c), s	0.0	11.9			0.6	5.0		1.2

Intersection Summary	
HCM 2010 Ctrl Delay	15.8
HCM 2010 LOS	B

Notes

Intersection	
Int Delay, s/veh	18.1

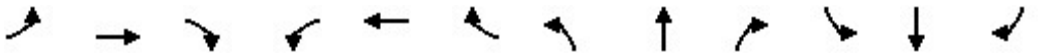
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↱			↱		↑↑↑			↑↑	
Traffic Vol, veh/h	0	0	435	0	0	306	0	1478	0	0	725	0
Future Vol, veh/h	0	0	435	0	0	306	0	1478	0	0	725	0
Conflicting Peds, #/hr	0	0	0	0	0	0	33	0	7	7	0	33
Sign Control	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	0	0	0	1	1	1	2	2	2
Mvmt Flow	0	0	473	0	0	333	0	1607	0	0	788	0

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	-	-	804	-	0	-	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.1	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.9	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	~ 283	0	-	0	0	-	0
Stage 1	0	0	-	0	-	0	0	-	0
Stage 2	0	0	-	0	-	0	0	-	0
Platoon blocked, %					-			-	
Mov Cap-1 Maneuver	-	0	~ 283	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	0	-	-	-	-	-	-	-
Stage 1	-	0	-	-	-	-	-	-	-
Stage 2	-	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	148.2	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	283	-
HCM Lane V/C Ratio	-	1.175	-
HCM Control Delay (s)	-	148.2	-
HCM Lane LOS	-	F	-
HCM 95th %tile Q(veh)	-	14.7	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	109	263	369	0	0	525	0	844	423	276	750	134
Future Volume (vph)	109	263	369	0	0	525	0	844	423	276	750	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0			4.0		4.0	2.0	4.0	2.0	2.0
Lane Util. Factor		0.95	1.00			1.00		0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes		1.00	0.98			1.00		1.00	0.99	1.00	1.00	0.88
Flpb, ped/bikes		1.00	1.00			1.00		1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.85			0.85		1.00	0.85	1.00	1.00	0.85
Flt Protected		0.99	1.00			1.00		1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		3558	1588			1599		3574	1580	3433	3539	1394
Flt Permitted		0.99	1.00			1.00		1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		3558	1588			1599		3574	1580	3433	3539	1394
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	121	292	410	0	0	583	0	938	470	307	833	149
RTOR Reduction (vph)	0	0	32	0	0	0	0	0	64	0	0	59
Lane Group Flow (vph)	0	413	378	0	0	583	0	938	406	307	833	90
Confl. Peds. (#/hr)			12						1			29
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	1%	2%	2%	2%
Turn Type	Split	NA	custom			custom		NA	custom	Prot	NA	custom
Protected Phases	4!	4	5	3!	3!	1 2 4!		2 3!	3	1	3 6!	3!
Permitted Phases			4						2			6
Actuated Green, G (s)		24.1	35.1			106.1		79.7	74.7	14.2	81.9	76.9
Effective Green, g (s)		25.1	37.1			101.1		80.7	76.7	14.2	78.9	78.9
Actuated g/C Ratio		0.19	0.29			0.78		0.62	0.59	0.11	0.61	0.61
Clearance Time (s)		5.0	5.0						3.0	4.0		3.0
Vehicle Extension (s)		2.0	2.0						2.0	2.0		2.0
Lane Grp Cap (vph)		686	502			1243		2218	932	374	2147	846
v/s Ratio Prot		0.12	c0.07			c0.36		c0.26	0.06	c0.09	0.24	0.01
v/s Ratio Perm			0.17						0.20			0.05
v/c Ratio		0.60	0.75			0.47		0.42	0.44	0.82	0.39	0.11
Uniform Delay, d1		47.9	42.3			5.1		12.7	14.7	56.7	13.1	10.7
Progression Factor		1.00	1.00			1.00		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		1.0	5.6			0.1		0.0	0.1	12.9	0.0	0.0
Delay (s)		48.9	47.9			5.2		12.7	14.8	69.5	13.2	10.8
Level of Service		D	D			A		B	B	E	B	B
Approach Delay (s)		48.4			5.2			13.4			26.3	
Approach LOS		D			A			B			C	

Intersection Summary			
HCM 2000 Control Delay	23.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	83.0%	ICU Level of Service	E
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	200	410	89	26	254	264	226	439	157	477	186	234
Future Volume (veh/h)	200	410	89	26	254	264	226	439	157	477	186	234
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		0.98	1.00		0.99	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	1900	1900	1900	1900	1900	1900	1881	1881	1881
Adj Flow Rate, veh/h	206	423	82	27	262	54	233	453	142	492	192	66
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	2	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	1	0	0	0	0	0	0	1	1	1
Cap, veh/h	278	801	154	99	642	283	309	696	217	685	533	452
Arrive On Green	0.16	0.27	0.25	0.05	0.18	0.18	0.17	0.26	0.24	0.20	0.28	0.28
Sat Flow, veh/h	1792	2979	572	1810	3610	1593	1810	2711	843	3476	1881	1597
Grp Volume(v), veh/h	206	252	253	27	262	54	233	300	295	492	192	66
Grp Sat Flow(s),veh/h/ln	1792	1787	1764	1810	1805	1593	1810	1805	1749	1738	1881	1597
Q Serve(g_s), s	8.2	9.0	9.2	1.1	4.8	2.2	9.2	11.1	11.4	9.9	6.1	2.3
Cycle Q Clear(g_c), s	8.2	9.0	9.2	1.1	4.8	2.2	9.2	11.1	11.4	9.9	6.1	2.3
Prop In Lane	1.00		0.32	1.00		1.00	1.00		0.48	1.00		1.00
Lane Grp Cap(c), veh/h	278	481	475	99	642	283	309	464	449	685	533	452
V/C Ratio(X)	0.74	0.52	0.53	0.27	0.41	0.19	0.75	0.65	0.66	0.72	0.36	0.15
Avail Cap(c_a), veh/h	622	1225	1209	797	2220	980	749	997	966	1577	1064	904
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	30.3	23.4	23.7	34.1	27.4	26.3	29.7	24.9	25.3	28.2	21.5	20.1
Incr Delay (d2), s/veh	3.9	0.9	0.9	1.5	0.4	0.3	3.7	1.5	1.6	1.4	0.4	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	4.4	4.5	4.6	0.6	2.4	1.0	4.9	5.7	5.7	4.9	3.2	1.0
LnGrp Delay(d),s/veh	34.1	24.3	24.6	35.5	27.8	26.6	33.4	26.4	26.9	29.6	21.9	20.3
LnGrp LOS	C	C	C	D	C	C	C	C	C	C	C	C
Approach Vol, veh/h		711			343			828			750	
Approach Delay, s/veh		27.2			28.2			28.6			26.8	
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	18.8	23.3	8.1	24.9	16.8	25.3	15.7	17.4
Change Period (Y+Rc), s	5.1	5.5	5.1	* 6.2	5.1	5.5	5.1	6.2
Max Green Setting (Gmax), s	13.6	40.0	32.0	* 50	30.0	41.0	25.0	44.0
Max Q Clear Time (g_c+I1), s	11.2	13.4	3.1	11.2	11.2	8.1	10.2	6.8
Green Ext Time (p_c), s	1.8	3.9	0.0	3.2	0.6	1.4	0.5	1.8

Intersection Summary	
HCM 2010 Ctrl Delay	27.7
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	926	32	2	490	0	27	0	5	1	0	6
Future Volume (veh/h)	6	926	32	2	490	0	27	0	5	1	0	6
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	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	0	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	7	1040	34	2	551	0	30	0	2	1	0	0
Adj No. of Lanes	1	2	0	1	2	0	0	1	1	0	1	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	1	1	1	1	1	0	0	0	0	0	0	0
Cap, veh/h	22	2104	69	7	2101	0	489	0	469	466	0	0
Arrive On Green	0.01	0.60	0.58	0.00	0.59	0.00	0.29	0.00	0.29	0.29	0.00	0.00
Sat Flow, veh/h	1792	3529	115	1792	3668	0	1454	0	1612	1375	0	0
Grp Volume(v), veh/h	7	527	547	2	551	0	30	0	2	1	0	0
Grp Sat Flow(s),veh/h/ln	1792	1787	1857	1792	1787	0	1454	0	1612	1376	0	0
Q Serve(g_s), s	0.4	18.6	18.6	0.1	8.3	0.0	0.0	0.0	0.1	0.1	0.0	0.0
Cycle Q Clear(g_c), s	0.4	18.6	18.6	0.1	8.3	0.0	1.3	0.0	0.1	1.4	0.0	0.0
Prop In Lane	1.00		0.06	1.00		0.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	22	1066	1107	7	2101	0	489	0	469	466	0	0
V/C Ratio(X)	0.32	0.49	0.49	0.30	0.26	0.00	0.06	0.00	0.00	0.00	0.00	0.00
Avail Cap(c_a), veh/h	195	1066	1107	195	2101	0	489	0	469	466	0	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)	0.82	0.82	0.82	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	53.9	12.7	12.8	54.6	11.1	0.0	28.1	0.0	27.7	28.6	0.0	0.0
Incr Delay (d2), s/veh	6.7	1.4	1.3	22.6	0.3	0.0	0.2	0.0	0.0	0.0	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	0.3	9.5	9.8	0.1	4.1	0.0	0.7	0.0	0.0	0.0	0.0	0.0
LnGrp Delay(d),s/veh	60.6	14.1	14.1	77.2	11.4	0.0	28.4	0.0	27.7	28.6	0.0	0.0
LnGrp LOS	E	B	B	E	B		C		C	C		
Approach Vol, veh/h		1081			553			32			1	
Approach Delay, s/veh		14.4			11.6			28.3			28.6	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.4	69.6		36.0	5.3	68.7		36.0
Change Period (Y+Rc), s	4.0	5.7		4.6	4.0	5.7		4.6
Max Green Setting (Gmax), s	12.6	52.3		31.4	12.0	52.3		31.4
Max Q Clear Time (g_c+I1), s	2.1	20.6		3.4	2.4	10.3		3.3
Green Ext Time (p_c), s	0.0	7.7		0.0	0.0	3.8		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	13.7
HCM 2010 LOS	B

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	17	60	841	48	23	286
Future Volume (Veh/h)	17	60	841	48	23	286
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	18	64	895	51	24	304
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1272	920			946	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1272	920			946	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	90	81			97	
cM capacity (veh/h)	180	329			734	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	82	946	328
Volume Left	18	0	24
Volume Right	64	51	0
cSH	279	1700	734
Volume to Capacity	0.29	0.56	0.03
Queue Length 95th (ft)	30	0	3
Control Delay (s)	23.2	0.0	1.1
Lane LOS	C		A
Approach Delay (s)	23.2	0.0	1.1
Approach LOS	C		

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	58.5%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	393	748	64	28	341	119	39	381	29	81	145	98
Future Volume (veh/h)	393	748	64	28	341	119	39	381	29	81	145	98
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	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	1900	1900	1881	1881	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	414	787	64	29	359	101	41	401	30	85	153	18
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	1	1	1	0	0	0	0	0	0
Cap, veh/h	432	1292	105	56	485	135	46	446	33	105	189	255
Arrive On Green	0.24	0.38	0.38	0.03	0.18	0.17	0.28	0.28	0.28	0.16	0.16	0.16
Sat Flow, veh/h	1810	3375	274	1792	2765	768	163	1589	119	667	1200	1615
Grp Volume(v), veh/h	414	421	430	29	230	230	472	0	0	238	0	18
Grp Sat Flow(s),veh/h/ln	1810	1805	1844	1792	1787	1746	1871	0	0	1867	0	1615
Q Serve(g_s), s	24.6	20.4	20.4	1.7	13.3	13.6	26.4	0.0	0.0	13.4	0.0	1.0
Cycle Q Clear(g_c), s	24.6	20.4	20.4	1.7	13.3	13.6	26.4	0.0	0.0	13.4	0.0	1.0
Prop In Lane	1.00		0.15	1.00		0.44	0.09		0.06	0.36		1.00
Lane Grp Cap(c), veh/h	432	691	706	56	313	306	525	0	0	295	0	255
V/C Ratio(X)	0.96	0.61	0.61	0.52	0.74	0.75	0.90	0.00	0.00	0.81	0.00	0.07
Avail Cap(c_a), veh/h	432	846	864	428	838	818	619	0	0	618	0	534
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	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	40.8	27.0	27.0	51.9	42.5	42.7	37.6	0.0	0.0	44.2	0.0	39.0
Incr Delay (d2), s/veh	32.4	0.9	0.9	7.1	3.3	3.7	14.5	0.0	0.0	5.2	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	16.2	10.3	10.6	1.0	6.8	6.9	15.7	0.0	0.0	7.3	0.0	0.5
LnGrp Delay(d),s/veh	73.2	27.9	27.9	59.0	45.8	46.4	52.1	0.0	0.0	49.5	0.0	39.1
LnGrp LOS	E	C	C	E	D	D	D			D		D
Approach Vol, veh/h		1265			489			472			256	
Approach Delay, s/veh		42.7			46.9			52.1			48.7	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.4	45.7		21.2	30.0	23.1		34.5
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	25.5	50.5		35.5	25.5	50.5		35.5
Max Q Clear Time (g_c+I1), s	3.7	22.4		15.4	26.6	15.6		28.4
Green Ext Time (p_c), s	0.0	5.8		1.3	0.0	2.9		1.6

Intersection Summary		
HCM 2010 Ctrl Delay	45.9	
HCM 2010 LOS	D	

Intersection	
Int Delay, s/veh	0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	13	1600	0	14	420
Future Vol, veh/h	6	13	1600	0	14	420
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	-	-	350	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	1	1	2	2
Mvmt Flow	6	14	1667	0	15	438

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1916	834	0	0	1667	0
Stage 1	1667	-	-	-	-	-
Stage 2	249	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.14	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.22	-
Pot Cap-1 Maneuver	61	316	-	-	382	-
Stage 1	142	-	-	-	-	-
Stage 2	775	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	58	316	-	-	382	-
Mov Cap-2 Maneuver	58	-	-	-	-	-
Stage 1	135	-	-	-	-	-
Stage 2	775	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	37.3	0	0.9
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	131	382	-
HCM Lane V/C Ratio	-	-	0.151	0.038	-
HCM Control Delay (s)	-	-	37.3	14.8	0.4
HCM Lane LOS	-	-	E	B	A
HCM 95th %tile Q(veh)	-	-	0.5	0.1	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	216	46	63	272	142	931	36	440	271	264	176	16
Future Volume (veh/h)	216	46	63	272	142	931	36	440	271	264	176	16
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		0.98	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	1900	1900	1900	1881	1881	1900
Adj Flow Rate, veh/h	251	53	10	316	165	0	42	512	265	307	205	16
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	2	2	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	1	1	1	1	1	1	0	0	0	1	1	1
Cap, veh/h	323	373	68	398	592	265	124	774	399	467	1351	105
Arrive On Green	0.18	0.12	0.09	0.22	0.17	0.00	0.07	0.34	0.30	0.13	0.40	0.37
Sat Flow, veh/h	1792	3009	551	1792	3574	1599	1810	2303	1188	3476	3362	260
Grp Volume(v), veh/h	251	31	32	316	165	0	42	401	376	307	108	113
Grp Sat Flow(s),veh/h/ln	1792	1787	1773	1792	1787	1599	1810	1805	1686	1738	1787	1835
Q Serve(g_s), s	11.6	1.3	1.4	14.5	3.5	0.0	1.9	16.5	16.9	7.3	3.4	3.4
Cycle Q Clear(g_c), s	11.6	1.3	1.4	14.5	3.5	0.0	1.9	16.5	16.9	7.3	3.4	3.4
Prop In Lane	1.00		0.31	1.00		1.00	1.00		0.70	1.00		0.14
Lane Grp Cap(c), veh/h	323	222	220	398	592	265	124	606	566	467	718	737
V/C Ratio(X)	0.78	0.14	0.15	0.79	0.28	0.00	0.34	0.66	0.66	0.66	0.15	0.15
Avail Cap(c_a), veh/h	648	876	870	761	2163	968	551	891	833	1058	1088	1117
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.0	34.0	34.4	32.0	31.8	0.0	38.7	24.7	25.7	35.8	16.6	16.7
Incr Delay (d2), s/veh	4.0	0.3	0.3	3.6	0.3	0.0	1.6	2.0	2.1	1.6	0.2	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	6.1	0.7	0.7	7.6	1.8	0.0	1.0	8.6	8.2	3.6	1.7	1.8
LnGrp Delay(d),s/veh	38.0	34.3	34.7	35.6	32.0	0.0	40.3	26.6	27.8	37.4	16.7	16.9
LnGrp LOS	D	C	C	D	C		D	C	C	D	B	B
Approach Vol, veh/h		314			481			819			528	
Approach Delay, s/veh		37.3			34.4			27.9			28.8	
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	15.7	33.3	23.3	14.8	10.0	39.0	19.7	18.4
Change Period (Y+Rc), s	5.5	7.0	6.0	6.7	5.5	7.0	5.5	6.7
Max Green Setting (Gmax), s	25.0	40.0	35.0	40.0	25.0	50.0	30.0	50.0
Max Q Clear Time (g_c+I1), s	9.3	18.9	16.5	3.4	3.9	5.4	13.6	5.5
Green Ext Time (p_c), s	0.9	7.2	0.8	0.3	0.1	2.0	0.6	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	30.9
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	133	74	18	209	78	324	22	182	183	621	264	88
Future Volume (veh/h)	133	74	18	209	78	324	22	182	183	621	264	88
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		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1900	1900	1900	1881	1881	1900	1900	1900	1900
Adj Flow Rate, veh/h	141	79	3	222	83	0	23	194	34	661	281	76
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	2	2	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	0	0	0	1	1	1	0	0	0
Cap, veh/h	187	357	13	232	453	187	77	363	63	1833	1689	449
Arrive On Green	0.11	0.10	0.08	0.13	0.13	0.00	0.04	0.12	0.10	0.52	0.60	0.57
Sat Flow, veh/h	1774	3477	131	1810	3610	1615	1792	3049	525	3510	2823	750
Grp Volume(v), veh/h	141	40	42	222	83	0	23	112	116	661	178	179
Grp Sat Flow(s),veh/h/ln	1774	1770	1838	1810	1805	1615	1792	1787	1787	1755	1805	1768
Q Serve(g_s), s	9.7	2.6	2.6	15.2	2.6	0.0	1.6	7.4	7.7	13.9	5.5	5.8
Cycle Q Clear(g_c), s	9.7	2.6	2.6	15.2	2.6	0.0	1.6	7.4	7.7	13.9	5.5	5.8
Prop In Lane	1.00		0.07	1.00		1.00	1.00		0.29	1.00		0.42
Lane Grp Cap(c), veh/h	187	182	189	232	453	187	77	213	213	1833	1080	1058
V/C Ratio(X)	0.76	0.22	0.22	0.96	0.18	0.00	0.30	0.53	0.54	0.36	0.16	0.17
Avail Cap(c_a), veh/h	227	566	588	232	1155	501	172	586	586	1833	1080	1058
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	0.00	1.00	1.00	1.00	0.75	0.75	0.75
Uniform Delay (d), s/veh	54.4	51.5	51.6	54.2	48.9	0.0	58.0	51.7	52.3	17.6	11.2	11.5
Incr Delay (d2), s/veh	11.0	0.6	0.6	47.4	0.2	0.0	2.2	3.2	3.4	0.1	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	5.3	1.3	1.4	10.7	1.3	0.0	0.8	3.8	4.0	6.7	2.7	2.8
LnGrp Delay(d),s/veh	65.3	52.1	52.2	101.6	49.1	0.0	60.2	54.9	55.7	17.7	11.3	11.6
LnGrp LOS	E	D	D	F	D		E	D	E	B	B	B
Approach Vol, veh/h		223			305			251			1018	
Approach Delay, s/veh		60.5			87.3			55.7			15.5	
Approach LOS		E			F			E			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	69.3	18.9	20.0	16.8	9.4	78.8	17.2	19.7
Change Period (Y+Rc), s	5.5	7.0	6.0	6.7	5.5	7.0	5.5	6.7
Max Green Setting (Gmax), s	10.5	38.0	14.0	37.3	10.5	38.0	14.5	37.3
Max Q Clear Time (g_c+I1), s	15.9	9.7	17.2	4.6	3.6	7.8	11.7	4.6
Green Ext Time (p_c), s	0.0	1.9	0.0	0.4	0.0	3.3	0.1	0.4

Intersection Summary	
HCM 2010 Ctrl Delay	38.9
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	0	340	40	20	20	370	410	0	0	1810	190
Future Volume (veh/h)	20	0	340	40	20	20	370	410	0	0	1810	190
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	80	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	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	1845	1845	1845	1900	1759	1759	1845	1845	0	0	1863	1900
Adj Flow Rate, veh/h	21	0	27	43	21	2	394	436	0	0	1926	191
Adj No. of Lanes	2	0	1	0	1	1	1	3	0	0	4	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	8	8	8	3	3	0	0	2	2
Cap, veh/h	130	0	58	60	29	78	426	3974	0	0	2718	206
Arrive On Green	0.04	0.00	0.04	0.05	0.05	0.05	0.24	0.79	0.00	0.00	0.50	0.49
Sat Flow, veh/h	3514	0	1568	1144	558	1487	1757	5202	0	0	5730	513
Grp Volume(v), veh/h	21	0	27	64	0	2	394	436	0	0	1457	660
Grp Sat Flow(s),veh/h/ln	1757	0	1568	1702	0	1487	1757	1679	0	0	1304	1772
Q Serve(g_s), s	0.6	0.0	1.6	3.6	0.0	0.1	21.2	2.0	0.0	0.0	28.6	28.7
Cycle Q Clear(g_c), s	0.6	0.0	1.6	3.6	0.0	0.1	21.2	2.0	0.0	0.0	28.6	28.7
Prop In Lane	1.00		1.00	0.67		1.00	1.00		0.00	0.00		0.29
Lane Grp Cap(c), veh/h	130	0	58	90	0	78	426	3974	0	0	1984	905
V/C Ratio(X)	0.16	0.00	0.47	0.71	0.00	0.03	0.92	0.11	0.00	0.00	0.73	0.73
Avail Cap(c_a), veh/h	254	0	113	527	0	461	526	4472	0	0	2141	970
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	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	46.2	0.0	46.7	46.2	0.0	44.5	36.6	2.4	0.0	0.0	21.7	20.9
Incr Delay (d2), s/veh	0.4	0.0	4.3	3.9	0.0	0.0	18.2	0.0	0.0	0.0	1.2	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24.8	13.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.8	1.8	0.0	0.1	12.7	0.9	0.0	0.0	18.8	21.5
LnGrp Delay(d),s/veh	46.6	0.0	51.0	50.1	0.0	44.6	54.8	2.4	0.0	0.0	47.7	36.6
LnGrp LOS	D		D	D		D	D	A			D	D
Approach Vol, veh/h		48			66			830			2117	
Approach Delay, s/veh		49.1			49.9			27.3			44.3	
Approach LOS		D			D			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		80.1		9.1	27.5	52.6		7.6
Change Period (Y+Rc), s		5.0		4.0	4.0	5.0		4.0
Max Green Setting (Gmax), s		85.0		30.0	29.0	52.0		7.0
Max Q Clear Time (g_c+I1), s		4.0		5.6	23.2	30.7		3.6
Green Ext Time (p_c), s		40.0		0.2	0.3	16.9		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	39.9
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	270	0	300	0	0	0	0	1800	170	0	300	280
Future Volume (veh/h)	270	0	300	0	0	0	0	1800	170	0	300	280
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	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
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1827	1827				0	1881	1900	0	1881	1881
Adj Flow Rate, veh/h	293	0	127				0	1957	182	0	326	0
Adj No. of Lanes	2	0	1				0	3	0	0	2	1
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4				0	1	1	0	1	1
Cap, veh/h	595	0	265				0	2166	201	0	2283	945
Arrive On Green	0.17	0.00	0.17				0.00	0.64	0.59	0.00	0.64	0.00
Sat Flow, veh/h	3480	0	1553				0	4333	314	0	3668	1599
Grp Volume(v), veh/h	293	0	127				0	1082	1057	0	326	0
Grp Sat Flow(s),veh/h/ln	1740	0	1553				0	941	1825	0	1787	1599
Q Serve(g_s), s	3.2	0.0	3.1				0.0	20.6	21.0	0.0	1.5	0.0
Cycle Q Clear(g_c), s	3.2	0.0	3.1				0.0	20.6	21.0	0.0	1.5	0.0
Prop In Lane	1.00		1.00				0.00		0.17	0.00		1.00
Lane Grp Cap(c), veh/h	595	0	265				0	1201	1166	0	2283	945
V/C Ratio(X)	0.49	0.00	0.48				0.00	0.90	0.91	0.00	0.14	0.00
Avail Cap(c_a), veh/h	4596	0	2051				0	1209	1173	0	2296	951
HCM Platoon Ratio	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	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	15.8	0.0	15.7				0.0	6.5	6.7	0.0	3.0	0.0
Incr Delay (d2), s/veh	0.6	0.0	1.3				0.0	9.4	10.2	0.0	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
%ile BackOfQ(50%),veh/ln	1.6	0.0	1.4				0.0	6.7	13.3	0.0	0.7	0.0
LnGrp Delay(d),s/veh	16.4	0.0	17.1				0.0	15.9	16.9	0.0	3.0	0.0
LnGrp LOS	B		B					B	B		A	
Approach Vol, veh/h		420						2139			326	
Approach Delay, s/veh		16.6						16.4			3.0	
Approach LOS		B						B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		30.8		11.2		30.8		
Change Period (Y+Rc), s		6.0		4.5		6.0		
Max Green Setting (Gmax), s		25.0		55.0		25.0		
Max Q Clear Time (g_c+I1), s		23.0		5.2		3.5		
Green Ext Time (p_c), s		1.9		1.5		1.9		

Intersection Summary	
HCM 2010 Ctrl Delay	14.9
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	470	160	70	260	190	910	40	500	240	240	250	110
Future Volume (veh/h)	470	160	70	260	190	910	40	500	240	240	250	110
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		0.99	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	1900	1900	1900	1881	1881	1900
Adj Flow Rate, veh/h	547	186	50	302	221	1020	47	581	246	279	291	106
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	2	2	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	1	1	1	1	1	1	0	0	0	1	1	1
Cap, veh/h	355	943	247	344	1184	530	87	657	278	363	833	297
Arrive On Green	0.20	0.34	0.32	0.19	0.33	0.33	0.05	0.27	0.25	0.10	0.32	0.30
Sat Flow, veh/h	1792	2796	731	1792	3574	1599	1810	2471	1045	3476	2584	922
Grp Volume(v), veh/h	547	117	119	302	221	1020	47	424	403	279	199	198
Grp Sat Flow(s),veh/h/ln	1792	1787	1740	1792	1787	1599	1810	1805	1711	1738	1787	1719
Q Serve(g_s), s	31.5	7.4	7.8	26.1	7.0	52.7	4.0	35.9	36.1	12.4	13.5	14.2
Cycle Q Clear(g_c), s	31.5	7.4	7.8	26.1	7.0	52.7	4.0	35.9	36.1	12.4	13.5	14.2
Prop In Lane	1.00		0.42	1.00		1.00	1.00		0.61	1.00		0.54
Lane Grp Cap(c), veh/h	355	603	587	344	1184	530	87	480	455	363	576	554
V/C Ratio(X)	1.54	0.19	0.20	0.88	0.19	1.93	0.54	0.88	0.89	0.77	0.35	0.36
Avail Cap(c_a), veh/h	355	603	587	417	1184	530	301	488	463	579	595	573
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	63.8	37.4	37.9	62.4	37.9	53.2	74.0	56.1	57.0	69.4	41.1	42.0
Incr Delay (d2), s/veh	257.5	0.2	0.2	16.4	0.1	423.4	5.2	17.7	18.7	3.4	0.6	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	40.9	3.7	3.8	14.5	3.5	85.6	2.1	20.3	19.4	6.1	6.8	6.8
LnGrp Delay(d),s/veh	321.3	37.5	38.1	78.9	38.0	476.6	79.2	73.8	75.7	72.8	41.7	42.6
LnGrp LOS	F	D	D	E	D	F	E	E	E	E	D	D
Approach Vol, veh/h		783			1543			874			676	
Approach Delay, s/veh		235.9			336.0			75.0			54.8	
Approach LOS		F			F			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.6	46.3	34.6	57.6	11.6	55.3	35.5	56.7
Change Period (Y+Rc), s	5.5	7.0	6.0	6.7	5.5	7.0	5.5	6.7
Max Green Setting (Gmax), s	25.0	40.0	35.0	40.0	25.0	50.0	30.0	50.0
Max Q Clear Time (g_c+I1), s	14.4	38.1	28.1	9.8	6.0	16.2	33.5	54.7
Green Ext Time (p_c), s	0.7	1.2	0.5	1.3	0.1	3.8	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	207.8
HCM 2010 LOS	F

Notes

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	710	30	0	1310	0	20
Future Vol, veh/h	710	30	0	1310	0	20
Conflicting Peds, #/hr	0	5	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	86	86	86	86	86	86
Heavy Vehicles, %	0	0	1	1	0	0
Mvmt Flow	826	35	0	1523	0	23

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	436
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	-	-	0	-	0	574
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	571
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	11.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	571	-	-	-
HCM Lane V/C Ratio	0.041	-	-	-
HCM Control Delay (s)	11.6	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.1	-	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	670	40	40	1180	0	130	0	100	0	0	0
Future Volume (veh/h)	20	670	40	40	1180	0	130	0	100	0	0	0
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	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	1900	1900	1881	1881	1900	1900	1900	1900	1863	1863	1900
Adj Flow Rate, veh/h	24	798	27	48	1405	0	155	0	31	0	0	0
Adj No. of Lanes	1	2	1	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	0	0	0	1	1	1	0	0	0	2	2	2
Cap, veh/h	104	1975	858	151	2052	0	242	284	241	3	3	0
Arrive On Green	0.06	0.55	0.55	0.08	0.57	0.00	0.13	0.00	0.15	0.00	0.00	0.00
Sat Flow, veh/h	1810	3610	1568	1792	3668	0	1810	1900	1612	1774	1863	0
Grp Volume(v), veh/h	24	798	27	48	1405	0	155	0	31	0	0	0
Grp Sat Flow(s),veh/h/ln	1810	1805	1568	1792	1787	0	1810	1900	1612	1774	1863	0
Q Serve(g_s), s	0.7	7.0	0.4	1.4	15.1	0.0	4.4	0.0	0.9	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.7	7.0	0.4	1.4	15.1	0.0	4.4	0.0	0.9	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	104	1975	858	151	2052	0	242	284	241	3	3	0
V/C Ratio(X)	0.23	0.40	0.03	0.32	0.68	0.00	0.64	0.00	0.13	0.00	0.00	0.00
Avail Cap(c_a), veh/h	859	3144	1366	850	3113	0	859	1616	1371	842	1585	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)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	24.7	7.2	5.7	23.6	8.2	0.0	22.5	0.0	20.2	0.0	0.0	0.0
Incr Delay (d2), s/veh	1.1	0.1	0.0	1.2	0.4	0.0	2.8	0.0	0.2	0.0	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	0.4	3.5	0.2	0.7	7.3	0.0	2.4	0.0	0.4	0.0	0.0	0.0
LnGrp Delay(d),s/veh	25.8	7.3	5.7	24.8	8.6	0.0	25.3	0.0	20.4	0.0	0.0	0.0
LnGrp LOS	C	A	A	C	A		C		C			
Approach Vol, veh/h		849			1453			186			0	
Approach Delay, s/veh		7.8			9.1			24.5			0.0	
Approach LOS		A			A			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	7.1	35.4	0.0	12.2	8.6	34.0	11.3	0.8
Change Period (Y+Rc), s	5.0	6.7	5.0	5.6	5.0	6.7	5.0	5.6
Max Green Setting (Gmax), s	25.0	45.0	25.0	45.0	25.0	45.0	25.0	45.0
Max Q Clear Time (g_c+I1), s	2.7	17.1	0.0	2.9	3.4	9.0	6.4	0.0
Green Ext Time (p_c), s	0.0	11.6	0.0	0.1	0.1	5.8	0.4	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	9.8
HCM 2010 LOS	A

Notes

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	710	60	20	1100	120	50
Future Volume (veh/h)	710	60	20	1100	120	50
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.96	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	1900	1881	1881	1900	1900
Adj Flow Rate, veh/h	807	63	23	1250	136	8
Adj No. of Lanes	2	0	1	2	1	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	1	1	1	1	0	0
Cap, veh/h	2456	192	77	2893	188	167
Arrive On Green	0.73	0.71	0.03	0.54	0.10	0.10
Sat Flow, veh/h	3443	261	1792	3668	1810	1615
Grp Volume(v), veh/h	431	439	23	1250	136	8
Grp Sat Flow(s),veh/h/ln	1787	1823	1792	1787	1810	1615
Q Serve(g_s), s	8.5	8.6	1.3	20.9	7.3	0.4
Cycle Q Clear(g_c), s	8.5	8.6	1.3	20.9	7.3	0.4
Prop In Lane		0.14	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1311	1337	77	2893	188	167
V/C Ratio(X)	0.33	0.33	0.30	0.43	0.73	0.05
Avail Cap(c_a), veh/h	1311	1337	215	2893	380	339
HCM Platoon Ratio	1.00	1.00	0.67	0.67	1.00	1.00
Upstream Filter(I)	0.94	0.94	0.86	0.86	1.00	1.00
Uniform Delay (d), s/veh	4.7	4.8	47.1	9.1	43.4	40.4
Incr Delay (d2), s/veh	0.6	0.6	1.8	0.4	5.3	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	4.3	4.4	0.7	10.4	3.9	0.2
LnGrp Delay(d),s/veh	5.3	5.4	48.9	9.6	48.7	40.5
LnGrp LOS	A	A	D	A	D	D
Approach Vol, veh/h	870			1273	144	
Approach Delay, s/veh	5.4			10.3	48.2	
Approach LOS	A			B	D	

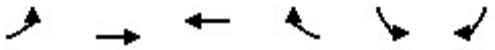
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	8.3	77.3				85.6		14.4
Change Period (Y+Rc), s	5.0	6.7				* 6.7		5.0
Max Green Setting (Gmax), s	1.6	52.3				* 69		20.0
Max Q Clear Time (g_c+I1), s	3.3	10.6				22.9		9.3
Green Ext Time (p_c), s	0.0	8.9				18.2		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	10.8
HCM 2010 LOS	B

Notes

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	680	80	40	980	140	110
Future Volume (vph)	680	80	40	980	140	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0		4.0	4.0	4.0	
Lane Util. Factor	0.95		1.00	0.95	1.00	
Frpb, ped/bikes	0.99		1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00	1.00	1.00	
Frt	0.98		1.00	1.00	0.94	
Flt Protected	1.00		0.95	1.00	0.97	
Satd. Flow (prot)	3494		1787	3574	1739	
Flt Permitted	1.00		0.95	1.00	0.97	
Satd. Flow (perm)	3494		1787	3574	1739	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	756	89	44	1089	156	122
RTOR Reduction (vph)	7	0	0	0	29	0
Lane Group Flow (vph)	838	0	44	1089	249	0
Confl. Peds. (#/hr)		18				
Confl. Bikes (#/hr)		5				
Heavy Vehicles (%)	1%	1%	1%	1%	0%	0%
Turn Type	NA		Prot	NA	Prot	
Protected Phases	2		1	6 3	7	
Permitted Phases						
Actuated Green, G (s)	35.7		9.2	72.6	17.3	
Effective Green, g (s)	37.7		10.2	73.6	18.3	
Actuated g/C Ratio	0.38		0.10	0.74	0.18	
Clearance Time (s)	5.0		5.0		5.0	
Vehicle Extension (s)	3.0		3.0		3.0	
Lane Grp Cap (vph)	1317		182	2630	318	
v/s Ratio Prot	c0.24		0.02	c0.30	c0.14	
v/s Ratio Perm						
v/c Ratio	0.64		0.24	0.41	0.78	
Uniform Delay, d1	25.5		41.3	5.0	39.0	
Progression Factor	0.80		1.35	0.20	1.00	
Incremental Delay, d2	2.3		0.6	0.1	11.9	
Delay (s)	22.7		56.3	1.1	50.9	
Level of Service	C		E	A	D	
Approach Delay (s)	22.7			3.3	50.9	
Approach LOS	C			A	D	

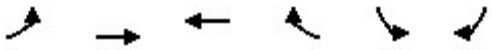
Intersection Summary			
HCM 2000 Control Delay	16.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.1
Intersection Capacity Utilization	51.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑↑		↰	↱
Traffic Volume (vph)	0	790	920	0	90	100
Future Volume (vph)	0	790	920	0	90	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	4.0		4.0	4.0
Lane Util. Factor		0.95	*0.70		1.00	1.00
Frpb, ped/bikes		1.00	1.00		1.00	1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3574	3950		1736	1553
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3574	3950		1736	1553
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	840	979	0	96	106
RTOR Reduction (vph)	0	0	0	0	0	86
Lane Group Flow (vph)	0	840	979	0	96	20
Confl. Peds. (#/hr)					35	
Heavy Vehicles (%)	1%	1%	1%	1%	4%	4%
Turn Type		NA	NA		Prot	Perm
Protected Phases		2 1 7	6		3	
Permitted Phases						3
Actuated Green, G (s)		72.2	49.9		17.7	17.7
Effective Green, g (s)		74.2	50.9		18.8	18.8
Actuated g/C Ratio		0.74	0.51		0.19	0.19
Clearance Time (s)			5.0		5.1	5.1
Vehicle Extension (s)			3.0		3.0	3.0
Lane Grp Cap (vph)		2651	2010		326	291
v/s Ratio Prot		c0.24	c0.25		c0.06	
v/s Ratio Perm						0.01
v/c Ratio		0.32	0.49		0.29	0.07
Uniform Delay, d1		4.4	16.0		34.9	33.4
Progression Factor		0.31	0.61		1.00	1.00
Incremental Delay, d2		0.1	0.7		0.5	0.1
Delay (s)		1.4	10.5		35.4	33.5
Level of Service		A	B		D	C
Approach Delay (s)		1.4	10.5		34.4	
Approach LOS		A	B		C	

Intersection Summary			
HCM 2000 Control Delay	9.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	34.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	150	730	920	280	0	0
Future Volume (vph)	150	730	920	280	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0			
Lane Util. Factor	1.00	0.95	0.95			
Frpb, ped/bikes	1.00	1.00	0.99			
Flpb, ped/bikes	1.00	1.00	1.00			
Frt	1.00	1.00	0.97			
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	1787	3574	3396			
Flt Permitted	0.95	1.00	1.00			
Satd. Flow (perm)	1787	3574	3396			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	163	793	1000	304	0	0
RTOR Reduction (vph)	0	0	16	0	0	0
Lane Group Flow (vph)	163	793	1288	0	0	0
Confl. Peds. (#/hr)				7	10	
Confl. Bikes (#/hr)				2		
Heavy Vehicles (%)	1%	1%	2%	2%	2%	2%
Turn Type	Prot	NA	NA			
Protected Phases	5	2	6			
Permitted Phases						
Actuated Green, G (s)	11.1	85.4	69.7			
Effective Green, g (s)	11.7	86.0	70.3			
Actuated g/C Ratio	0.12	0.86	0.70			
Clearance Time (s)	4.6	4.6	4.6			
Vehicle Extension (s)	3.0	3.0	3.0			
Lane Grp Cap (vph)	209	3073	2387			
v/s Ratio Prot	c0.09	0.22	c0.38			
v/s Ratio Perm						
v/c Ratio	0.78	0.26	0.54			
Uniform Delay, d1	42.9	1.3	7.1			
Progression Factor	0.75	2.46	0.74			
Incremental Delay, d2	16.2	0.2	0.8			
Delay (s)	48.3	3.3	6.1			
Level of Service	D	A	A			
Approach Delay (s)		11.0	6.1		0.0	
Approach LOS		B	A		A	

Intersection Summary			
HCM 2000 Control Delay	8.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.6
Intersection Capacity Utilization	49.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	700	30	100	1150	50	210
Future Volume (veh/h)	700	30	100	1150	50	210
Number	2	12	1	6	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1900	1863	1863	1863	1900
Adj Flow Rate, veh/h	745	30	106	1223	53	33
Adj No. of Lanes	2	0	1	2	0	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	0	0
Cap, veh/h	2370	95	154	2869	112	69
Arrive On Green	0.23	0.22	0.09	0.81	0.11	0.10
Sat Flow, veh/h	3559	140	1774	3632	1020	635
Grp Volume(v), veh/h	380	395	106	1223	87	0
Grp Sat Flow(s),veh/h/ln	1770	1836	1774	1770	1674	0
Q Serve(g_s), s	17.9	17.9	5.8	10.0	4.9	0.0
Cycle Q Clear(g_c), s	17.9	17.9	5.8	10.0	4.9	0.0
Prop In Lane		0.08	1.00		0.61	0.38
Lane Grp Cap(c), veh/h	1210	1255	154	2869	183	0
V/C Ratio(X)	0.31	0.31	0.69	0.43	0.48	0.00
Avail Cap(c_a), veh/h	1210	1255	284	2869	519	0
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.98	0.98	0.49	0.49	1.00	0.00
Uniform Delay (d), s/veh	19.2	19.2	44.3	2.7	42.0	0.0
Incr Delay (d2), s/veh	0.7	0.6	2.7	0.2	1.9	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	9.0	9.4	3.0	4.8	2.4	0.0
LnGrp Delay(d),s/veh	19.8	19.8	47.0	3.0	43.9	0.0
LnGrp LOS	B	B	D	A	D	
Approach Vol, veh/h	775			1329	87	
Approach Delay, s/veh	19.8			6.5	43.9	
Approach LOS	B			A	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	12.7	72.4		14.9		85.1		
Change Period (Y+Rc), s	5.1	5.5		5.1		5.5		
Max Green Setting (Gmax), s	14.9	39.5		29.9		59.5		
Max Q Clear Time (g_c+I1), s	7.8	19.9		6.9		12.0		
Green Ext Time (p_c), s	0.1	4.6		0.2		12.0		

Intersection Summary	
HCM 2010 Ctrl Delay	12.7
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	300	360	140	580	560	260	100	530	210
Future Volume (veh/h)	0	0	0	300	360	140	580	560	260	100	530	210
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.98	1.00		0.99	1.00		0.96
Parking Bus, Adj				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	1900	1900	1845	1845	1900	1863	1863	1900
Adj Flow Rate, veh/h				312	375	146	604	583	215	104	552	219
Adj No. of Lanes				0	2	0	2	3	0	1	2	0
Peak Hour Factor				0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				0	0	0	3	3	3	2	2	2
Cap, veh/h				354	452	182	692	2031	731	136	1055	417
Arrive On Green				0.27	0.27	0.27	0.20	0.56	0.55	0.08	0.43	0.42
Sat Flow, veh/h				1290	1649	663	3408	3648	1312	1774	2451	969
Grp Volume(v), veh/h				444	0	389	604	535	263	104	398	373
Grp Sat Flow(s),veh/h/ln				1836	0	1766	1704	1679	1603	1774	1770	1650
Q Serve(g_s), s				30.1	0.0	26.7	22.3	10.9	11.4	7.5	21.5	21.7
Cycle Q Clear(g_c), s				30.1	0.0	26.7	22.3	10.9	11.4	7.5	21.5	21.7
Prop In Lane				0.70		0.38	1.00		0.82	1.00		0.59
Lane Grp Cap(c), veh/h				503	0	484	692	1869	893	136	762	710
V/C Ratio(X)				0.88	0.00	0.80	0.87	0.29	0.29	0.76	0.52	0.53
Avail Cap(c_a), veh/h				594	0	572	1224	1869	893	237	762	710
HCM Platoon Ratio				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
Uniform Delay (d), s/veh				45.2	0.0	44.1	50.2	15.2	15.5	58.9	27.2	27.5
Incr Delay (d2), s/veh				11.7	0.0	5.9	2.0	0.4	0.8	3.3	2.6	2.8
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				16.9	0.0	13.8	10.7	5.2	5.2	3.8	11.0	10.4
LnGrp Delay(d),s/veh				56.9	0.0	50.0	52.2	15.6	16.4	62.2	29.8	30.3
LnGrp LOS				E		D	D	B	B	E	C	C
Approach Vol, veh/h					833			1402			875	
Approach Delay, s/veh					53.7			31.5			33.8	
Approach LOS					D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2			5	6		8
Phs Duration (G+Y+Rc), s	14.0	76.4			30.4	60.0		39.6
Change Period (Y+Rc), s	* 4.7	5.1			* 4.7	5.1		5.1
Max Green Setting (Gmax), s	13	57.4			* 46	28.1		41.0
Max Q Clear Time (g_c+I1), s	9.5	13.4			24.3	23.7		32.1
Green Ext Time (p_c), s	0.0	6.4			1.4	1.9		2.4

Intersection Summary	
HCM 2010 Ctrl Delay	38.1
HCM 2010 LOS	D

Notes

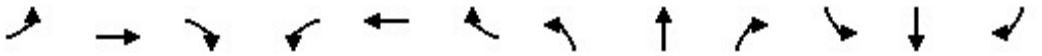
Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↱			↱		↑↑↑			↑↑	
Traffic Vol, veh/h	0	0	230	0	0	90	0	1310	0	0	830	0
Future Vol, veh/h	0	0	230	0	0	90	0	1310	0	0	830	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	10	0	0	0
Sign Control	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	4	4	4	3	3	3	2	2	2
Mvmt Flow	0	0	242	0	0	95	0	1379	0	0	874	0

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	-	-	690	-	0	-	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.18	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.94	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	329	0	-	0	0	-	0
Stage 1	0	0	-	0	-	0	0	-	0
Stage 2	0	0	-	0	-	0	0	-	0
Platoon blocked, %					-			-	
Mov Cap-1 Maneuver	-	0	329	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	0	-	-	-	-	-	-	-
Stage 1	-	0	-	-	-	-	-	-	-
Stage 2	-	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	20.3	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	329	-
HCM Lane V/C Ratio	-	0.288	-
HCM Control Delay (s)	-	20.3	-
HCM Lane LOS	-	C	-
HCM 95th %tile Q(veh)	-	1.2	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	60	200	0	0	230	0	1020	300	230	620	210
Future Volume (vph)	60	60	200	0	0	230	0	1020	300	230	620	210
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0			4.0		4.0	2.0	4.0	2.0	2.0
Lane Util. Factor		0.95	1.00			1.00		0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes		1.00	0.99			1.00		1.00	0.97	1.00	1.00	0.93
Flpb, ped/bikes		1.00	1.00			1.00		1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.85			0.85		1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98	1.00			1.00		1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		3354	1520			1568		3505	1528	3433	3539	1479
Flt Permitted		0.98	1.00			1.00		1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		3354	1520			1568		3505	1528	3433	3539	1479
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	62	62	206	0	0	237	0	1052	309	237	639	216
RTOR Reduction (vph)	0	0	129	0	0	0	0	0	68	0	0	63
Lane Group Flow (vph)	0	124	77	0	0	237	0	1052	241	237	639	153
Confl. Peds. (#/hr)			4						7			13
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	3%	3%	3%	2%	2%	2%
Turn Type	Split	NA	custom			custom		NA	custom	Prot	NA	custom
Protected Phases	4!	4	5	3!	3!	1 2 4!		2 3!	3	1	3 6!	3!
Permitted Phases			4						2			6
Actuated Green, G (s)		16.2	22.2			107.3		88.5	83.5	13.3	94.8	89.8
Effective Green, g (s)		17.2	24.2			102.3		89.5	85.5	13.3	91.8	91.8
Actuated g/C Ratio		0.13	0.19			0.79		0.69	0.66	0.10	0.71	0.71
Clearance Time (s)		5.0	5.0						3.0	4.0		3.0
Vehicle Extension (s)		2.0	2.0						2.0	2.0		2.0
Lane Grp Cap (vph)		443	329			1233		2413	1004	351	2499	1044
v/s Ratio Prot		c0.04	0.01			0.15		c0.30	0.03	c0.07	0.18	0.02
v/s Ratio Perm			0.04						0.13			0.09
v/c Ratio		0.28	0.23			0.19		0.44	0.24	0.68	0.26	0.15
Uniform Delay, d1		50.8	45.0			3.5		9.0	9.0	56.3	6.8	6.3
Progression Factor		1.00	1.00			1.00		1.00	1.00	0.93	1.12	2.34
Incremental Delay, d2		0.1	0.1			0.0		0.0	0.0	3.5	0.0	0.0
Delay (s)		50.9	45.1			3.5		9.1	9.1	55.8	7.7	14.7
Level of Service		D	D			A		A	A	E	A	B
Approach Delay (s)		47.3			3.5			9.1			19.5	
Approach LOS		D			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	16.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	64.3%	ICU Level of Service	C
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	240	190	440	310	950	650	100	220	20	180	440	110
Future Volume (veh/h)	240	190	440	310	950	650	100	220	20	180	440	110
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		0.97	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1881	1881	1881	1792	1792	1900	1810	1810	1810
Adj Flow Rate, veh/h	255	202	221	330	1011	474	106	234	17	191	468	35
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	2	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	1	1	1	6	6	6	5	5	5
Cap, veh/h	294	522	467	370	1220	530	144	927	67	280	520	441
Arrive On Green	0.17	0.30	0.28	0.21	0.34	0.34	0.08	0.29	0.28	0.08	0.29	0.29
Sat Flow, veh/h	1774	1770	1583	1792	3574	1553	1707	3219	232	3343	1810	1535
Grp Volume(v), veh/h	255	202	221	330	1011	474	106	123	128	191	468	35
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1792	1787	1553	1707	1703	1748	1672	1810	1535
Q Serve(g_s), s	18.5	12.0	15.2	23.6	34.3	38.2	8.0	7.3	7.4	7.3	32.8	2.2
Cycle Q Clear(g_c), s	18.5	12.0	15.2	23.6	34.3	38.2	8.0	7.3	7.4	7.3	32.8	2.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.13	1.00		1.00
Lane Grp Cap(c), veh/h	294	522	467	370	1220	530	144	490	504	280	520	441
V/C Ratio(X)	0.87	0.39	0.47	0.89	0.83	0.89	0.74	0.25	0.25	0.68	0.90	0.08
Avail Cap(c_a), veh/h	351	690	618	449	1251	543	402	535	550	864	583	494
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	53.6	37.0	38.8	50.9	39.9	41.2	59.0	36.1	36.2	58.8	45.2	34.3
Incr Delay (d2), s/veh	17.6	0.5	0.7	17.2	4.7	16.9	7.1	0.3	0.3	2.9	15.9	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	10.5	5.9	6.8	13.5	17.6	18.8	4.1	3.5	3.6	3.5	18.7	0.9
LnGrp Delay(d),s/veh	71.3	37.5	39.5	68.1	44.6	58.1	66.1	36.3	36.4	61.7	61.2	34.4
LnGrp LOS	E	D	D	E	D	E	E	D	D	E	E	C
Approach Vol, veh/h		678			1815			357			694	
Approach Delay, s/veh		50.8			52.4			45.2			60.0	
Approach LOS		D			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	15.0	42.0	31.3	43.7	15.1	41.9	25.9	49.1
Change Period (Y+Rc), s	5.1	5.5	5.1	* 6.2	5.1	5.5	5.1	6.2
Max Green Setting (Gmax), s	33.0	40.0	32.0	* 50	30.0	41.0	25.0	44.0
Max Q Clear Time (g_c+I1), s	9.3	9.4	25.6	17.2	10.0	34.8	20.5	40.2
Green Ext Time (p_c), s	0.6	1.5	0.5	2.7	0.2	1.6	0.3	2.7

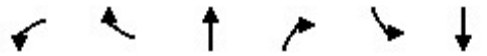
Intersection Summary	
HCM 2010 Ctrl Delay	52.9
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	390	20	10	1910	10	100	10	10	10	0	20
Future Volume (veh/h)	10	390	20	10	1910	10	100	10	10	10	0	20
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	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	1900	1900	1900	1900	1776	1900
Adj Flow Rate, veh/h	11	415	19	11	2032	11	106	11	2	11	0	0
Adj No. of Lanes	1	2	0	1	2	0	0	1	1	0	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	1	1	1	1	1	0	0	0	7	7	7
Cap, veh/h	33	2023	92	33	2121	11	465	45	470	388	0	0
Arrive On Green	0.02	0.58	0.57	0.02	0.58	0.57	0.29	0.29	0.29	0.29	0.00	0.00
Sat Flow, veh/h	1792	3477	159	1792	3645	20	1383	156	1615	1107	0	0
Grp Volume(v), veh/h	11	213	221	11	995	1048	117	0	2	11	0	0
Grp Sat Flow(s),veh/h/ln	1792	1787	1849	1792	1787	1877	1539	0	1615	1107	0	0
Q Serve(g_s), s	0.7	6.2	6.3	0.7	57.8	58.1	0.0	0.0	0.1	0.7	0.0	0.0
Cycle Q Clear(g_c), s	0.7	6.2	6.3	0.7	57.8	58.1	5.4	0.0	0.1	6.1	0.0	0.0
Prop In Lane	1.00		0.09	1.00		0.01	0.91		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	33	1040	1076	33	1040	1092	510	0	470	388	0	0
V/C Ratio(X)	0.34	0.20	0.21	0.34	0.96	0.96	0.23	0.00	0.00	0.03	0.00	0.00
Avail Cap(c_a), veh/h	195	1040	1076	195	1040	1092	510	0	470	388	0	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)	0.77	0.77	0.77	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	53.3	10.9	11.0	53.3	21.7	21.8	29.6	0.0	27.7	31.8	0.0	0.0
Incr Delay (d2), s/veh	4.6	0.3	0.3	6.0	19.3	19.0	1.0	0.0	0.0	0.0	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	0.4	3.2	3.3	0.4	33.8	35.5	2.8	0.0	0.0	0.3	0.0	0.0
LnGrp Delay(d),s/veh	58.0	11.3	11.3	59.3	41.0	40.8	30.6	0.0	27.7	31.9	0.0	0.0
LnGrp LOS	E	B	B	E	D	D	C		C	C		
Approach Vol, veh/h		445			2054			119			11	
Approach Delay, s/veh		12.4			41.0			30.5			31.9	
Approach LOS		B			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.0	68.0		36.0	6.0	68.0		36.0
Change Period (Y+Rc), s	4.0	5.7		4.6	4.0	5.7		4.6
Max Green Setting (Gmax), s	12.0	52.3		31.4	12.0	52.3		31.4
Max Q Clear Time (g_c+I1), s	2.7	8.3		8.1	2.7	60.1		7.4
Green Ext Time (p_c), s	0.0	2.5		0.0	0.0	0.0		0.6

Intersection Summary	
HCM 2010 Ctrl Delay	35.7
HCM 2010 LOS	D



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	40	80	270	60	220	1100
Future Volume (Veh/h)	40	80	270	60	220	1100
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	43	85	287	64	234	1170
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1957	319			351	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1957	319			351	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	25	88			81	
cM capacity (veh/h)	57	726			1219	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	128	351	1404
Volume Left	43	0	234
Volume Right	85	64	0
cSH	148	1700	1219
Volume to Capacity	0.87	0.21	0.19
Queue Length 95th (ft)	145	0	18
Control Delay (s)	101.6	0.0	5.9
Lane LOS	F		A
Approach Delay (s)	101.6	0.0	5.9
Approach LOS	F		

Intersection Summary			
Average Delay	11.3		
Intersection Capacity Utilization	105.0%	ICU Level of Service	G
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	140	350	80	130	1110	80	40	150	20	110	360	600
Future Volume (veh/h)	140	350	80	130	1110	80	40	150	20	110	360	600
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1881	1881	1900	1900	1776	1900	1900	1881	1881
Adj Flow Rate, veh/h	147	368	73	137	1168	81	42	158	18	116	379	238
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	1	1	1	7	7	7	1	1	1
Cap, veh/h	180	1104	217	170	1245	86	50	187	21	115	377	423
Arrive On Green	0.10	0.37	0.37	0.09	0.37	0.36	0.15	0.15	0.14	0.26	0.26	0.26
Sat Flow, veh/h	1774	2950	579	1792	3386	235	334	1257	143	436	1424	1599
Grp Volume(v), veh/h	147	219	222	137	616	633	218	0	0	495	0	238
Grp Sat Flow(s),veh/h/ln	1774	1770	1760	1792	1787	1833	1734	0	0	1859	0	1599
Q Serve(g_s), s	11.0	12.0	12.3	10.2	45.2	45.3	16.7	0.0	0.0	36.0	0.0	17.5
Cycle Q Clear(g_c), s	11.0	12.0	12.3	10.2	45.2	45.3	16.7	0.0	0.0	36.0	0.0	17.5
Prop In Lane	1.00		0.33	1.00		0.13	0.19		0.08	0.23		1.00
Lane Grp Cap(c), veh/h	180	662	659	170	657	674	257	0	0	492	0	423
V/C Ratio(X)	0.82	0.33	0.34	0.81	0.94	0.94	0.85	0.00	0.00	1.01	0.00	0.56
Avail Cap(c_a), veh/h	339	664	660	343	670	688	459	0	0	492	0	423
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	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	59.9	30.4	30.5	60.3	41.5	41.5	56.4	0.0	0.0	50.0	0.0	43.2
Incr Delay (d2), s/veh	8.8	0.3	0.3	8.7	20.6	20.6	7.5	0.0	0.0	41.9	0.0	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	5.9	5.9	6.0	5.5	26.0	26.7	8.5	0.0	0.0	24.2	0.0	7.9
LnGrp Delay(d),s/veh	68.7	30.7	30.8	69.0	62.0	62.1	63.9	0.0	0.0	91.9	0.0	44.9
LnGrp LOS	E	C	C	E	E	E	E			F		D
Approach Vol, veh/h		588			1386			218			733	
Approach Delay, s/veh		40.2			62.8			63.9			76.6	
Approach LOS		D			E			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	16.9	54.9		40.0	17.8	54.0		24.2
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	25.5	50.5		35.5	25.5	50.5		35.5
Max Q Clear Time (g_c+I1), s	12.2	14.3		38.0	13.0	47.3		18.7
Green Ext Time (p_c), s	0.3	2.7		0.0	0.3	2.2		1.0

Intersection Summary	
HCM 2010 Ctrl Delay	61.8
HCM 2010 LOS	E

Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	20	630	10	10	1310
Future Vol, veh/h	10	20	630	10	10	1310
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	-	-	350	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	33	33	1	1	2	2
Mvmt Flow	11	21	670	11	11	1394

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1395	341	0	0	681	0
Stage 1	676	-	-	-	-	-
Stage 2	719	-	-	-	-	-
Critical Hdwy	7.46	7.56	-	-	4.14	-
Critical Hdwy Stg 1	6.46	-	-	-	-	-
Critical Hdwy Stg 2	6.46	-	-	-	-	-
Follow-up Hdwy	3.83	3.63	-	-	2.22	-
Pot Cap-1 Maneuver	100	573	-	-	907	-
Stage 1	392	-	-	-	-	-
Stage 2	370	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	95	573	-	-	907	-
Mov Cap-2 Maneuver	95	-	-	-	-	-
Stage 1	371	-	-	-	-	-
Stage 2	370	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	24.7	0	0.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	214	907	-
HCM Lane V/C Ratio	-	-	0.149	0.012	-
HCM Control Delay (s)	-	-	24.7	9	0.2
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	0	170	130	90	260	150	940	0	0	670	40
Future Volume (veh/h)	80	0	170	130	90	260	150	940	0	0	670	40
Number	3	8	18	7	4	14	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	1900	1881	1881	1863	1863	0	0	1881	1900
Adj Flow Rate, veh/h	87	0	24	141	98	101	163	1022	0	0	728	35
Adj No. of Lanes	2	0	1	0	1	1	1	3	0	0	4	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, %	1	1	1	1	1	1	2	2	0	0	1	1
Cap, veh/h	295	0	132	195	135	289	212	2419	0	0	1718	82
Arrive On Green	0.08	0.00	0.08	0.18	0.18	0.18	0.12	0.48	0.00	0.00	0.27	0.25
Sat Flow, veh/h	3583	0	1599	1078	749	1599	1774	5253	0	0	6640	304
Grp Volume(v), veh/h	87	0	24	239	0	101	163	1022	0	0	553	210
Grp Sat Flow(s),veh/h/ln	1792	0	1599	1827	0	1599	1774	1695	0	0	1618	1827
Q Serve(g_s), s	1.0	0.0	0.6	5.7	0.0	2.5	4.1	6.1	0.0	0.0	4.3	4.4
Cycle Q Clear(g_c), s	1.0	0.0	0.6	5.7	0.0	2.5	4.1	6.1	0.0	0.0	4.3	4.4
Prop In Lane	1.00		1.00	0.59		1.00	1.00		0.00	0.00		0.17
Lane Grp Cap(c), veh/h	295	0	132	330	0	289	212	2419	0	0	1308	492
V/C Ratio(X)	0.29	0.00	0.18	0.72	0.00	0.35	0.77	0.42	0.00	0.00	0.42	0.43
Avail Cap(c_a), veh/h	1560	0	696	795	0	696	772	3431	0	0	3275	1233
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	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	19.8	0.0	19.6	17.7	0.0	16.5	19.6	7.9	0.0	0.0	13.8	13.9
Incr Delay (d2), s/veh	0.4	0.0	0.5	1.1	0.0	0.3	2.2	0.1	0.0	0.0	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	0.5	0.0	0.3	3.0	0.0	1.1	2.1	2.8	0.0	0.0	1.9	2.2
LnGrp Delay(d),s/veh	20.2	0.0	20.1	18.9	0.0	16.7	21.9	8.0	0.0	0.0	14.1	14.5
LnGrp LOS	C		C	B		B	C	A			B	B
Approach Vol, veh/h		111			340			1185			763	
Approach Delay, s/veh		20.2			18.2			9.9			14.2	
Approach LOS		C			B			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		25.9		12.3	9.5	16.4		7.8
Change Period (Y+Rc), s		5.0		4.0	4.0	5.0		4.0
Max Green Setting (Gmax), s		30.0		20.0	20.0	30.0		20.0
Max Q Clear Time (g_c+I1), s		8.1		7.7	6.1	6.4		3.0
Green Ext Time (p_c), s		7.1		0.7	0.2	4.9		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	12.9
HCM 2010 LOS	B

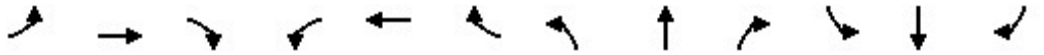
Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	840	0	880	0	0	0	0	680	150	0	350	230
Future Volume (veh/h)	840	0	880	0	0	0	0	680	150	0	350	230
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	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
Parking Bus, Adj	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				0	1881	1900	0	1900	1900
Adj Flow Rate, veh/h	875	0	832				0	708	116	0	365	0
Adj No. of Lanes	2	0	1				0	3	0	0	2	1
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2				0	1	1	0	0	0
Cap, veh/h	2149	0	959				0	1203	195	0	975	386
Arrive On Green	0.61	0.00	0.61				0.00	0.27	0.24	0.00	0.27	0.00
Sat Flow, veh/h	3548	0	1583				0	4624	723	0	3705	1615
Grp Volume(v), veh/h	875	0	832				0	543	281	0	365	0
Grp Sat Flow(s),veh/h/ln	1774	0	1583				0	1712	1754	0	1805	1615
Q Serve(g_s), s	8.3	0.0	28.1				0.0	8.8	9.1	0.0	5.3	0.0
Cycle Q Clear(g_c), s	8.3	0.0	28.1				0.0	8.8	9.1	0.0	5.3	0.0
Prop In Lane	1.00		1.00				0.00		0.41	0.00		1.00
Lane Grp Cap(c), veh/h	2149	0	959				0	925	474	0	975	386
V/C Ratio(X)	0.41	0.00	0.87				0.00	0.59	0.59	0.00	0.37	0.00
Avail Cap(c_a), veh/h	3060	0	1366				0	1437	736	0	1515	627
HCM Platoon Ratio	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	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	6.6	0.0	10.5				0.0	20.4	20.8	0.0	19.1	0.0
Incr Delay (d2), s/veh	0.1	0.0	4.4				0.0	0.6	1.2	0.0	0.2	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
%ile BackOfQ(50%),veh/ln	4.0	0.0	13.2				0.0	4.2	4.5	0.0	2.7	0.0
LnGrp Delay(d),s/veh	6.8	0.0	15.0				0.0	21.0	22.0	0.0	19.3	0.0
LnGrp LOS	A		B					C	C		B	
Approach Vol, veh/h		1707						824			365	
Approach Delay, s/veh		10.8						21.3			19.3	
Approach LOS		B						C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		21.4		43.0		21.4		
Change Period (Y+Rc), s		6.0		4.5		6.0		
Max Green Setting (Gmax), s		25.0		55.0		25.0		
Max Q Clear Time (g_c+I1), s		11.1		30.1		7.3		
Green Ext Time (p_c), s		4.3		8.4		2.0		

Intersection Summary	
HCM 2010 Ctrl Delay	14.8
HCM 2010 LOS	B

Notes



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	300	150	20	140	200	270	30	260	120	530	370	330
Future Volume (veh/h)	300	150	20	140	200	270	30	260	120	530	370	330
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	1900	1900	1900	1900	1881	1881	1900	1900	1900	1900
Adj Flow Rate, veh/h	319	160	11	149	213	156	32	277	78	564	394	263
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	2	2	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	0	0	0	1	1	1	0	0	0
Cap, veh/h	227	534	36	202	515	230	89	448	124	1543	1151	759
Arrive On Green	0.13	0.16	0.14	0.11	0.14	0.14	0.05	0.16	0.14	0.44	0.55	0.53
Sat Flow, veh/h	1774	3361	229	1810	3610	1615	1792	2767	764	3510	2086	1376
Grp Volume(v), veh/h	319	84	87	149	213	156	32	177	178	564	340	317
Grp Sat Flow(s),veh/h/ln	1774	1770	1821	1810	1805	1615	1792	1787	1744	1755	1805	1657
Q Serve(g_s), s	16.0	5.2	5.3	10.0	6.7	11.5	2.2	11.5	12.0	13.4	13.0	13.7
Cycle Q Clear(g_c), s	16.0	5.2	5.3	10.0	6.7	11.5	2.2	11.5	12.0	13.4	13.0	13.7
Prop In Lane	1.00		0.13	1.00		1.00	1.00		0.44	1.00		0.83
Lane Grp Cap(c), veh/h	227	281	289	202	515	230	89	289	283	1543	996	914
V/C Ratio(X)	1.40	0.30	0.30	0.74	0.41	0.68	0.36	0.61	0.63	0.37	0.34	0.35
Avail Cap(c_a), veh/h	227	566	583	232	1155	517	172	586	572	1543	996	914
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	0.62	0.62	0.62
Uniform Delay (d), s/veh	54.5	46.4	46.6	53.7	48.8	50.9	57.5	48.7	49.5	23.4	15.5	16.3
Incr Delay (d2), s/veh	206.4	0.6	0.6	10.1	0.5	3.5	2.4	3.3	3.6	0.1	0.2	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	20.8	2.6	2.7	5.5	3.4	5.3	1.1	6.0	6.0	6.5	6.5	6.3
LnGrp Delay(d),s/veh	260.9	47.0	47.2	63.9	49.4	54.3	59.9	52.0	53.2	23.5	15.7	16.5
LnGrp LOS	F	D	D	E	D	D	E	D	D	C	B	B
Approach Vol, veh/h		490			518			387			1221	
Approach Delay, s/veh		186.3			55.0			53.2			19.5	
Approach LOS		F			E			D			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	58.9	24.2	18.0	23.9	10.2	73.0	20.0	21.8
Change Period (Y+Rc), s	5.5	7.0	6.0	6.7	5.5	7.0	5.5	6.7
Max Green Setting (Gmax), s	10.5	38.0	14.0	37.3	10.5	38.0	14.5	37.3
Max Q Clear Time (g_c+I1), s	15.4	14.0	12.0	7.3	4.2	15.7	18.0	13.5
Green Ext Time (p_c), s	0.0	3.1	0.1	0.9	0.0	6.1	0.0	1.7

Intersection Summary	
HCM 2010 Ctrl Delay	62.8
HCM 2010 LOS	E

Notes

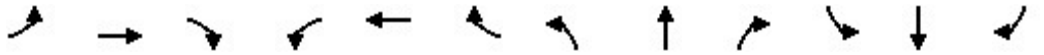
Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	650	40	0	630	0	20
Future Vol, veh/h	650	40	0	630	0	20
Conflicting Peds, #/hr	0	3	3	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	99	99	99	99	99	99
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	657	40	0	636	0	20

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	352
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	-	-	0	-	0	650
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	648
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	648	-	-	-
HCM Lane V/C Ratio	0.031	-	-	-
HCM Control Delay (s)	10.7	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.1	-	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	590	70	100	580	0	50	0	60	0	0	0
Future Volume (veh/h)	10	590	70	100	580	0	50	0	60	0	0	0
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1900	1900	1900	1900	1863	1863	1900
Adj Flow Rate, veh/h	10	608	56	103	598	0	52	0	4	0	0	0
Adj No. of Lanes	1	2	1	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	1	1	1	1	0	0	0	2	2	2
Cap, veh/h	44	2734	1219	140	2927	0	99	115	98	1	1	0
Arrive On Green	0.02	0.77	0.77	0.08	0.82	0.00	0.05	0.00	0.06	0.00	0.00	0.00
Sat Flow, veh/h	1792	3574	1594	1792	3668	0	1810	1900	1615	1774	1863	0
Grp Volume(v), veh/h	10	608	56	103	598	0	52	0	4	0	0	0
Grp Sat Flow(s),veh/h/ln	1792	1787	1594	1792	1787	0	1810	1900	1615	1774	1863	0
Q Serve(g_s), s	0.7	6.0	1.1	7.0	4.6	0.0	3.5	0.0	0.3	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.7	6.0	1.1	7.0	4.6	0.0	3.5	0.0	0.3	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	44	2734	1219	140	2927	0	99	115	98	1	1	0
V/C Ratio(X)	0.23	0.22	0.05	0.74	0.20	0.00	0.52	0.00	0.04	0.00	0.00	0.00
Avail Cap(c_a), veh/h	143	2734	1219	143	2927	0	145	638	543	142	626	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)	1.00	1.00	1.00	0.98	0.98	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	59.8	4.2	3.6	56.3	2.5	0.0	57.5	0.0	55.3	0.0	0.0	0.0
Incr Delay (d2), s/veh	2.6	0.2	0.1	17.1	0.2	0.0	4.2	0.0	0.2	0.0	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	0.4	3.0	0.5	4.2	2.3	0.0	1.9	0.0	0.1	0.0	0.0	0.0
LnGrp Delay(d),s/veh	62.4	4.3	3.6	73.4	2.6	0.0	61.7	0.0	55.4	0.0	0.0	0.0
LnGrp LOS	E	A	A	E	A		E		E			
Approach Vol, veh/h		674			701			56			0	
Approach Delay, s/veh		5.2			13.0			61.3			0.0	
Approach LOS		A			B			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	7.1	106.3	0.0	11.6	13.8	99.6	10.8	0.7
Change Period (Y+Rc), s	5.0	6.7	5.0	5.6	5.0	6.7	5.0	5.6
Max Green Setting (Gmax), s	9.0	44.3	9.0	40.4	9.0	44.3	9.0	40.4
Max Q Clear Time (g_c+I1), s	2.7	6.6	0.0	2.3	9.0	8.0	5.5	0.0
Green Ext Time (p_c), s	0.0	4.0	0.0	0.0	0.0	4.3	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	11.2
HCM 2010 LOS	B

Notes

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	550	100	60	630	50	40
Future Volume (veh/h)	550	100	60	630	50	40
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.97	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	1900	1900	1881	1881	1881	1881
Adj Flow Rate, veh/h	625	104	68	716	57	4
Adj No. of Lanes	2	0	1	2	1	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	0	0	1	1	1	1
Cap, veh/h	2293	381	124	3023	120	107
Arrive On Green	0.74	0.72	0.07	0.85	0.07	0.07
Sat Flow, veh/h	3180	512	1792	3668	1792	1599
Grp Volume(v), veh/h	365	364	68	716	57	4
Grp Sat Flow(s),veh/h/ln	1805	1792	1792	1787	1792	1599
Q Serve(g_s), s	6.5	6.7	3.7	3.9	3.1	0.2
Cycle Q Clear(g_c), s	6.5	6.7	3.7	3.9	3.1	0.2
Prop In Lane		0.29	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1342	1332	124	3023	120	107
V/C Ratio(X)	0.27	0.27	0.55	0.24	0.47	0.04
Avail Cap(c_a), veh/h	1342	1332	215	3023	376	336
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.99	0.99	0.96	0.96	1.00	1.00
Uniform Delay (d), s/veh	4.1	4.3	45.0	1.5	44.9	43.6
Incr Delay (d2), s/veh	0.5	0.5	3.6	0.2	2.9	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	3.3	3.5	1.9	2.0	1.6	0.1
LnGrp Delay(d),s/veh	4.6	4.8	48.6	1.7	47.8	43.8
LnGrp LOS	A	A	D	A	D	D
Approach Vol, veh/h	729			784	61	
Approach Delay, s/veh	4.7			5.7	47.6	
Approach LOS	A			A	D	

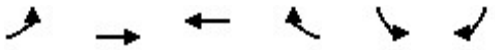
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	10.9	78.3				89.3		10.7
Change Period (Y+Rc), s	5.0	6.7				* 6.7		5.0
Max Green Setting (Gmax), s	16.0	52.3				* 69		20.0
Max Q Clear Time (g_c+I1), s	5.7	8.7				5.9		5.1
Green Ext Time (p_c), s	0.0	7.1				8.5		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	6.9
HCM 2010 LOS	A

Notes

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	510	80	120	630	60	80
Future Volume (vph)	510	80	120	630	60	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0		4.0	4.0	4.0	
Lane Util. Factor	0.95		1.00	0.95	1.00	
Frpb, ped/bikes	0.99		1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00	1.00	1.00	
Frt	0.98		1.00	1.00	0.92	
Flt Protected	1.00		0.95	1.00	0.98	
Satd. Flow (prot)	3513		1787	3574	1716	
Flt Permitted	1.00		0.95	1.00	0.98	
Satd. Flow (perm)	3513		1787	3574	1716	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	573	90	135	708	67	90
RTOR Reduction (vph)	11	0	0	0	50	0
Lane Group Flow (vph)	652	0	135	708	107	0
Confl. Peds. (#/hr)		13				
Confl. Bikes (#/hr)		1				
Heavy Vehicles (%)	0%	0%	1%	1%	0%	0%
Turn Type	NA		Prot	NA	Prot	
Protected Phases	2		1	6 3	7	
Permitted Phases						
Actuated Green, G (s)	33.1		9.9	74.9	15.0	
Effective Green, g (s)	35.1		10.9	75.9	16.0	
Actuated g/C Ratio	0.35		0.11	0.76	0.16	
Clearance Time (s)	5.0		5.0		5.0	
Vehicle Extension (s)	3.0		3.0		3.0	
Lane Grp Cap (vph)	1233		194	2712	274	
v/s Ratio Prot	c0.19		c0.08	c0.20	c0.06	
v/s Ratio Perm						
v/c Ratio	0.53		0.70	0.26	0.39	
Uniform Delay, d1	25.9		43.0	3.6	37.6	
Progression Factor	0.82		1.15	0.13	1.00	
Incremental Delay, d2	1.6		9.9	0.0	0.9	
Delay (s)	22.7		59.2	0.5	38.5	
Level of Service	C		E	A	D	
Approach Delay (s)	22.7			9.9	38.5	
Approach LOS	C			A	D	

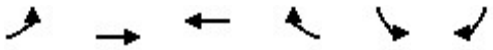
Intersection Summary			
HCM 2000 Control Delay	17.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.1
Intersection Capacity Utilization	44.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	590	610	0	200	140
Future Volume (vph)	0	590	610	0	200	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	4.0		4.0	4.0
Lane Util. Factor		0.95	*0.70		1.00	1.00
Frpb, ped/bikes		1.00	1.00		1.00	1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3610	3950		1752	1568
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3610	3950		1752	1568
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	0	702	726	0	238	167
RTOR Reduction (vph)	0	0	0	0	0	129
Lane Group Flow (vph)	0	702	726	0	238	38
Confl. Peds. (#/hr)					24	
Heavy Vehicles (%)	0%	0%	1%	1%	3%	3%
Turn Type		NA	NA		Prot	Perm
Protected Phases		2 1 7	6		3	
Permitted Phases						3
Actuated Green, G (s)		68.0	48.0		21.9	21.9
Effective Green, g (s)		70.0	49.0		23.0	23.0
Actuated g/C Ratio		0.70	0.49		0.23	0.23
Clearance Time (s)			5.0		5.1	5.1
Vehicle Extension (s)			3.0		3.0	3.0
Lane Grp Cap (vph)		2527	1935		402	360
v/s Ratio Prot		c0.19	c0.18		c0.14	
v/s Ratio Perm						0.02
v/c Ratio		0.28	0.38		0.59	0.11
Uniform Delay, d1		5.6	15.9		34.3	30.4
Progression Factor		0.23	0.52		1.00	1.00
Incremental Delay, d2		0.1	0.5		2.3	0.1
Delay (s)		1.4	8.8		36.7	30.5
Level of Service		A	A		D	C
Approach Delay (s)		1.4	8.8		34.1	
Approach LOS		A	A		C	

Intersection Summary			
HCM 2000 Control Delay	11.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	34.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	90	700	610	90	0	0
Future Volume (vph)	90	700	610	90	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0			
Lane Util. Factor	1.00	0.95	0.95			
Frpb, ped/bikes	1.00	1.00	1.00			
Flpb, ped/bikes	1.00	1.00	1.00			
Frt	1.00	1.00	0.98			
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	1770	3539	3465			
Flt Permitted	0.95	1.00	1.00			
Satd. Flow (perm)	1770	3539	3465			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	100	778	678	100	0	0
RTOR Reduction (vph)	0	0	8	0	0	0
Lane Group Flow (vph)	100	778	770	0	0	0
Confl. Peds. (#/hr)				1	25	
Turn Type	Prot	NA	NA			
Protected Phases	5	2	6			
Permitted Phases						
Actuated Green, G (s)	8.6	74.6	61.4			
Effective Green, g (s)	9.2	75.2	62.0			
Actuated g/C Ratio	0.09	0.75	0.62			
Clearance Time (s)	4.6	4.6	4.6			
Vehicle Extension (s)	3.0	3.0	3.0			
Lane Grp Cap (vph)	162	2661	2148			
v/s Ratio Prot	c0.06	0.22	c0.22			
v/s Ratio Perm						
v/c Ratio	0.62	0.29	0.36			
Uniform Delay, d1	43.7	3.9	9.3			
Progression Factor	0.71	2.31	0.79			
Incremental Delay, d2	6.6	0.3	0.5			
Delay (s)	37.5	9.4	7.8			
Level of Service	D	A	A			
Approach Delay (s)		12.6	7.8		0.0	
Approach LOS		B	A		A	

Intersection Summary			
HCM 2000 Control Delay	10.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.6
Intersection Capacity Utilization	34.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	660	40	170	670	30	130
Future Volume (veh/h)	660	40	170	670	30	130
Number	2	12	1	6	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1900	1863	1863	1900	1900
Adj Flow Rate, veh/h	717	40	185	728	33	23
Adj No. of Lanes	2	0	1	2	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	0	0
Cap, veh/h	2155	120	235	2851	112	78
Arrive On Green	0.21	0.20	0.13	0.81	0.11	0.10
Sat Flow, veh/h	3498	190	1774	3632	978	682
Grp Volume(v), veh/h	372	385	185	728	57	0
Grp Sat Flow(s),veh/h/ln	1770	1825	1774	1770	1689	0
Q Serve(g_s), s	17.9	17.9	10.1	5.0	3.1	0.0
Cycle Q Clear(g_c), s	17.9	17.9	10.1	5.0	3.1	0.0
Prop In Lane		0.10	1.00		0.58	0.40
Lane Grp Cap(c), veh/h	1120	1155	235	2851	193	0
V/C Ratio(X)	0.33	0.33	0.79	0.26	0.29	0.00
Avail Cap(c_a), veh/h	1120	1155	284	2851	524	0
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.97	0.97	0.85	0.85	1.00	0.00
Uniform Delay (d), s/veh	21.6	21.6	42.0	2.4	40.8	0.0
Incr Delay (d2), s/veh	0.8	0.8	9.9	0.2	0.8	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	9.0	9.3	5.6	2.5	1.5	0.0
LnGrp Delay(d),s/veh	22.4	22.4	51.9	2.6	41.6	0.0
LnGrp LOS	C	C	D	A	D	
Approach Vol, veh/h	757			913	57	
Approach Delay, s/veh	22.4			12.6	41.6	
Approach LOS	C			B	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	17.3	67.3		15.4		84.6		
Change Period (Y+Rc), s	5.1	5.5		5.1		5.5		
Max Green Setting (Gmax), s	14.3	39.5		29.9		59.5		
Max Q Clear Time (g_c+I1), s	12.1	19.9		5.1		7.0		
Green Ext Time (p_c), s	0.1	4.5		0.1		5.8		

Intersection Summary	
HCM 2010 Ctrl Delay	17.8
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	190	140	120	250	970	670	80	600	130
Future Volume (veh/h)	0	0	0	190	140	120	250	970	670	80	600	130
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.98	1.00		0.97	1.00		0.96
Parking Bus, Adj				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	1900	1900	1881	1881	1900	1863	1863	1900
Adj Flow Rate, veh/h				211	156	133	278	1078	638	89	667	144
Adj No. of Lanes				0	2	0	2	3	0	1	2	0
Peak Hour Factor				0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %				0	0	0	1	1	1	2	2	2
Cap, veh/h				299	233	204	425	1819	827	162	1438	310
Arrive On Green				0.21	0.21	0.19	0.12	0.53	0.52	0.09	0.50	0.48
Sat Flow, veh/h				1436	1116	979	3476	3424	1556	1774	2876	620
Grp Volume(v), veh/h				269	0	231	278	1078	638	89	410	401
Grp Sat Flow(s),veh/h/ln				1828	0	1702	1738	1712	1556	1774	1770	1726
Q Serve(g_s), s				9.7	0.0	8.9	5.4	15.3	23.4	3.4	10.7	10.8
Cycle Q Clear(g_c), s				9.7	0.0	8.9	5.4	15.3	23.4	3.4	10.7	10.8
Prop In Lane				0.79		0.58	1.00		1.00	1.00		0.36
Lane Grp Cap(c), veh/h				381	0	355	425	1819	827	162	885	863
V/C Ratio(X)				0.71	0.00	0.65	0.65	0.59	0.77	0.55	0.46	0.46
Avail Cap(c_a), veh/h				518	0	482	2482	2078	945	642	1074	1048
HCM Platoon Ratio				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
Uniform Delay (d), s/veh				26.1	0.0	26.0	29.7	11.4	13.7	30.9	11.5	11.7
Incr Delay (d2), s/veh				1.3	0.0	0.8	0.9	0.4	3.5	1.1	0.4	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
%ile BackOfQ(50%),veh/ln				5.0	0.0	4.3	2.6	7.3	10.8	1.7	5.2	5.2
LnGrp Delay(d),s/veh				27.4	0.0	26.8	30.6	11.7	17.2	31.9	11.9	12.1
LnGrp LOS				C		C	C	B	B	C	B	B
Approach Vol, veh/h					500			1994			900	
Approach Delay, s/veh					27.1			16.1			14.0	
Approach LOS					C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2			5	6		8
Phs Duration (G+Y+Rc), s	10.5	41.7			12.7	39.5		18.8
Change Period (Y+Rc), s	* 4.7	5.1			* 4.7	5.1		5.1
Max Green Setting (Gmax), s	* 25	42.0			* 50	42.0		19.0
Max Q Clear Time (g_c+I1), s	5.4	25.4			7.4	12.8		11.7
Green Ext Time (p_c), s	0.0	11.2			0.6	5.6		1.2

Intersection Summary	
HCM 2010 Ctrl Delay	17.2
HCM 2010 LOS	B

Notes

Intersection	
Int Delay, s/veh	24.7

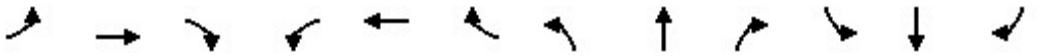
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	440	0	0	320	0	1570	0	0	790	0
Future Vol, veh/h	0	0	440	0	0	320	0	1570	0	0	790	0
Conflicting Peds, #/hr	0	0	0	0	0	0	33	0	7	7	0	33
Sign Control	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	0	0	0	1	1	1	2	2	2
Mvmt Flow	0	0	478	0	0	348	0	1707	0	0	859	0

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	-	-	854	-	0	-	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.1	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.9	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	~ 263	0	-	0	0	-	0
Stage 1	0	0	-	0	-	0	0	-	0
Stage 2	0	0	-	0	-	0	0	-	0
Platoon blocked, %					-			-	
Mov Cap-1 Maneuver	-	0	~ 263	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	0	-	-	-	-	-	-	-
Stage 1	-	0	-	-	-	-	-	-	-
Stage 2	-	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	207.1	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	263	-
HCM Lane V/C Ratio	-	1.323	-
HCM Control Delay (s)	-	207.1	-
HCM Lane LOS	-	F	-
HCM 95th %tile Q(veh)	-	17.9	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	280	390	0	0	560	0	890	420	290	790	150
Future Volume (vph)	120	280	390	0	0	560	0	890	420	290	790	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0			4.0		4.0	2.0	4.0	2.0	2.0
Lane Util. Factor		0.95	1.00			1.00		0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes		1.00	0.98			1.00		1.00	0.99	1.00	1.00	0.88
Flpb, ped/bikes		1.00	1.00			1.00		1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.85			0.85		1.00	0.85	1.00	1.00	0.85
Flt Protected		0.99	1.00			1.00		1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		3557	1590			1599		3574	1580	3433	3539	1396
Flt Permitted		0.99	1.00			1.00		1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		3557	1590			1599		3574	1580	3433	3539	1396
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	133	311	433	0	0	622	0	989	467	322	878	167
RTOR Reduction (vph)	0	0	29	0	0	0	0	0	58	0	0	69
Lane Group Flow (vph)	0	444	404	0	0	622	0	989	409	322	878	98
Confl. Peds. (#/hr)			12						1			29
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	1%	2%	2%	2%
Turn Type	Split	NA	custom			custom		NA	custom	Prot	NA	custom
Protected Phases	4!	4	5	3!	3!	1 2 4!		2 3!	3	1	3 6!	3!
Permitted Phases			4						2			6
Actuated Green, G (s)		24.8	37.9			106.0		78.7	73.7	14.5	79.1	74.1
Effective Green, g (s)		25.8	39.9			101.0		79.7	75.7	14.5	76.1	76.1
Actuated g/C Ratio		0.20	0.31			0.78		0.61	0.58	0.11	0.59	0.59
Clearance Time (s)		5.0	5.0						3.0	4.0		3.0
Vehicle Extension (s)		2.0	2.0						2.0	2.0		2.0
Lane Grp Cap (vph)		705	536			1242		2191	920	382	2071	817
v/s Ratio Prot		0.12	c0.08			c0.39		c0.28	0.06	0.09	0.25	0.02
v/s Ratio Perm			0.17						0.20			0.05
v/c Ratio		0.63	0.75			0.50		0.45	0.44	0.84	0.42	0.12
Uniform Delay, d1		47.7	40.6			5.3		13.5	15.3	56.6	14.9	12.0
Progression Factor		1.00	1.00			1.00		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		1.3	5.3			0.1		0.1	0.1	14.9	0.1	0.0
Delay (s)		49.0	45.9			5.4		13.5	15.4	71.5	14.9	12.0
Level of Service		D	D			A		B	B	E	B	B
Approach Delay (s)		47.5			5.4			14.1			27.9	
Approach LOS		D			A			B			C	

Intersection Summary			
HCM 2000 Control Delay	24.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	87.0%	ICU Level of Service	E
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	190	480	120	30	260	280	270	470	170	510	200	250
Future Volume (veh/h)	190	480	120	30	260	280	270	470	170	510	200	250
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		0.98	1.00		0.99	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	1900	1900	1900	1900	1900	1900	1881	1881	1881
Adj Flow Rate, veh/h	196	495	112	31	268	57	278	485	155	526	206	67
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	2	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	1	0	0	0	0	0	0	1	1	1
Cap, veh/h	264	751	169	104	646	285	351	719	228	711	521	442
Arrive On Green	0.15	0.26	0.24	0.06	0.18	0.18	0.19	0.27	0.25	0.20	0.28	0.28
Sat Flow, veh/h	1792	2886	649	1810	3610	1593	1810	2696	856	3476	1881	1597
Grp Volume(v), veh/h	196	305	302	31	268	57	278	324	316	526	206	67
Grp Sat Flow(s),veh/h/ln	1792	1787	1748	1810	1805	1593	1810	1805	1746	1738	1881	1597
Q Serve(g_s), s	8.3	12.1	12.3	1.3	5.2	2.4	11.6	12.7	12.9	11.2	7.0	2.5
Cycle Q Clear(g_c), s	8.3	12.1	12.3	1.3	5.2	2.4	11.6	12.7	12.9	11.2	7.0	2.5
Prop In Lane	1.00		0.37	1.00		1.00	1.00		0.49	1.00		1.00
Lane Grp Cap(c), veh/h	264	465	455	104	646	285	351	481	466	711	521	442
V/C Ratio(X)	0.74	0.66	0.66	0.30	0.41	0.20	0.79	0.67	0.68	0.74	0.40	0.15
Avail Cap(c_a), veh/h	591	1163	1137	757	2107	930	711	946	916	1497	1010	858
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.3	26.1	26.4	35.8	28.8	27.7	30.4	25.9	26.4	29.5	23.2	21.6
Incr Delay (d2), s/veh	4.1	1.6	1.7	1.6	0.4	0.3	4.0	1.6	1.7	1.5	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	4.4	6.1	6.1	0.7	2.6	1.1	6.2	6.5	6.4	5.6	3.7	1.1
LnGrp Delay(d),s/veh	36.4	27.7	28.1	37.3	29.2	28.0	34.4	27.6	28.1	31.0	23.7	21.8
LnGrp LOS	D	C	C	D	C	C	C	C	C	C	C	C
Approach Vol, veh/h		803			356			918			799	
Approach Delay, s/veh		30.0			29.7			29.8			28.4	
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	20.2	25.1	8.6	25.3	19.4	25.9	15.7	18.2
Change Period (Y+Rc), s	5.1	5.5	5.1	* 6.2	5.1	5.5	5.1	6.2
Max Green Setting (Gmax), s	33.0	40.0	32.0	* 50	30.0	41.0	25.0	44.0
Max Q Clear Time (g_c+I1), s	13.2	14.9	3.3	14.3	13.6	9.0	10.3	7.2
Green Ext Time (p_c), s	1.9	4.2	0.1	4.0	0.7	1.5	0.4	1.9

Intersection Summary	
HCM 2010 Ctrl Delay	29.4
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	960	30	10	520	0	30	0	10	10	0	10
Future Volume (veh/h)	10	960	30	10	520	0	30	0	10	10	0	10
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	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	0	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	11	1079	32	11	584	0	34	0	3	11	0	0
Adj No. of Lanes	1	2	0	1	2	0	0	1	1	0	1	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	1	1	1	1	1	0	0	0	0	0	0	0
Cap, veh/h	33	2061	61	33	2080	0	491	0	469	463	0	0
Arrive On Green	0.02	0.58	0.57	0.02	0.58	0.00	0.29	0.00	0.29	0.29	0.00	0.00
Sat Flow, veh/h	1792	3542	105	1792	3668	0	1463	0	1612	1366	0	0
Grp Volume(v), veh/h	11	544	567	11	584	0	34	0	3	11	0	0
Grp Sat Flow(s),veh/h/ln	1792	1787	1860	1792	1787	0	1463	0	1612	1366	0	0
Q Serve(g_s), s	0.7	20.2	20.2	0.7	9.0	0.0	0.0	0.0	0.1	0.6	0.0	0.0
Cycle Q Clear(g_c), s	0.7	20.2	20.2	0.7	9.0	0.0	1.5	0.0	0.1	2.1	0.0	0.0
Prop In Lane	1.00		0.06	1.00		0.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	33	1040	1082	33	2080	0	491	0	469	463	0	0
V/C Ratio(X)	0.34	0.52	0.52	0.34	0.28	0.00	0.07	0.00	0.01	0.02	0.00	0.00
Avail Cap(c_a), veh/h	195	1040	1082	195	2080	0	491	0	469	463	0	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)	0.76	0.76	0.76	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	53.3	13.8	13.9	53.3	11.5	0.0	28.2	0.0	27.7	28.9	0.0	0.0
Incr Delay (d2), s/veh	4.6	1.4	1.4	6.0	0.3	0.0	0.3	0.0	0.0	0.0	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	0.4	10.2	10.7	0.4	4.5	0.0	0.8	0.0	0.1	0.2	0.0	0.0
LnGrp Delay(d),s/veh	57.9	15.3	15.3	59.3	11.8	0.0	28.5	0.0	27.7	29.0	0.0	0.0
LnGrp LOS	E	B	B	E	B		C		C	C		
Approach Vol, veh/h		1122			595			37			11	
Approach Delay, s/veh		15.7			12.7			28.4			29.0	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.0	68.0		36.0	6.0	68.0		36.0
Change Period (Y+Rc), s	4.0	5.7		4.6	4.0	5.7		4.6
Max Green Setting (Gmax), s	12.0	52.3		31.4	12.0	52.3		31.4
Max Q Clear Time (g_c+I1), s	2.7	22.2		4.1	2.7	11.0		3.5
Green Ext Time (p_c), s	0.0	8.0		0.0	0.0	4.1		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	15.0
HCM 2010 LOS	B

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	20	70	920	60	30	320
Future Volume (Veh/h)	20	70	920	60	30	320
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	21	74	979	64	32	340
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1415	1011			1043	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1415	1011			1043	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	86	75			95	
cM capacity (veh/h)	145	292			675	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	95	1043	372
Volume Left	21	0	32
Volume Right	74	64	0
cSH	239	1700	675
Volume to Capacity	0.40	0.61	0.05
Queue Length 95th (ft)	45	0	4
Control Delay (s)	29.7	0.0	1.5
Lane LOS	D		A
Approach Delay (s)	29.7	0.0	1.5
Approach LOS	D		

Intersection Summary			
Average Delay		2.2	
Intersection Capacity Utilization		64.1%	ICU Level of Service C
Analysis Period (min)		15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	410	790	70	30	360	120	50	450	40	90	180	100
Future Volume (veh/h)	410	790	70	30	360	120	50	450	40	90	180	100
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	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	1900	1900	1881	1881	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	432	832	70	32	379	104	53	474	41	95	189	21
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	1	1	1	0	0	0	0	0	0
Cap, veh/h	388	1213	102	56	494	134	52	462	40	112	223	290
Arrive On Green	0.21	0.36	0.36	0.03	0.18	0.17	0.30	0.30	0.29	0.18	0.18	0.18
Sat Flow, veh/h	1810	3364	283	1792	2781	754	174	1558	135	625	1244	1615
Grp Volume(v), veh/h	432	446	456	32	242	241	568	0	0	284	0	21
Grp Sat Flow(s),veh/h/ln	1810	1805	1842	1792	1787	1748	1867	0	0	1869	0	1615
Q Serve(g_s), s	26.0	25.5	25.5	2.1	15.6	16.0	36.0	0.0	0.0	17.8	0.0	1.3
Cycle Q Clear(g_c), s	26.0	25.5	25.5	2.1	15.6	16.0	36.0	0.0	0.0	17.8	0.0	1.3
Prop In Lane	1.00		0.15	1.00		0.43	0.09		0.07	0.33		1.00
Lane Grp Cap(c), veh/h	388	651	664	56	317	311	554	0	0	335	0	290
V/C Ratio(X)	1.11	0.69	0.69	0.57	0.76	0.78	1.03	0.00	0.00	0.85	0.00	0.07
Avail Cap(c_a), veh/h	388	759	774	384	751	735	554	0	0	554	0	479
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	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	47.7	32.9	33.0	58.0	47.5	47.7	42.7	0.0	0.0	48.2	0.0	41.4
Incr Delay (d2), s/veh	80.3	2.1	2.1	8.8	3.8	4.2	44.8	0.0	0.0	6.4	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	21.6	13.0	13.3	1.2	8.1	8.1	25.4	0.0	0.0	9.8	0.0	0.6
LnGrp Delay(d),s/veh	128.0	35.1	35.1	66.8	51.2	51.9	87.5	0.0	0.0	54.5	0.0	41.5
LnGrp LOS	F	D	D	E	D	D	F			D		D
Approach Vol, veh/h		1334			515			568			305	
Approach Delay, s/veh		65.2			52.5			87.5			53.6	
Approach LOS		E			D			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.8	47.8		25.8	30.0	25.6		40.0
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	25.5	50.5		35.5	25.5	50.5		35.5
Max Q Clear Time (g_c+I1), s	4.1	27.5		19.8	28.0	18.0		38.0
Green Ext Time (p_c), s	0.0	5.9		1.4	0.0	3.0		0.0

Intersection Summary		
HCM 2010 Ctrl Delay		66.1
HCM 2010 LOS		E

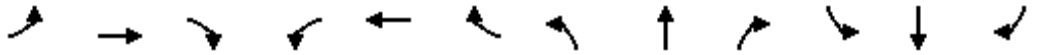
Intersection	
Int Delay, s/veh	1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	20	1700	0	20	450
Future Vol, veh/h	10	20	1700	0	20	450
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	-	-	350	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	1	1	2	2
Mvmt Flow	10	21	1771	0	21	469

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2048	886	0	0	1771	0
Stage 1	1771	-	-	-	-	-
Stage 2	277	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.14	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.22	-
Pot Cap-1 Maneuver	50	292	-	-	348	-
Stage 1	124	-	-	-	-	-
Stage 2	751	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	46	292	-	-	348	-
Mov Cap-2 Maneuver	46	-	-	-	-	-
Stage 1	114	-	-	-	-	-
Stage 2	751	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	53.2	0	1.3
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	105	348	-
HCM Lane V/C Ratio	-	-	0.298	0.06	-
HCM Control Delay (s)	-	-	53.2	16	0.6
HCM Lane LOS	-	-	F	C	A
HCM 95th %tile Q(veh)	-	-	1.1	0.2	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	0	343	48	20	20	379	416	0	0	1817	190
Future Volume (veh/h)	20	0	343	48	20	20	379	416	0	0	1817	190
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	80	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	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	1845	1845	1845	1900	1759	1759	1845	1845	0	0	1863	1900
Adj Flow Rate, veh/h	21	0	27	51	21	2	403	443	0	0	1933	191
Adj No. of Lanes	2	0	1	0	1	1	1	3	0	0	4	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	8	8	8	3	3	0	0	2	2
Cap, veh/h	129	0	57	71	29	87	434	3958	0	0	2689	200
Arrive On Green	0.04	0.00	0.04	0.06	0.06	0.06	0.25	0.78	0.00	0.00	0.50	0.49
Sat Flow, veh/h	3514	0	1568	1204	496	1488	1757	5202	0	0	5732	511
Grp Volume(v), veh/h	21	0	27	72	0	2	403	443	0	0	1461	663
Grp Sat Flow(s),veh/h/ln	1757	0	1568	1699	0	1488	1757	1679	0	0	1304	1773
Q Serve(g_s), s	0.6	0.0	1.7	4.1	0.0	0.1	22.2	2.1	0.0	0.0	29.8	29.9
Cycle Q Clear(g_c), s	0.6	0.0	1.7	4.1	0.0	0.1	22.2	2.1	0.0	0.0	29.8	29.9
Prop In Lane	1.00		1.00	0.71		1.00	1.00		0.00	0.00		0.29
Lane Grp Cap(c), veh/h	129	0	57	100	0	87	434	3958	0	0	1958	894
V/C Ratio(X)	0.16	0.00	0.47	0.72	0.00	0.02	0.93	0.11	0.00	0.00	0.75	0.74
Avail Cap(c_a), veh/h	248	0	111	515	0	451	514	4373	0	0	2094	949
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	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	47.2	0.0	47.8	46.8	0.0	44.9	37.2	2.5	0.0	0.0	22.8	21.9
Incr Delay (d2), s/veh	0.4	0.0	4.4	3.7	0.0	0.0	20.1	0.0	0.0	0.0	1.4	3.0
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	26.7	13.9
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.8	2.1	0.0	0.1	13.4	0.9	0.0	0.0	19.6	22.4
LnGrp Delay(d),s/veh	47.7	0.0	52.2	50.5	0.0	44.9	57.3	2.6	0.0	0.0	50.8	38.9
LnGrp LOS	D		D	D		D	E	A			D	D
Approach Vol, veh/h		48			74			846			2124	
Approach Delay, s/veh		50.2			50.3			28.6			47.1	
Approach LOS		D			D			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		81.5		9.8	28.5	53.0		7.7
Change Period (Y+Rc), s		5.0		4.0	4.0	5.0		4.0
Max Green Setting (Gmax), s		85.0		30.0	29.0	52.0		7.0
Max Q Clear Time (g_c+I1), s		4.1		6.1	24.2	31.9		3.7
Green Ext Time (p_c), s		40.4		0.2	0.3	16.1		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	42.2
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	270	0	342	0	0	0	0	1908	184	0	318	280
Future Volume (veh/h)	270	0	342	0	0	0	0	1908	184	0	318	280
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	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
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1827	1827				0	1881	1900	0	1881	1881
Adj Flow Rate, veh/h	293	0	196				0	2074	196	0	346	0
Adj No. of Lanes	2	0	1				0	3	0	0	2	1
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4				0	1	1	0	1	1
Cap, veh/h	732	0	327				0	2063	194	0	2177	902
Arrive On Green	0.21	0.00	0.21				0.00	0.61	0.56	0.00	0.61	0.00
Sat Flow, veh/h	3480	0	1553				0	4328	318	0	3668	1599
Grp Volume(v), veh/h	293	0	196				0	1147	1123	0	346	0
Grp Sat Flow(s),veh/h/ln	1740	0	1553				0	941	1824	0	1787	1599
Q Serve(g_s), s	3.2	0.0	5.1				0.0	27.0	27.0	0.0	1.9	0.0
Cycle Q Clear(g_c), s	3.2	0.0	5.1				0.0	27.0	27.0	0.0	1.9	0.0
Prop In Lane	1.00		1.00				0.00		0.17	0.00		1.00
Lane Grp Cap(c), veh/h	732	0	327				0	1146	1111	0	2177	902
V/C Ratio(X)	0.40	0.00	0.60				0.00	1.00	1.01	0.00	0.16	0.00
Avail Cap(c_a), veh/h	4357	0	1944				0	1146	1111	0	2177	902
HCM Platoon Ratio	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	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	15.1	0.0	15.8				0.0	8.7	8.8	0.0	3.7	0.0
Incr Delay (d2), s/veh	0.4	0.0	1.8				0.0	26.9	29.6	0.0	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
%ile BackOfQ(50%),veh/ln	1.6	0.0	2.3				0.0	11.0	22.4	0.0	0.9	0.0
LnGrp Delay(d),s/veh	15.4	0.0	17.6				0.0	35.5	38.5	0.0	3.8	0.0
LnGrp LOS	B		B					F	F		A	
Approach Vol, veh/h		489						2270			346	
Approach Delay, s/veh		16.3						37.0			3.8	
Approach LOS		B						D			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		31.0		13.3		31.0		
Change Period (Y+Rc), s		6.0		4.5		6.0		
Max Green Setting (Gmax), s		25.0		55.0		25.0		
Max Q Clear Time (g_c+I1), s		29.0		7.1		3.9		
Green Ext Time (p_c), s		0.0		1.8		2.0		

Intersection Summary	
HCM 2010 Ctrl Delay	30.0
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	470	160	70	298	190	1032	40	500	288	300	250	110
Future Volume (veh/h)	470	160	70	298	190	1032	40	500	288	300	250	110
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		0.99	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	1900	1900	1900	1881	1881	1900
Adj Flow Rate, veh/h	547	186	48	347	221	1163	47	581	290	349	291	106
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	2	2	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	1	1	1	1	1	1	0	0	0	1	1	1
Cap, veh/h	345	849	213	385	1153	516	85	614	306	429	878	313
Arrive On Green	0.19	0.30	0.28	0.21	0.32	0.32	0.05	0.26	0.24	0.12	0.34	0.32
Sat Flow, veh/h	1792	2822	709	1792	3574	1599	1810	2332	1163	3476	2584	922
Grp Volume(v), veh/h	547	116	118	347	221	1163	47	450	421	349	199	198
Grp Sat Flow(s),veh/h/ln	1792	1787	1744	1792	1787	1599	1810	1805	1690	1738	1787	1719
Q Serve(g_s), s	31.5	7.9	8.4	30.8	7.3	52.7	4.2	39.9	40.0	16.0	13.5	14.2
Cycle Q Clear(g_c), s	31.5	7.9	8.4	30.8	7.3	52.7	4.2	39.9	40.0	16.0	13.5	14.2
Prop In Lane	1.00		0.41	1.00		1.00	1.00		0.69	1.00		0.54
Lane Grp Cap(c), veh/h	345	537	525	385	1153	516	85	475	445	429	607	584
V/C Ratio(X)	1.58	0.22	0.23	0.90	0.19	2.25	0.55	0.95	0.95	0.81	0.33	0.34
Avail Cap(c_a), veh/h	345	537	525	406	1153	516	293	475	445	564	607	584
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	65.9	42.7	43.3	62.5	40.0	55.3	76.2	59.1	60.1	69.8	40.1	40.9
Incr Delay (d2), s/veh	276.1	0.2	0.2	22.2	0.1	570.9	5.5	28.5	30.0	6.8	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	42.0	4.0	4.1	17.7	3.6	105.1	2.2	23.7	22.5	8.1	6.8	6.8
LnGrp Delay(d),s/veh	342.0	42.9	43.5	84.7	40.0	626.3	81.7	87.6	90.1	76.5	40.6	41.4
LnGrp LOS	F	D	D	F	D	F	F	F	F	E	D	D
Approach Vol, veh/h		781			1731			918			746	
Approach Delay, s/veh		252.5			442.9			88.4			57.6	
Approach LOS		F			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	24.2	47.0	39.1	53.1	11.7	59.5	35.5	56.7
Change Period (Y+Rc), s	5.5	7.0	6.0	6.7	5.5	7.0	5.5	6.7
Max Green Setting (Gmax), s	25.0	40.0	35.0	40.0	25.0	50.0	30.0	50.0
Max Q Clear Time (g_c+I1), s	18.0	42.0	32.8	10.4	6.2	16.2	33.5	54.7
Green Ext Time (p_c), s	0.7	0.0	0.2	1.3	0.1	3.8	0.0	0.0

Intersection Summary			
HCM 2010 Ctrl Delay		260.5	
HCM 2010 LOS		F	

Notes

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	22	805	30	0	1408	8	0	0	23	25	0	67
Future Vol, veh/h	22	805	30	0	1408	8	0	0	23	25	0	67
Conflicting Peds, #/hr	0	0	5	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	-	-	-	-	-	0	0	-	100
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	86	86	86	86	92	86	92	86	92	92	92
Heavy Vehicles, %	2	0	0	1	1	2	0	2	0	2	2	2
Mvmt Flow	24	936	35	0	1637	9	0	0	27	27	0	73

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1646	0	0	-	-	0	-	-	491	2158	-	823
Stage 1	-	-	-	-	-	-	-	-	-	1642	-	-
Stage 2	-	-	-	-	-	-	-	-	-	516	-	-
Critical Hdwy	4.14	-	-	-	-	-	-	-	6.9	7.54	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	6.54	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	6.54	-	-
Follow-up Hdwy	2.22	-	-	-	-	-	-	-	3.3	3.52	-	3.32
Pot Cap-1 Maneuver	389	-	-	0	-	-	0	0	529	~ 27	0	317
Stage 1	-	-	-	0	-	-	0	0	-	104	0	-
Stage 2	-	-	-	0	-	-	0	0	-	510	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	389	-	-	-	-	-	-	-	526	~ 24	-	317
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	80	-	-
Stage 1	-	-	-	-	-	-	-	-	-	98	-	-
Stage 2	-	-	-	-	-	-	-	-	-	454	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0	12.2	33.8
HCM LOS			B	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	526	389	-	-	-	-	80	317
HCM Lane V/C Ratio	0.051	0.061	-	-	-	-	0.34	0.23
HCM Control Delay (s)	12.2	14.9	-	-	-	-	71.6	19.7
HCM Lane LOS	B	B	-	-	-	-	F	C
HCM 95th %tile Q(veh)	0.2	0.2	-	-	-	-	1.3	0.9

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	118	695	40	40	1188	77	130	6	100	85	6	98
Future Volume (veh/h)	118	695	40	40	1188	77	130	6	100	85	6	98
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	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	1900	1900	1881	1881	1900	1900	1900	1900	1863	1863	1863
Adj Flow Rate, veh/h	140	827	25	48	1414	90	155	7	19	101	7	12
Adj No. of Lanes	1	2	1	1	2	0	1	1	1	1	1	1
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	0	0	0	1	1	1	0	0	0	2	2	2
Cap, veh/h	196	1926	836	118	1675	106	213	258	219	150	191	134
Arrive On Green	0.11	0.53	0.53	0.07	0.49	0.46	0.12	0.14	0.14	0.08	0.10	0.08
Sat Flow, veh/h	1810	3610	1568	1792	3414	217	1810	1900	1611	1774	1863	1578
Grp Volume(v), veh/h	140	827	25	48	738	766	155	7	19	101	7	12
Grp Sat Flow(s),veh/h/ln	1810	1805	1568	1792	1787	1843	1810	1900	1611	1774	1863	1578
Q Serve(g_s), s	6.6	12.3	0.7	2.3	31.9	32.2	7.3	0.3	0.9	4.9	0.3	0.6
Cycle Q Clear(g_c), s	6.6	12.3	0.7	2.3	31.9	32.2	7.3	0.3	0.9	4.9	0.3	0.6
Prop In Lane	1.00		1.00	1.00		0.12	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	196	1926	836	118	877	904	213	258	219	150	191	134
V/C Ratio(X)	0.71	0.43	0.03	0.41	0.84	0.85	0.73	0.03	0.09	0.67	0.04	0.09
Avail Cap(c_a), veh/h	529	1937	841	524	959	989	529	996	845	519	976	799
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	38.3	12.6	9.8	39.8	19.6	19.9	37.8	33.3	33.6	39.5	35.9	37.5
Incr Delay (d2), s/veh	4.7	0.2	0.0	2.2	6.4	6.5	4.7	0.0	0.2	5.1	0.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	6.1	0.3	1.2	17.1	17.8	3.9	0.2	0.4	2.6	0.2	0.3
LnGrp Delay(d),s/veh	43.0	12.7	9.8	42.1	26.0	26.4	42.5	33.4	33.8	44.6	36.0	37.8
LnGrp LOS	D	B	A	D	C	C	D	C	C	D	D	D
Approach Vol, veh/h		992			1552			181			120	
Approach Delay, s/veh		16.9			26.7			41.2			43.4	
Approach LOS		B			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	13.7	47.6	11.5	16.1	9.9	51.4	14.5	13.1
Change Period (Y+Rc), s	5.0	6.7	5.0	5.6	5.0	6.7	5.0	5.6
Max Green Setting (Gmax), s	25.0	45.0	25.0	45.0	25.0	45.0	25.0	45.0
Max Q Clear Time (g_c+I1), s	8.6	34.2	6.9	2.9	4.3	14.3	9.3	2.6
Green Ext Time (p_c), s	0.3	6.7	0.2	0.1	0.1	5.9	0.3	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	24.9
HCM 2010 LOS	C

Notes

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	814	66	20	1177	129	50
Future Volume (veh/h)	814	66	20	1177	129	50
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.96	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	1900	1881	1881	1900	1900
Adj Flow Rate, veh/h	925	70	23	1338	147	8
Adj No. of Lanes	2	0	1	2	1	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	1	1	1	1	0	0
Cap, veh/h	2441	185	77	2870	199	178
Arrive On Green	0.73	0.70	0.04	0.80	0.11	0.11
Sat Flow, veh/h	3452	254	1792	3668	1810	1615
Grp Volume(v), veh/h	492	503	23	1338	147	8
Grp Sat Flow(s),veh/h/ln	1787	1824	1792	1787	1810	1615
Q Serve(g_s), s	10.4	10.5	1.2	11.8	7.9	0.4
Cycle Q Clear(g_c), s	10.4	10.5	1.2	11.8	7.9	0.4
Prop In Lane		0.14	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1299	1326	77	2870	199	178
V/C Ratio(X)	0.38	0.38	0.30	0.47	0.74	0.05
Avail Cap(c_a), veh/h	1299	1326	215	2870	380	339
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.90	0.90	0.84	0.84	1.00	1.00
Uniform Delay (d), s/veh	5.1	5.2	46.4	3.1	43.1	39.8
Incr Delay (d2), s/veh	0.8	0.7	1.8	0.5	5.3	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	5.3	5.5	0.7	5.9	4.2	0.2
LnGrp Delay(d),s/veh	5.9	6.0	48.2	3.6	48.4	39.9
LnGrp LOS	A	A	D	A	D	D
Approach Vol, veh/h	995			1361	155	
Approach Delay, s/veh	5.9			4.3	47.9	
Approach LOS	A			A	D	

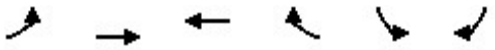
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	8.3	76.7				85.0		15.0
Change Period (Y+Rc), s	5.0	6.7				* 6.7		5.0
Max Green Setting (Gmax), s	1.6	52.3				* 69		20.0
Max Q Clear Time (g_c+I1), s	3.2	12.5				13.8		9.9
Green Ext Time (p_c), s	0.0	10.6				21.5		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	7.7
HCM 2010 LOS	A

Notes

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	779	86	40	1048	149	110
Future Volume (vph)	779	86	40	1048	149	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0		4.0	4.0	4.0	
Lane Util. Factor	0.95		1.00	0.95	1.00	
Frpb, ped/bikes	0.99		1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00	1.00	1.00	
Frt	0.99		1.00	1.00	0.94	
Flt Protected	1.00		0.95	1.00	0.97	
Satd. Flow (prot)	3499		1787	3574	1741	
Flt Permitted	1.00		0.95	1.00	0.97	
Satd. Flow (perm)	3499		1787	3574	1741	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	866	96	44	1164	166	122
RTOR Reduction (vph)	8	0	0	0	27	0
Lane Group Flow (vph)	954	0	44	1164	261	0
Confl. Peds. (#/hr)		18				
Confl. Bikes (#/hr)		5				
Heavy Vehicles (%)	1%	1%	1%	1%	0%	0%
Turn Type	NA		Prot	NA	Prot	
Protected Phases	2		1	6 3	7	
Permitted Phases						
Actuated Green, G (s)	34.3		9.6	72.3	17.6	
Effective Green, g (s)	36.3		10.6	73.3	18.6	
Actuated g/C Ratio	0.36		0.11	0.73	0.19	
Clearance Time (s)	5.0		5.0		5.0	
Vehicle Extension (s)	3.0		3.0		3.0	
Lane Grp Cap (vph)	1270		189	2619	323	
v/s Ratio Prot	c0.27		0.02	c0.33	c0.15	
v/s Ratio Perm						
v/c Ratio	0.75		0.23	0.44	0.81	
Uniform Delay, d1	27.9		41.0	5.3	39.0	
Progression Factor	0.79		1.37	0.22	1.00	
Incremental Delay, d2	3.9		0.6	0.1	13.8	
Delay (s)	26.1		56.6	1.3	52.8	
Level of Service	C		E	A	D	
Approach Delay (s)	26.1			3.3	52.8	
Approach LOS	C			A	D	

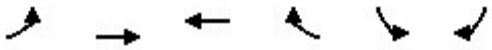
Intersection Summary			
HCM 2000 Control Delay	18.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.1
Intersection Capacity Utilization	54.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	889	988	0	90	100
Future Volume (vph)	0	889	988	0	90	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	4.0		4.0	4.0
Lane Util. Factor		0.95	*0.70		1.00	1.00
Frpb, ped/bikes		1.00	1.00		1.00	1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3574	3950		1736	1553
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3574	3950		1736	1553
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	946	1051	0	96	106
RTOR Reduction (vph)	0	0	0	0	0	85
Lane Group Flow (vph)	0	946	1051	0	96	21
Confl. Peds. (#/hr)					35	
Heavy Vehicles (%)	1%	1%	1%	1%	4%	4%
Turn Type		NA	NA		Prot	Perm
Protected Phases		2 1 7	6		3	
Permitted Phases						3
Actuated Green, G (s)		71.5	48.9		18.4	18.4
Effective Green, g (s)		73.5	49.9		19.5	19.5
Actuated g/C Ratio		0.74	0.50		0.20	0.20
Clearance Time (s)			5.0		5.1	5.1
Vehicle Extension (s)			3.0		3.0	3.0
Lane Grp Cap (vph)		2626	1971		338	302
v/s Ratio Prot		c0.26	c0.27		c0.06	
v/s Ratio Perm						0.01
v/c Ratio		0.36	0.53		0.28	0.07
Uniform Delay, d1		4.8	17.1		34.3	32.8
Progression Factor		0.43	0.61		1.00	1.00
Incremental Delay, d2		0.1	0.9		0.5	0.1
Delay (s)		2.1	11.4		34.8	32.9
Level of Service		A	B		C	C
Approach Delay (s)		2.1	11.4		33.8	
Approach LOS		A	B		C	

Intersection Summary			
HCM 2000 Control Delay	9.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	37.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	150	829	988	280	0	0
Future Volume (vph)	150	829	988	280	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0			
Lane Util. Factor	1.00	0.95	0.95			
Frpb, ped/bikes	1.00	1.00	0.99			
Flpb, ped/bikes	1.00	1.00	1.00			
Frt	1.00	1.00	0.97			
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	1787	3574	3403			
Flt Permitted	0.95	1.00	1.00			
Satd. Flow (perm)	1787	3574	3403			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	163	901	1074	304	0	0
RTOR Reduction (vph)	0	0	15	0	0	0
Lane Group Flow (vph)	163	901	1363	0	0	0
Confl. Peds. (#/hr)				7	10	
Confl. Bikes (#/hr)				2		
Heavy Vehicles (%)	1%	1%	2%	2%	2%	2%
Turn Type	Prot	NA	NA			
Protected Phases	5	2	6			
Permitted Phases						
Actuated Green, G (s)	11.1	85.4	69.7			
Effective Green, g (s)	11.7	86.0	70.3			
Actuated g/C Ratio	0.12	0.86	0.70			
Clearance Time (s)	4.6	4.6	4.6			
Vehicle Extension (s)	3.0	3.0	3.0			
Lane Grp Cap (vph)	209	3073	2392			
v/s Ratio Prot	c0.09	0.25	c0.40			
v/s Ratio Perm						
v/c Ratio	0.78	0.29	0.57			
Uniform Delay, d1	42.9	1.3	7.4			
Progression Factor	0.80	2.29	0.73			
Incremental Delay, d2	16.0	0.2	0.9			
Delay (s)	50.4	3.2	6.2			
Level of Service	D	A	A			
Approach Delay (s)		10.5	6.2		0.0	
Approach LOS		B	A		A	

Intersection Summary			
HCM 2000 Control Delay	8.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.6
Intersection Capacity Utilization	51.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	797	32	100	1215	53	210
Future Volume (veh/h)	797	32	100	1215	53	210
Number	2	12	1	6	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1900	1863	1863	1863	1900
Adj Flow Rate, veh/h	848	32	106	1293	56	45
Adj No. of Lanes	2	0	1	2	0	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	0	0
Cap, veh/h	2367	89	154	2859	102	82
Arrive On Green	0.22	0.22	0.09	0.81	0.11	0.10
Sat Flow, veh/h	3569	131	1774	3632	911	732
Grp Volume(v), veh/h	432	448	106	1293	102	0
Grp Sat Flow(s),veh/h/ln	1770	1837	1774	1770	1659	0
Q Serve(g_s), s	20.6	20.6	5.8	11.1	5.8	0.0
Cycle Q Clear(g_c), s	20.6	20.6	5.8	11.1	5.8	0.0
Prop In Lane		0.07	1.00		0.55	0.44
Lane Grp Cap(c), veh/h	1205	1251	154	2859	186	0
V/C Ratio(X)	0.36	0.36	0.69	0.45	0.55	0.00
Avail Cap(c_a), veh/h	1205	1251	284	2859	514	0
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.97	0.97	0.45	0.45	1.00	0.00
Uniform Delay (d), s/veh	20.3	20.4	44.3	2.9	42.2	0.0
Incr Delay (d2), s/veh	0.8	0.8	2.5	0.2	2.5	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	10.4	10.8	3.0	5.3	2.8	0.0
LnGrp Delay(d),s/veh	21.1	21.1	46.8	3.1	44.7	0.0
LnGrp LOS	C	C	D	A	D	
Approach Vol, veh/h	880			1399	102	
Approach Delay, s/veh	21.1			6.5	44.7	
Approach LOS	C			A	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	12.7	72.1		15.2		84.8		
Change Period (Y+Rc), s	5.1	5.5		5.1		5.5		
Max Green Setting (Gmax), s	14.9	39.5		29.9		59.5		
Max Q Clear Time (g_c+I1), s	7.8	22.6		7.8		13.1		
Green Ext Time (p_c), s	0.1	5.1		0.3		13.1		

Intersection Summary	
HCM 2010 Ctrl Delay	13.5
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	302	360	140	580	582	261	100	537	210
Future Volume (veh/h)	0	0	0	302	360	140	580	582	261	100	537	210
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.98	1.00		0.99	1.00		0.96
Parking Bus, Adj				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	1900	1900	1845	1845	1900	1863	1863	1900
Adj Flow Rate, veh/h				315	375	146	604	606	219	104	559	219
Adj No. of Lanes				0	2	0	2	3	0	1	2	0
Peak Hour Factor				0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				0	0	0	3	3	3	2	2	2
Cap, veh/h				357	452	182	692	2039	720	136	1057	413
Arrive On Green				0.27	0.27	0.27	0.20	0.56	0.55	0.08	0.43	0.42
Sat Flow, veh/h				1298	1643	660	3408	3668	1296	1774	2461	961
Grp Volume(v), veh/h				446	0	390	604	554	271	104	401	377
Grp Sat Flow(s),veh/h/ln				1835	0	1766	1704	1679	1606	1774	1770	1652
Q Serve(g_s), s				30.2	0.0	26.8	22.3	11.4	11.9	7.5	21.8	22.0
Cycle Q Clear(g_c), s				30.2	0.0	26.8	22.3	11.4	11.9	7.5	21.8	22.0
Prop In Lane				0.71		0.37	1.00		0.81	1.00		0.58
Lane Grp Cap(c), veh/h				505	0	486	692	1867	893	136	760	710
V/C Ratio(X)				0.88	0.00	0.80	0.87	0.30	0.30	0.76	0.53	0.53
Avail Cap(c_a), veh/h				594	0	572	1224	1867	893	237	760	710
HCM Platoon Ratio				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
Uniform Delay (d), s/veh				45.1	0.0	44.1	50.2	15.3	15.7	58.9	27.3	27.6
Incr Delay (d2), s/veh				11.8	0.0	5.9	2.0	0.4	0.9	3.3	2.6	2.8
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				17.0	0.0	13.8	10.7	5.4	5.5	3.8	11.1	10.5
LnGrp Delay(d),s/veh				57.0	0.0	50.0	52.2	15.7	16.6	62.2	30.0	30.5
LnGrp LOS				E		D	D	B	B	E	C	C
Approach Vol, veh/h					836			1429			882	
Approach Delay, s/veh					53.7			31.3			34.0	
Approach LOS					D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2			5	6		8
Phs Duration (G+Y+Rc), s	14.0	76.3			30.4	59.9		39.7
Change Period (Y+Rc), s	* 4.7	5.1			* 4.7	5.1		5.1
Max Green Setting (Gmax), s	* 13	57.4			* 46	28.1		41.0
Max Q Clear Time (g_c+I1), s	9.5	13.9			24.3	24.0		32.2
Green Ext Time (p_c), s	0.0	6.7			1.4	1.8		2.4

Intersection Summary	
HCM 2010 Ctrl Delay	38.0
HCM 2010 LOS	D

Notes

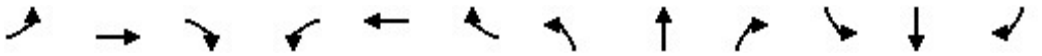
Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↱			↱		↑↑↑			↑↑	
Traffic Vol, veh/h	0	0	246	0	0	90	0	1333	0	0	839	0
Future Vol, veh/h	0	0	246	0	0	90	0	1333	0	0	839	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	10	0	0	0
Sign Control	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	4	4	4	3	3	3	2	2	2
Mvmt Flow	0	0	259	0	0	95	0	1403	0	0	883	0

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	-	-	702	-	0	-	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.18	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.94	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	323	0	-	0	0	-	0
Stage 1	0	0	-	0	-	0	0	-	0
Stage 2	0	0	-	0	-	0	0	-	0
Platoon blocked, %					-			-	
Mov Cap-1 Maneuver	-	0	323	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	0	-	-	-	-	-	-	-
Stage 1	-	0	-	-	-	-	-	-	-
Stage 2	-	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	20.7	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	323	-
HCM Lane V/C Ratio	-	0.293	-
HCM Control Delay (s)	-	20.7	-
HCM Lane LOS	-	C	-
HCM 95th %tile Q(veh)	-	1.2	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	60	200	0	0	230	0	1043	324	230	645	210
Future Volume (vph)	60	60	200	0	0	230	0	1043	324	230	645	210
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0			4.0		4.0	2.0	4.0	2.0	2.0
Lane Util. Factor		0.95	1.00			1.00		0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes		1.00	0.99			1.00		1.00	0.97	1.00	1.00	0.93
Flpb, ped/bikes		1.00	1.00			1.00		1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.85			0.85		1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98	1.00			1.00		1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		3354	1520			1568		3505	1528	3433	3539	1480
Flt Permitted		0.98	1.00			1.00		1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		3354	1520			1568		3505	1528	3433	3539	1480
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	62	62	206	0	0	237	0	1075	334	237	665	216
RTOR Reduction (vph)	0	0	120	0	0	0	0	0	72	0	0	63
Lane Group Flow (vph)	0	124	86	0	0	237	0	1075	262	237	665	153
Confl. Peds. (#/hr)			4						7			13
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	3%	3%	3%	2%	2%	2%
Turn Type	Split	NA	custom			custom		NA	custom	Prot	NA	custom
Protected Phases	4!	4	5	3!	3!	1 2 4!		2 3!	3	1	3 6!	3!
Permitted Phases			4						2			6
Actuated Green, G (s)		16.2	22.2			107.1		88.5	83.5	13.3	94.8	89.8
Effective Green, g (s)		17.2	24.2			102.1		89.5	85.5	13.3	91.8	91.8
Actuated g/C Ratio		0.13	0.19			0.79		0.69	0.66	0.10	0.71	0.71
Clearance Time (s)		5.0	5.0						3.0	4.0		3.0
Vehicle Extension (s)		2.0	2.0						2.0	2.0		2.0
Lane Grp Cap (vph)		443	329			1231		2413	1004	351	2499	1045
v/s Ratio Prot		0.04	c0.01			0.15		c0.31	0.03	c0.07	0.19	0.02
v/s Ratio Perm			0.04						0.14			0.09
v/c Ratio		0.28	0.26			0.19		0.45	0.26	0.68	0.27	0.15
Uniform Delay, d1		50.8	45.3			3.5		9.1	9.2	56.3	6.9	6.3
Progression Factor		1.00	1.00			1.00		1.00	1.00	0.93	1.13	2.29
Incremental Delay, d2		0.1	0.2			0.0		0.0	0.1	3.5	0.0	0.0
Delay (s)		50.9	45.4			3.6		9.1	9.2	55.9	7.8	14.3
Level of Service		D	D			A		A	A	E	A	B
Approach Delay (s)		47.5			3.6			9.2			19.3	
Approach LOS		D			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	16.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	64.9%	ICU Level of Service	C
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	287	222	458	310	984	650	106	220	20	180	440	135
Future Volume (veh/h)	287	222	458	310	984	650	106	220	20	180	440	135
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		0.97	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1881	1881	1881	1792	1792	1900	1810	1810	1810
Adj Flow Rate, veh/h	305	236	268	330	1047	481	113	234	17	191	468	62
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	2	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	1	1	1	6	6	6	5	5	5
Cap, veh/h	330	540	484	367	1177	511	149	930	67	274	513	435
Arrive On Green	0.19	0.31	0.29	0.20	0.33	0.33	0.09	0.29	0.28	0.08	0.28	0.28
Sat Flow, veh/h	1774	1770	1583	1792	3574	1552	1707	3219	232	3343	1810	1535
Grp Volume(v), veh/h	305	236	268	330	1047	481	113	123	128	191	468	62
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1792	1787	1552	1707	1703	1748	1672	1810	1535
Q Serve(g_s), s	23.7	15.0	20.0	25.2	39.0	42.3	9.1	7.8	7.9	7.8	35.1	4.2
Cycle Q Clear(g_c), s	23.7	15.0	20.0	25.2	39.0	42.3	9.1	7.8	7.9	7.8	35.1	4.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.13	1.00		1.00
Lane Grp Cap(c), veh/h	330	540	484	367	1177	511	149	492	505	274	513	435
V/C Ratio(X)	0.92	0.44	0.55	0.90	0.89	0.94	0.76	0.25	0.25	0.70	0.91	0.14
Avail Cap(c_a), veh/h	330	649	581	423	1177	511	378	504	517	812	548	465
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	56.2	39.1	41.4	54.4	44.7	45.8	62.6	38.3	38.4	62.7	48.6	37.6
Incr Delay (d2), s/veh	30.9	0.6	1.0	20.0	8.7	26.0	7.5	0.3	0.3	3.2	19.1	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	14.4	7.4	8.9	14.5	20.6	21.7	4.6	3.7	3.8	3.7	20.3	1.8
LnGrp Delay(d),s/veh	87.0	39.6	42.4	74.4	53.4	71.7	70.1	38.5	38.6	65.9	67.7	37.7
LnGrp LOS	F	D	D	E	D	E	E	D	D	E	E	D
Approach Vol, veh/h		809			1858			364			721	
Approach Delay, s/veh		58.4			61.9			48.4			64.7	
Approach LOS		E			E			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	15.5	44.5	32.7	47.6	16.3	43.8	30.1	50.2
Change Period (Y+Rc), s	5.1	5.5	5.1	* 6.2	5.1	5.5	5.1	6.2
Max Green Setting (Gmax), s	33.0	40.0	32.0	* 50	30.0	41.0	25.0	44.0
Max Q Clear Time (g_c+I1), s	19.8	9.9	27.2	22.0	11.1	37.1	25.7	44.3
Green Ext Time (p_c), s	0.6	1.5	0.4	3.2	0.3	1.2	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	60.3
HCM 2010 LOS	E

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	418	23	10	1938	10	105	10	10	10	0	22
Future Volume (veh/h)	11	418	23	10	1938	10	105	10	10	10	0	22
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	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	1900	1900	1900	1900	1776	1900
Adj Flow Rate, veh/h	12	445	21	11	2062	11	112	11	2	11	0	0
Adj No. of Lanes	1	2	0	1	2	0	0	1	1	0	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	1	1	1	1	1	0	0	0	7	7	7
Cap, veh/h	35	2020	95	33	2116	11	468	43	470	384	0	0
Arrive On Green	0.02	0.58	0.57	0.02	0.58	0.57	0.29	0.29	0.29	0.29	0.00	0.00
Sat Flow, veh/h	1792	3472	163	1792	3645	19	1392	148	1615	1095	0	0
Grp Volume(v), veh/h	12	229	237	11	1010	1063	123	0	2	11	0	0
Grp Sat Flow(s),veh/h/ln	1792	1787	1848	1792	1787	1877	1541	0	1615	1095	0	0
Q Serve(g_s), s	0.7	6.7	6.8	0.7	60.0	60.3	0.0	0.0	0.1	0.7	0.0	0.0
Cycle Q Clear(g_c), s	0.7	6.7	6.8	0.7	60.0	60.3	5.7	0.0	0.1	6.4	0.0	0.0
Prop In Lane	1.00		0.09	1.00		0.01	0.91		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	35	1040	1075	33	1037	1090	511	0	470	384	0	0
V/C Ratio(X)	0.34	0.22	0.22	0.34	0.97	0.98	0.24	0.00	0.00	0.03	0.00	0.00
Avail Cap(c_a), veh/h	195	1040	1075	195	1037	1090	511	0	470	384	0	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)	0.71	0.71	0.71	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	53.2	11.0	11.1	53.3	22.3	22.3	29.7	0.0	27.7	32.1	0.0	0.0
Incr Delay (d2), s/veh	4.1	0.3	0.3	6.0	22.3	22.0	1.1	0.0	0.0	0.0	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	0.4	3.4	3.5	0.4	35.6	37.7	3.0	0.0	0.0	0.3	0.0	0.0
LnGrp Delay(d),s/veh	57.3	11.4	11.4	59.3	44.5	44.3	30.8	0.0	27.7	32.1	0.0	0.0
LnGrp LOS	E	B	B	E	D	D	C		C	C		
Approach Vol, veh/h		478			2084			125			11	
Approach Delay, s/veh		12.5			44.5			30.7			32.1	
Approach LOS		B			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.0	68.0		36.0	6.1	67.9		36.0
Change Period (Y+Rc), s	4.0	5.7		4.6	4.0	5.7		4.6
Max Green Setting (Gmax), s	12.0	52.3		31.4	12.0	52.3		31.4
Max Q Clear Time (g_c+I1), s	2.7	8.8		8.4	2.7	62.3		7.7
Green Ext Time (p_c), s	0.0	2.8		0.0	0.0	0.0		0.6

Intersection Summary	
HCM 2010 Ctrl Delay	38.1
HCM 2010 LOS	D

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	40	80	276	60	220	1118
Future Volume (Veh/h)	40	80	276	60	220	1118
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	43	85	294	64	234	1189
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1983	326			358	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1983	326			358	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	22	88			81	
cM capacity (veh/h)	55	720			1212	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	128	358	1423
Volume Left	43	0	234
Volume Right	85	64	0
cSH	143	1700	1212
Volume to Capacity	0.90	0.21	0.19
Queue Length 95th (ft)	152	0	18
Control Delay (s)	110.9	0.0	6.1
Lane LOS	F		A
Approach Delay (s)	110.9	0.0	6.1
Approach LOS	F		

Intersection Summary			
Average Delay	12.0		
Intersection Capacity Utilization	106.3%	ICU Level of Service	G
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	142	350	80	130	1110	82	40	153	20	115	369	605
Future Volume (veh/h)	142	350	80	130	1110	82	40	153	20	115	369	605
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1881	1881	1900	1900	1776	1900	1900	1881	1881
Adj Flow Rate, veh/h	149	368	73	137	1168	83	42	161	18	121	388	243
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	1	1	1	7	7	7	1	1	1
Cap, veh/h	182	1105	217	170	1241	88	49	190	21	116	373	421
Arrive On Green	0.10	0.37	0.37	0.09	0.37	0.36	0.15	0.15	0.15	0.26	0.26	0.26
Sat Flow, veh/h	1774	2950	579	1792	3380	240	330	1263	141	442	1417	1599
Grp Volume(v), veh/h	149	219	222	137	617	634	221	0	0	509	0	243
Grp Sat Flow(s),veh/h/ln	1774	1770	1760	1792	1787	1832	1734	0	0	1859	0	1599
Q Serve(g_s), s	11.2	12.1	12.3	10.2	45.6	45.8	17.0	0.0	0.0	36.0	0.0	18.0
Cycle Q Clear(g_c), s	11.2	12.1	12.3	10.2	45.6	45.8	17.0	0.0	0.0	36.0	0.0	18.0
Prop In Lane	1.00		0.33	1.00		0.13	0.19		0.08	0.24		1.00
Lane Grp Cap(c), veh/h	182	663	659	170	656	673	260	0	0	490	0	421
V/C Ratio(X)	0.82	0.33	0.34	0.81	0.94	0.94	0.85	0.00	0.00	1.04	0.00	0.58
Avail Cap(c_a), veh/h	338	663	659	341	667	684	457	0	0	490	0	421
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	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	60.1	30.5	30.6	60.6	41.8	41.9	56.6	0.0	0.0	50.3	0.0	43.7
Incr Delay (d2), s/veh	8.8	0.3	0.3	8.7	21.3	21.3	7.6	0.0	0.0	51.2	0.0	1.9
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	6.0	6.0	6.0	5.5	26.3	27.1	8.7	0.0	0.0	25.3	0.0	8.2
LnGrp Delay(d),s/veh	68.9	30.8	30.9	69.4	63.1	63.2	64.2	0.0	0.0	101.5	0.0	45.6
LnGrp LOS	E	C	C	E	E	E	E			F		D
Approach Vol, veh/h		590			1388			221			752	
Approach Delay, s/veh		40.5			63.8			64.2			83.5	
Approach LOS		D			E			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	16.9	55.2		40.0	18.0	54.2		24.5
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	25.5	50.5		35.5	25.5	50.5		35.5
Max Q Clear Time (g_c+I1), s	12.2	14.3		38.0	13.2	47.8		19.0
Green Ext Time (p_c), s	0.3	2.7		0.0	0.3	1.9		1.0

Intersection Summary	
HCM 2010 Ctrl Delay	64.2
HCM 2010 LOS	E

Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	20	633	10	10	1319
Future Vol, veh/h	10	20	633	10	10	1319
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	-	-	350	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	33	33	1	1	2	2
Mvmt Flow	11	21	673	11	11	1403

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1403	342	0	0	684	0
Stage 1	679	-	-	-	-	-
Stage 2	724	-	-	-	-	-
Critical Hdwy	7.46	7.56	-	-	4.14	-
Critical Hdwy Stg 1	6.46	-	-	-	-	-
Critical Hdwy Stg 2	6.46	-	-	-	-	-
Follow-up Hdwy	3.83	3.63	-	-	2.22	-
Pot Cap-1 Maneuver	99	572	-	-	905	-
Stage 1	390	-	-	-	-	-
Stage 2	368	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	94	572	-	-	905	-
Mov Cap-2 Maneuver	94	-	-	-	-	-
Stage 1	369	-	-	-	-	-
Stage 2	368	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	25	0	0.3
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	212	905	-
HCM Lane V/C Ratio	-	-	0.151	0.012	-
HCM Control Delay (s)	-	-	25	9	0.2
HCM Lane LOS	-	-	D	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	0	180	152	90	260	156	947	0	0	690	40
Future Volume (veh/h)	80	0	180	152	90	260	156	947	0	0	690	40
Number	3	8	18	7	4	14	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	1900	1881	1881	1863	1863	0	0	1881	1900
Adj Flow Rate, veh/h	87	0	25	165	98	106	170	1029	0	0	750	34
Adj No. of Lanes	2	0	1	0	1	1	1	3	0	0	4	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, %	1	1	1	1	1	1	2	2	0	0	1	1
Cap, veh/h	290	0	129	221	131	309	220	2418	0	0	1715	77
Arrive On Green	0.08	0.00	0.08	0.19	0.19	0.19	0.12	0.48	0.00	0.00	0.27	0.25
Sat Flow, veh/h	3583	0	1599	1144	680	1599	1774	5253	0	0	6659	288
Grp Volume(v), veh/h	87	0	25	263	0	106	170	1029	0	0	568	216
Grp Sat Flow(s),veh/h/ln	1792	0	1599	1824	0	1599	1774	1695	0	0	1618	1830
Q Serve(g_s), s	1.1	0.0	0.7	6.5	0.0	2.7	4.4	6.4	0.0	0.0	4.6	4.7
Cycle Q Clear(g_c), s	1.1	0.0	0.7	6.5	0.0	2.7	4.4	6.4	0.0	0.0	4.6	4.7
Prop In Lane	1.00		1.00	0.63		1.00	1.00		0.00	0.00		0.16
Lane Grp Cap(c), veh/h	290	0	129	352	0	309	220	2418	0	0	1301	491
V/C Ratio(X)	0.30	0.00	0.19	0.75	0.00	0.34	0.77	0.43	0.00	0.00	0.44	0.44
Avail Cap(c_a), veh/h	1496	0	668	762	0	668	741	3291	0	0	3141	1184
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	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	20.7	0.0	20.6	18.2	0.0	16.7	20.3	8.3	0.0	0.0	14.5	14.6
Incr Delay (d2), s/veh	0.4	0.0	0.5	1.2	0.0	0.2	2.2	0.1	0.0	0.0	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	0.6	0.0	0.3	3.4	0.0	1.2	2.3	3.0	0.0	0.0	2.1	2.4
LnGrp Delay(d),s/veh	21.2	0.0	21.1	19.4	0.0	16.9	22.5	8.4	0.0	0.0	14.8	15.2
LnGrp LOS	C		C	B		B	C	A			B	B
Approach Vol, veh/h		112			369			1199			784	
Approach Delay, s/veh		21.1			18.7			10.4			14.9	
Approach LOS		C			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		26.8		13.2	9.9	16.8		7.9
Change Period (Y+Rc), s		5.0		4.0	4.0	5.0		4.0
Max Green Setting (Gmax), s		30.0		20.0	20.0	30.0		20.0
Max Q Clear Time (g_c+I1), s		8.4		8.5	6.4	6.7		3.1
Green Ext Time (p_c), s		7.1		0.8	0.2	5.0		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	13.6
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	840	0	997	0	0	0	0	773	159	0	401	230
Future Volume (veh/h)	840	0	997	0	0	0	0	773	159	0	401	230
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	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
Parking Bus, Adj	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				0	1881	1900	0	1900	1900
Adj Flow Rate, veh/h	875	0	975				0	805	130	0	418	0
Adj No. of Lanes	2	0	1				0	3	0	0	2	1
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2				0	1	1	0	0	0
Cap, veh/h	2287	0	1020				0	1158	186	0	937	381
Arrive On Green	0.64	0.00	0.64				0.00	0.26	0.24	0.00	0.26	0.00
Sat Flow, veh/h	3548	0	1583				0	4632	716	0	3705	1615
Grp Volume(v), veh/h	875	0	975				0	616	319	0	418	0
Grp Sat Flow(s),veh/h/ln	1774	0	1583				0	1712	1755	0	1805	1615
Q Serve(g_s), s	9.7	0.0	47.5				0.0	13.6	13.8	0.0	8.1	0.0
Cycle Q Clear(g_c), s	9.7	0.0	47.5				0.0	13.6	13.8	0.0	8.1	0.0
Prop In Lane	1.00		1.00				0.00		0.41	0.00		1.00
Lane Grp Cap(c), veh/h	2287	0	1020				0	889	456	0	937	381
V/C Ratio(X)	0.38	0.00	0.96				0.00	0.69	0.70	0.00	0.45	0.00
Avail Cap(c_a), veh/h	2361	0	1054				0	1108	568	0	1169	484
HCM Platoon Ratio	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	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	7.0	0.0	13.7				0.0	27.9	28.3	0.0	25.9	0.0
Incr Delay (d2), s/veh	0.1	0.0	17.7				0.0	1.4	2.8	0.0	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
%ile BackOfQ(50%),veh/ln	4.8	0.0	25.3				0.0	6.6	7.0	0.0	4.0	0.0
LnGrp Delay(d),s/veh	7.1	0.0	31.5				0.0	29.3	31.1	0.0	26.2	0.0
LnGrp LOS	A		C					C	C		C	
Approach Vol, veh/h		1850						935			418	
Approach Delay, s/veh		19.9						29.9			26.2	
Approach LOS		B						C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		25.7		57.8		25.7		
Change Period (Y+Rc), s		6.0		4.5		6.0		
Max Green Setting (Gmax), s		25.0		55.0		25.0		
Max Q Clear Time (g_c+I1), s		15.8		49.5		10.1		
Green Ext Time (p_c), s		3.9		3.7		2.2		

Intersection Summary	
HCM 2010 Ctrl Delay	23.7
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	300	150	20	220	200	372	30	260	202	698	370	330
Future Volume (veh/h)	300	150	20	220	200	372	30	260	202	698	370	330
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	1900	1900	1900	1900	1881	1881	1900	1900	1900	1900
Adj Flow Rate, veh/h	319	160	11	234	213	265	32	277	85	743	394	263
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	2	2	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	0	0	0	1	1	1	0	0	0
Cap, veh/h	227	699	48	232	751	336	89	452	136	1296	1015	670
Arrive On Green	0.13	0.21	0.19	0.13	0.21	0.21	0.05	0.17	0.14	0.37	0.49	0.46
Sat Flow, veh/h	1774	3362	229	1810	3610	1615	1792	2708	814	3510	2086	1376
Grp Volume(v), veh/h	319	84	87	234	213	265	32	181	181	743	340	317
Grp Sat Flow(s),veh/h/ln	1774	1770	1821	1810	1805	1615	1792	1787	1735	1755	1805	1657
Q Serve(g_s), s	16.0	4.9	5.0	16.0	6.2	19.4	2.2	11.7	12.2	21.2	14.9	15.6
Cycle Q Clear(g_c), s	16.0	4.9	5.0	16.0	6.2	19.4	2.2	11.7	12.2	21.2	14.9	15.6
Prop In Lane	1.00		0.13	1.00		1.00	1.00		0.47	1.00		0.83
Lane Grp Cap(c), veh/h	227	368	379	232	751	336	89	298	290	1296	878	806
V/C Ratio(X)	1.40	0.23	0.23	1.01	0.28	0.79	0.36	0.61	0.63	0.57	0.39	0.39
Avail Cap(c_a), veh/h	227	566	583	232	1155	517	172	586	569	1296	878	806
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	0.47	0.47	0.47
Uniform Delay (d), s/veh	54.5	41.2	41.3	54.5	41.7	46.9	57.5	48.3	49.1	31.5	20.3	21.3
Incr Delay (d2), s/veh	206.4	0.3	0.3	61.8	0.2	4.5	2.4	3.1	3.5	0.3	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.8	2.4	2.6	12.0	3.1	9.1	1.1	6.0	6.1	10.3	7.4	7.2
LnGrp Delay(d),s/veh	260.9	41.5	41.6	116.4	41.9	51.4	59.9	51.4	52.6	31.8	20.5	21.5
LnGrp LOS	F	D	D	F	D	D	E	D	D	C	C	C
Approach Vol, veh/h		490			712			394			1400	
Approach Delay, s/veh		184.4			69.9			52.7			26.7	
Approach LOS		F			E			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	50.2	24.9	20.0	30.0	10.2	64.8	20.0	30.0
Change Period (Y+Rc), s	5.5	7.0	6.0	6.7	5.5	7.0	5.5	6.7
Max Green Setting (Gmax), s	10.5	38.0	14.0	37.3	10.5	38.0	14.5	37.3
Max Q Clear Time (g_c+I1), s	23.2	14.2	18.0	7.0	4.2	17.6	18.0	21.4
Green Ext Time (p_c), s	0.0	3.1	0.0	0.9	0.0	5.9	0.0	1.9

Intersection Summary	
HCM 2010 Ctrl Delay	66.2
HCM 2010 LOS	E

Notes

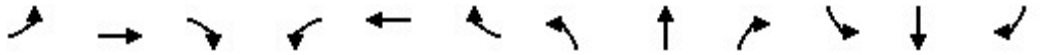
Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	75	838	40	0	780	28	0	0	25	16	0	44
Future Vol, veh/h	75	838	40	0	780	28	0	0	25	16	0	44
Conflicting Peds, #/hr	0	0	3	3	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	-	-	-	-	-	0	0	-	100
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	99	99	99	99	92	99	92	99	92	92	92
Heavy Vehicles, %	2	0	0	0	0	2	0	2	0	2	2	2
Mvmt Flow	82	846	40	0	788	30	0	0	25	17	0	48

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	818	0	0	-	-	0	-	-	446	1390	-	409
Stage 1	-	-	-	-	-	-	-	-	-	803	-	-
Stage 2	-	-	-	-	-	-	-	-	-	587	-	-
Critical Hdwy	4.14	-	-	-	-	-	-	-	6.9	7.54	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	6.54	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	6.54	-	-
Follow-up Hdwy	2.22	-	-	-	-	-	-	-	3.3	3.52	-	3.32
Pot Cap-1 Maneuver	806	-	-	0	-	-	0	0	565	102	0	592
Stage 1	-	-	-	0	-	-	0	0	-	343	0	-
Stage 2	-	-	-	0	-	-	0	0	-	463	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	806	-	-	-	-	-	-	-	563	90	-	592
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	199	-	-
Stage 1	-	-	-	-	-	-	-	-	-	308	-	-
Stage 2	-	-	-	-	-	-	-	-	-	397	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	0	11.7	15.1
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	563	806	-	-	-	-	199	592
HCM Lane V/C Ratio	0.045	0.101	-	-	-	-	0.087	0.081
HCM Control Delay (s)	11.7	10	-	-	-	-	24.8	11.6
HCM Lane LOS	B	A	-	-	-	-	C	B
HCM 95th %tile Q(veh)	0.1	0.3	-	-	-	-	0.3	0.3



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	261	547	70	100	542	210	47	16	57	208	15	217
Future Volume (veh/h)	261	547	70	100	542	210	47	16	57	208	15	217
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1900	1900	1900	1900	1863	1863	1863
Adj Flow Rate, veh/h	269	564	40	103	559	191	48	16	4	214	15	35
Adj No. of Lanes	1	2	1	1	2	0	1	1	1	1	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	1	1	1	1	0	0	0	2	2	2
Cap, veh/h	311	2079	926	141	1274	434	97	129	110	255	295	230
Arrive On Green	0.17	0.58	0.58	0.08	0.49	0.47	0.05	0.07	0.07	0.14	0.16	0.15
Sat Flow, veh/h	1792	3574	1592	1792	2618	892	1810	1900	1615	1774	1863	1583
Grp Volume(v), veh/h	269	564	40	103	381	369	48	16	4	214	15	35
Grp Sat Flow(s),veh/h/ln	1792	1787	1592	1792	1787	1723	1810	1900	1615	1774	1863	1583
Q Serve(g_s), s	18.2	9.8	1.3	7.0	17.4	17.8	3.2	1.0	0.3	14.7	0.9	2.4
Cycle Q Clear(g_c), s	18.2	9.8	1.3	7.0	17.4	17.8	3.2	1.0	0.3	14.7	0.9	2.4
Prop In Lane	1.00		1.00	1.00		0.52	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	311	2079	926	141	870	838	97	129	110	255	295	230
V/C Ratio(X)	0.86	0.27	0.04	0.73	0.44	0.44	0.50	0.12	0.04	0.84	0.05	0.15
Avail Cap(c_a), veh/h	416	2079	926	186	870	838	116	328	279	341	560	456
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	0.96	0.96	0.96	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.2	13.0	11.2	56.3	20.9	21.5	57.5	54.8	54.4	52.1	44.6	46.7
Incr Delay (d2), s/veh	13.5	0.3	0.1	9.3	1.5	1.6	3.9	0.4	0.1	13.0	0.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.2	4.9	0.6	3.9	8.9	8.8	1.7	0.5	0.1	8.1	0.4	1.1
LnGrp Delay(d),s/veh	63.7	13.3	11.3	65.6	22.5	23.1	61.4	55.2	54.6	65.1	44.7	47.0
LnGrp LOS	E	B	B	E	C	C	E	E	D	E	D	D
Approach Vol, veh/h		873			853			68			264	
Approach Delay, s/veh		28.8			28.0			59.6			61.5	
Approach LOS		C			C			E			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	25.7	64.8	22.0	12.5	13.8	76.7	10.7	23.8
Change Period (Y+Rc), s	5.0	6.7	5.0	5.6	5.0	6.7	5.0	5.6
Max Green Setting (Gmax), s	28.0	31.7	23.0	20.0	12.0	47.7	7.0	36.0
Max Q Clear Time (g_c+I1), s	20.2	19.8	16.7	3.0	9.0	11.8	5.2	4.4
Green Ext Time (p_c), s	0.5	3.4	0.3	0.0	0.1	3.9	0.0	0.1

Intersection Summary	
HCM 2010 Ctrl Delay	33.6
HCM 2010 LOS	C

Notes

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	694	115	60	785	64	40
Future Volume (veh/h)	694	115	60	785	64	40
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.97	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	1900	1900	1881	1881	1881	1881
Adj Flow Rate, veh/h	789	122	68	892	73	4
Adj No. of Lanes	2	0	1	2	1	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	0	0	1	1	1	1
Cap, veh/h	2306	356	124	3007	129	115
Arrive On Green	0.74	0.71	0.09	1.00	0.07	0.07
Sat Flow, veh/h	3216	482	1792	3668	1792	1599
Grp Volume(v), veh/h	456	455	68	892	73	4
Grp Sat Flow(s),veh/h/ln	1805	1798	1792	1787	1792	1599
Q Serve(g_s), s	8.8	9.1	3.6	0.0	3.9	0.2
Cycle Q Clear(g_c), s	8.8	9.1	3.6	0.0	3.9	0.2
Prop In Lane		0.27	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1334	1328	124	3007	129	115
V/C Ratio(X)	0.34	0.34	0.55	0.30	0.57	0.03
Avail Cap(c_a), veh/h	1334	1328	215	3007	376	336
HCM Platoon Ratio	1.00	1.00	1.33	1.33	1.00	1.00
Upstream Filter(I)	0.93	0.93	0.94	0.94	1.00	1.00
Uniform Delay (d), s/veh	4.6	4.7	43.9	0.0	44.9	43.2
Incr Delay (d2), s/veh	0.6	0.7	3.5	0.2	3.9	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	4.6	4.6	1.9	0.1	2.1	0.1
LnGrp Delay(d),s/veh	5.2	5.4	47.4	0.2	48.8	43.3
LnGrp LOS	A	A	D	A	D	D
Approach Vol, veh/h	911			960	77	
Approach Delay, s/veh	5.3			3.6	48.5	
Approach LOS	A			A	D	

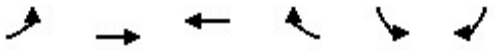
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	10.9	77.9				88.8		11.2
Change Period (Y+Rc), s	5.0	6.7				* 6.7		5.0
Max Green Setting (Gmax), s	10.0	52.3				* 69		20.0
Max Q Clear Time (g_c+I1), s	5.6	11.1				2.0		5.9
Green Ext Time (p_c), s	0.0	9.5				11.6		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	6.2
HCM 2010 LOS	A

Notes

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	639	95	120	771	74	80
Future Volume (vph)	639	95	120	771	74	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0		4.0	4.0	4.0	
Lane Util. Factor	0.95		1.00	0.95	1.00	
Frpb, ped/bikes	0.99		1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00	1.00	1.00	
Frt	0.98		1.00	1.00	0.93	
Flt Protected	1.00		0.95	1.00	0.98	
Satd. Flow (prot)	3517		1787	3574	1725	
Flt Permitted	1.00		0.95	1.00	0.98	
Satd. Flow (perm)	3517		1787	3574	1725	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	718	107	135	866	83	90
RTOR Reduction (vph)	11	0	0	0	40	0
Lane Group Flow (vph)	814	0	135	866	133	0
Confl. Peds. (#/hr)		13				
Confl. Bikes (#/hr)		1				
Heavy Vehicles (%)	0%	0%	1%	1%	0%	0%
Turn Type	NA		Prot	NA	Prot	
Protected Phases	2		1	6 3	7	
Permitted Phases						
Actuated Green, G (s)	31.2		9.9	73.5	16.4	
Effective Green, g (s)	33.2		10.9	74.5	17.4	
Actuated g/C Ratio	0.33		0.11	0.74	0.17	
Clearance Time (s)	5.0		5.0		5.0	
Vehicle Extension (s)	3.0		3.0		3.0	
Lane Grp Cap (vph)	1167		194	2662	300	
v/s Ratio Prot	c0.23		c0.08	c0.24	c0.08	
v/s Ratio Perm						
v/c Ratio	0.70		0.70	0.33	0.44	
Uniform Delay, d1	29.0		43.0	4.3	37.0	
Progression Factor	0.80		1.26	0.11	1.00	
Incremental Delay, d2	3.3		9.4	0.1	1.1	
Delay (s)	26.6		63.4	0.5	38.0	
Level of Service	C		E	A	D	
Approach Delay (s)	26.6			9.0	38.0	
Approach LOS	C			A	D	

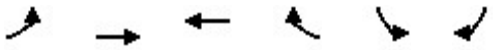
Intersection Summary			
HCM 2000 Control Delay	18.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.1
Intersection Capacity Utilization	46.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	719	751	0	200	140
Future Volume (vph)	0	719	751	0	200	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	4.0		4.0	4.0
Lane Util. Factor		0.95	*0.70		1.00	1.00
Frpb, ped/bikes		1.00	1.00		1.00	1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3610	3950		1752	1568
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3610	3950		1752	1568
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	0	856	894	0	238	167
RTOR Reduction (vph)	0	0	0	0	0	128
Lane Group Flow (vph)	0	856	894	0	238	39
Confl. Peds. (#/hr)					24	
Heavy Vehicles (%)	0%	0%	1%	1%	3%	3%
Turn Type		NA	NA		Prot	Perm
Protected Phases		2 1 7	6		3	
Permitted Phases						3
Actuated Green, G (s)		67.5	46.1		22.4	22.4
Effective Green, g (s)		69.5	47.1		23.5	23.5
Actuated g/C Ratio		0.70	0.47		0.24	0.24
Clearance Time (s)			5.0		5.1	5.1
Vehicle Extension (s)			3.0		3.0	3.0
Lane Grp Cap (vph)		2508	1860		411	368
v/s Ratio Prot		c0.24	c0.23		c0.14	
v/s Ratio Perm						0.03
v/c Ratio		0.34	0.48		0.58	0.11
Uniform Delay, d1		6.1	18.1		33.9	30.0
Progression Factor		0.36	0.56		1.00	1.00
Incremental Delay, d2		0.1	0.8		2.0	0.1
Delay (s)		2.3	10.9		35.9	30.1
Level of Service		A	B		D	C
Approach Delay (s)		2.3	10.9		33.5	
Approach LOS		A	B		C	

Intersection Summary			
HCM 2000 Control Delay	11.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	37.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	90	829	751	90	0	0
Future Volume (vph)	90	829	751	90	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0			
Lane Util. Factor	1.00	0.95	0.95			
Frpb, ped/bikes	1.00	1.00	1.00			
Flpb, ped/bikes	1.00	1.00	1.00			
Frt	1.00	1.00	0.98			
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	1770	3539	3477			
Flt Permitted	0.95	1.00	1.00			
Satd. Flow (perm)	1770	3539	3477			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	100	921	834	100	0	0
RTOR Reduction (vph)	0	0	6	0	0	0
Lane Group Flow (vph)	100	921	928	0	0	0
Confl. Peds. (#/hr)				1	25	
Turn Type	Prot	NA	NA			
Protected Phases	5	2	6			
Permitted Phases						
Actuated Green, G (s)	8.6	74.6	61.4			
Effective Green, g (s)	9.2	75.2	62.0			
Actuated g/C Ratio	0.09	0.75	0.62			
Clearance Time (s)	4.6	4.6	4.6			
Vehicle Extension (s)	3.0	3.0	3.0			
Lane Grp Cap (vph)	162	2661	2155			
v/s Ratio Prot	c0.06	0.26	c0.27			
v/s Ratio Perm						
v/c Ratio	0.62	0.35	0.43			
Uniform Delay, d1	43.7	4.2	9.8			
Progression Factor	0.71	2.21	0.77			
Incremental Delay, d2	6.5	0.3	0.6			
Delay (s)	37.6	9.5	8.2			
Level of Service	D	A	A			
Approach Delay (s)		12.3	8.2		0.0	
Approach LOS		B	A		A	

Intersection Summary			
HCM 2000 Control Delay	10.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.6
Intersection Capacity Utilization	37.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	784	45	170	806	35	130
Future Volume (veh/h)	784	45	170	806	35	130
Number	2	12	1	6	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1900	1863	1863	1900	1900
Adj Flow Rate, veh/h	852	46	185	876	38	23
Adj No. of Lanes	2	0	1	2	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	0	0
Cap, veh/h	2154	116	235	2845	121	73
Arrive On Green	0.21	0.20	0.13	0.80	0.12	0.11
Sat Flow, veh/h	3505	184	1774	3632	1041	630
Grp Volume(v), veh/h	442	456	185	876	62	0
Grp Sat Flow(s),veh/h/ln	1770	1826	1774	1770	1699	0
Q Serve(g_s), s	21.5	21.6	10.1	6.5	3.4	0.0
Cycle Q Clear(g_c), s	21.5	21.6	10.1	6.5	3.4	0.0
Prop In Lane		0.10	1.00		0.61	0.37
Lane Grp Cap(c), veh/h	1117	1153	235	2845	197	0
V/C Ratio(X)	0.40	0.40	0.79	0.31	0.31	0.00
Avail Cap(c_a), veh/h	1117	1153	284	2845	527	0
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.95	0.95	0.80	0.80	1.00	0.00
Uniform Delay (d), s/veh	23.1	23.1	42.0	2.6	40.7	0.0
Incr Delay (d2), s/veh	1.0	1.0	9.3	0.2	0.9	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	10.9	11.2	5.5	3.1	1.6	0.0
LnGrp Delay(d),s/veh	24.1	24.1	51.3	2.8	41.6	0.0
LnGrp LOS	C	C	D	A	D	
Approach Vol, veh/h	898			1061	62	
Approach Delay, s/veh	24.1			11.2	41.6	
Approach LOS	C			B	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	17.3	67.1		15.6		84.4		
Change Period (Y+Rc), s	5.1	5.5		5.1		5.5		
Max Green Setting (Gmax), s	14.3	39.5		29.9		59.5		
Max Q Clear Time (g_c+I1), s	12.1	23.6		5.4		8.5		
Green Ext Time (p_c), s	0.1	5.1		0.1		7.4		

Intersection Summary	
HCM 2010 Ctrl Delay	17.9
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	192	140	120	250	989	672	80	617	130
Future Volume (veh/h)	0	0	0	192	140	120	250	989	672	80	617	130
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.98	1.00		0.97	1.00		0.96
Parking Bus, Adj				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	1900	1900	1881	1881	1900	1863	1863	1900
Adj Flow Rate, veh/h				213	156	133	278	1099	643	89	686	144
Adj No. of Lanes				0	2	0	2	3	0	1	2	0
Peak Hour Factor				0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %				0	0	0	1	1	1	2	2	2
Cap, veh/h				301	232	203	425	1823	829	161	1450	304
Arrive On Green				0.21	0.21	0.19	0.12	0.53	0.52	0.09	0.50	0.49
Sat Flow, veh/h				1443	1112	975	3476	3424	1556	1774	2892	607
Grp Volume(v), veh/h				270	0	232	278	1099	643	89	419	411
Grp Sat Flow(s),veh/h/ln				1828	0	1702	1738	1712	1556	1774	1770	1729
Q Serve(g_s), s				9.8	0.0	9.0	5.5	15.8	23.8	3.4	11.1	11.2
Cycle Q Clear(g_c), s				9.8	0.0	9.0	5.5	15.8	23.8	3.4	11.1	11.2
Prop In Lane				0.79		0.57	1.00		1.00	1.00		0.35
Lane Grp Cap(c), veh/h				381	0	355	425	1823	829	161	887	867
V/C Ratio(X)				0.71	0.00	0.65	0.65	0.60	0.78	0.55	0.47	0.47
Avail Cap(c_a), veh/h				514	0	479	2466	2065	939	638	1068	1043
HCM Platoon Ratio				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
Uniform Delay (d), s/veh				26.3	0.0	26.2	29.9	11.5	13.8	31.1	11.6	11.8
Incr Delay (d2), s/veh				1.4	0.0	0.8	0.9	0.4	3.7	1.1	0.4	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
%ile BackOfQ(50%),veh/ln				5.1	0.0	4.3	2.7	7.4	10.9	1.7	5.5	5.4
LnGrp Delay(d),s/veh				27.7	0.0	27.0	30.8	11.9	17.5	32.2	12.0	12.2
LnGrp LOS				C		C	C	B	B	C	B	B
Approach Vol, veh/h					502			2020			919	
Approach Delay, s/veh					27.4			16.3			14.1	
Approach LOS					C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2			5	6		8
Phs Duration (G+Y+Rc), s	10.5	42.0			12.7	39.8		18.9
Change Period (Y+Rc), s	* 4.7	5.1			* 4.7	5.1		5.1
Max Green Setting (Gmax), s	* 25	42.0			* 50	42.0		19.0
Max Q Clear Time (g_c+I1), s	15.4	25.8			7.5	13.2		11.8
Green Ext Time (p_c), s	0.0	11.2			0.6	5.7		1.2

Intersection Summary	
HCM 2010 Ctrl Delay	17.3
HCM 2010 LOS	B

Notes

Intersection	
Int Delay, s/veh	25.7

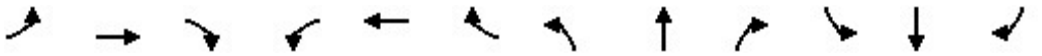
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↱			↱		↑↑↑			↑↑	
Traffic Vol, veh/h	0	0	474	0	0	320	0	1591	0	0	809	0
Future Vol, veh/h	0	0	474	0	0	320	0	1591	0	0	809	0
Conflicting Peds, #/hr	0	0	0	0	0	0	33	0	7	7	0	33
Sign Control	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	0	0	0	1	1	1	2	2	2
Mvmt Flow	0	0	515	0	0	348	0	1729	0	0	879	0

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	-	-	865	-	0	-	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.1	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.9	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	~ 258	0	-	0	0	-	0
Stage 1	0	0	-	0	-	0	0	-	0
Stage 2	0	0	-	0	-	0	0	-	0
Platoon blocked, %					-			-	
Mov Cap-1 Maneuver	-	0	~ 258	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	0	-	-	-	-	-	-	-
Stage 1	-	0	-	-	-	-	-	-	-
Stage 2	-	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	218.1	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	258	-
HCM Lane V/C Ratio	-	1.348	-
HCM Control Delay (s)	-	218.1	-
HCM Lane LOS	-	F	-
HCM 95th %tile Q(veh)	-	18.3	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	280	390	0	0	560	0	911	454	290	843	150
Future Volume (vph)	120	280	390	0	0	560	0	911	454	290	843	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0			4.0		4.0	2.0	4.0	2.0	2.0
Lane Util. Factor		0.95	1.00			1.00		0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes		1.00	0.98			1.00		1.00	0.99	1.00	1.00	0.88
Flpb, ped/bikes		1.00	1.00			1.00		1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.85			0.85		1.00	0.85	1.00	1.00	0.85
Flt Protected		0.99	1.00			1.00		1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		3557	1590			1599		3574	1580	3433	3539	1396
Flt Permitted		0.99	1.00			1.00		1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		3557	1590			1599		3574	1580	3433	3539	1396
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	133	311	433	0	0	622	0	1012	504	322	937	167
RTOR Reduction (vph)	0	0	29	0	0	0	0	0	58	0	0	67
Lane Group Flow (vph)	0	444	404	0	0	622	0	1012	446	322	937	100
Confl. Peds. (#/hr)			12						1			29
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	1%	2%	2%	2%
Turn Type	Split	NA	custom			custom		NA	custom	Prot	NA	custom
Protected Phases	4!	4	5	3!	3!	1 2 4!		2 3!	3	1	3 6!	3!
Permitted Phases			4						2			6
Actuated Green, G (s)		24.8	37.9			106.0		78.7	73.7	14.5	79.1	74.1
Effective Green, g (s)		25.8	39.9			101.0		79.7	75.7	14.5	76.1	76.1
Actuated g/C Ratio		0.20	0.31			0.78		0.61	0.58	0.11	0.59	0.59
Clearance Time (s)		5.0	5.0						3.0	4.0		3.0
Vehicle Extension (s)		2.0	2.0						2.0	2.0		2.0
Lane Grp Cap (vph)		705	536			1242		2191	920	382	2071	817
v/s Ratio Prot		0.12	c0.08			c0.39		c0.28	0.06	0.09	0.26	0.02
v/s Ratio Perm			0.17						0.22			0.06
v/c Ratio		0.63	0.75			0.50		0.46	0.48	0.84	0.45	0.12
Uniform Delay, d1		47.7	40.6			5.3		13.6	15.8	56.6	15.2	12.0
Progression Factor		1.00	1.00			1.00		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		1.3	5.3			0.1		0.1	0.1	14.9	0.1	0.0
Delay (s)		49.0	45.9			5.4		13.6	15.9	71.5	15.3	12.1
Level of Service		D	D			A		B	B	E	B	B
Approach Delay (s)		47.5			5.4			14.4			27.6	
Approach LOS		D			A			B			C	

Intersection Summary			
HCM 2000 Control Delay	23.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	87.5%	ICU Level of Service	E
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	245	537	132	30	322	280	291	470	170	510	200	303
Future Volume (veh/h)	245	537	132	30	322	280	291	470	170	510	200	303
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		0.98	1.00		0.99	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	1900	1900	1900	1900	1900	1900	1881	1881	1881
Adj Flow Rate, veh/h	253	554	125	31	332	58	300	485	155	526	206	72
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	2	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	1	0	0	0	0	0	0	1	1	1
Cap, veh/h	316	865	194	99	671	296	366	693	220	692	478	405
Arrive On Green	0.18	0.30	0.28	0.05	0.19	0.19	0.20	0.26	0.24	0.20	0.25	0.25
Sat Flow, veh/h	1792	2887	649	1810	3610	1594	1810	2695	856	3476	1881	1597
Grp Volume(v), veh/h	253	342	337	31	332	58	300	324	316	526	206	72
Grp Sat Flow(s),veh/h/ln	1792	1787	1749	1810	1805	1594	1810	1805	1746	1738	1881	1597
Q Serve(g_s), s	11.9	14.6	14.8	1.5	7.3	2.7	14.0	14.3	14.5	12.6	8.1	3.1
Cycle Q Clear(g_c), s	11.9	14.6	14.8	1.5	7.3	2.7	14.0	14.3	14.5	12.6	8.1	3.1
Prop In Lane	1.00		0.37	1.00		1.00	1.00		0.49	1.00		1.00
Lane Grp Cap(c), veh/h	316	535	524	99	671	296	366	464	449	692	478	405
V/C Ratio(X)	0.80	0.64	0.64	0.31	0.49	0.20	0.82	0.70	0.70	0.76	0.43	0.18
Avail Cap(c_a), veh/h	531	1045	1022	680	1894	836	639	850	823	1346	908	771
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	34.8	26.7	27.0	40.0	32.1	30.3	33.6	29.6	30.0	33.3	27.5	25.7
Incr Delay (d2), s/veh	4.7	1.3	1.3	1.8	0.6	0.3	4.6	1.9	2.0	1.8	0.6	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	6.3	7.4	7.3	0.8	3.6	1.2	7.5	7.4	7.2	6.2	4.3	1.4
LnGrp Delay(d),s/veh	39.5	28.0	28.4	41.8	32.7	30.6	38.2	31.5	32.1	35.1	28.1	25.9
LnGrp LOS	D	C	C	D	C	C	D	C	C	D	C	C
Approach Vol, veh/h		932			421			940			804	
Approach Delay, s/veh		31.2			33.1			33.8			32.5	
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	21.5	26.6	8.8	31.1	21.8	26.4	19.5	20.4
Change Period (Y+Rc), s	5.1	5.5	5.1	* 6.2	5.1	5.5	5.1	6.2
Max Green Setting (Gmax), s	33.0	40.0	32.0	* 50	30.0	41.0	25.0	44.0
Max Q Clear Time (g_c+I1), s	14.6	16.5	3.5	16.8	16.0	10.1	13.9	9.3
Green Ext Time (p_c), s	1.8	4.2	0.1	4.5	0.8	1.5	0.5	2.3

Intersection Summary	
HCM 2010 Ctrl Delay	32.6
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	1007	37	10	572	0	37	0	10	10	0	12
Future Volume (veh/h)	12	1007	37	10	572	0	37	0	10	10	0	12
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	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	0	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	13	1131	40	11	643	0	42	0	3	11	0	0
Adj No. of Lanes	1	2	0	1	2	0	0	1	1	0	1	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	1	1	1	1	1	0	0	0	0	0	0	0
Cap, veh/h	37	2047	72	33	2070	0	492	0	469	458	0	0
Arrive On Green	0.02	0.58	0.57	0.02	0.58	0.00	0.29	0.00	0.29	0.29	0.00	0.00
Sat Flow, veh/h	1792	3518	124	1792	3668	0	1467	0	1612	1350	0	0
Grp Volume(v), veh/h	13	574	597	11	643	0	42	0	3	11	0	0
Grp Sat Flow(s),veh/h/ln	1792	1787	1856	1792	1787	0	1467	0	1612	1350	0	0
Q Serve(g_s), s	0.8	21.8	21.8	0.7	10.2	0.0	0.0	0.0	0.1	0.6	0.0	0.0
Cycle Q Clear(g_c), s	0.8	21.8	21.8	0.7	10.2	0.0	1.9	0.0	0.1	2.5	0.0	0.0
Prop In Lane	1.00		0.07	1.00		0.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	37	1040	1080	33	2070	0	492	0	469	458	0	0
V/C Ratio(X)	0.35	0.55	0.55	0.34	0.31	0.00	0.09	0.00	0.01	0.02	0.00	0.00
Avail Cap(c_a), veh/h	195	1040	1080	195	2070	0	492	0	469	458	0	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)	0.75	0.75	0.75	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	53.1	14.2	14.2	53.3	11.9	0.0	28.3	0.0	27.7	29.2	0.0	0.0
Incr Delay (d2), s/veh	4.1	1.6	1.5	6.0	0.4	0.0	0.3	0.0	0.0	0.0	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	0.4	11.1	11.6	0.4	5.1	0.0	1.0	0.0	0.1	0.2	0.0	0.0
LnGrp Delay(d),s/veh	57.2	15.8	15.7	59.3	12.3	0.0	28.7	0.0	27.7	29.2	0.0	0.0
LnGrp LOS	E	B	B	E	B		C		C	C		
Approach Vol, veh/h		1184			654			45			11	
Approach Delay, s/veh		16.2			13.1			28.6			29.2	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.0	68.0		36.0	6.3	67.7		36.0
Change Period (Y+Rc), s	4.0	5.7		4.6	4.0	5.7		4.6
Max Green Setting (Gmax), s	12.0	52.3		31.4	12.0	52.3		31.4
Max Q Clear Time (g_c+I1), s	2.7	23.8		4.5	2.8	12.2		3.9
Green Ext Time (p_c), s	0.0	8.5		0.0	0.0	4.6		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	15.5
HCM 2010 LOS	B

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	20	70	941	60	30	332
Future Volume (Veh/h)	20	70	941	60	30	332
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	21	74	1001	64	32	353
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1450	1033			1065	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1450	1033			1065	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	85	74			95	
cM capacity (veh/h)	138	284			662	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	95	1065	385
Volume Left	21	0	32
Volume Right	74	64	0
cSH	230	1700	662
Volume to Capacity	0.41	0.63	0.05
Queue Length 95th (ft)	47	0	4
Control Delay (s)	31.3	0.0	1.5
Lane LOS	D		A
Approach Delay (s)	31.3	0.0	1.5
Approach LOS	D		

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	65.3%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	415	790	70	30	360	125	50	461	40	93	186	103
Future Volume (veh/h)	415	790	70	30	360	125	50	461	40	93	186	103
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	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	1900	1900	1881	1881	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	437	832	70	32	379	108	53	485	41	98	196	21
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	1	1	1	0	0	0	0	0	0
Cap, veh/h	384	1210	102	56	492	139	50	460	39	115	230	298
Arrive On Green	0.21	0.36	0.36	0.03	0.18	0.17	0.29	0.29	0.29	0.18	0.18	0.18
Sat Flow, veh/h	1810	3364	283	1792	2755	776	171	1565	132	623	1246	1615
Grp Volume(v), veh/h	437	446	456	32	244	243	579	0	0	294	0	21
Grp Sat Flow(s),veh/h/ln	1810	1805	1842	1792	1787	1744	1868	0	0	1869	0	1615
Q Serve(g_s), s	26.0	25.8	25.8	2.2	15.9	16.3	36.0	0.0	0.0	18.6	0.0	1.3
Cycle Q Clear(g_c), s	26.0	25.8	25.8	2.2	15.9	16.3	36.0	0.0	0.0	18.6	0.0	1.3
Prop In Lane	1.00		0.15	1.00		0.44	0.09		0.07	0.33		1.00
Lane Grp Cap(c), veh/h	384	649	663	56	319	312	549	0	0	345	0	298
V/C Ratio(X)	1.14	0.69	0.69	0.57	0.76	0.78	1.05	0.00	0.00	0.85	0.00	0.07
Avail Cap(c_a), veh/h	384	751	767	380	744	726	549	0	0	549	0	475
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	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	48.2	33.4	33.4	58.5	47.9	48.1	43.3	0.0	0.0	48.3	0.0	41.3
Incr Delay (d2), s/veh	89.0	2.2	2.1	8.9	3.8	4.2	53.6	0.0	0.0	7.4	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	22.4	13.2	13.4	1.2	8.2	8.2	26.6	0.0	0.0	10.3	0.0	0.6
LnGrp Delay(d),s/veh	137.2	35.5	35.5	67.5	51.7	52.3	96.9	0.0	0.0	55.7	0.0	41.4
LnGrp LOS	F	D	D	E	D	D	F			E		D
Approach Vol, veh/h		1339			519			579			315	
Approach Delay, s/veh		68.7			53.0			96.9			54.7	
Approach LOS		E			D			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.8	48.1		26.6	30.0	25.9		40.0
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	25.5	50.5		35.5	25.5	50.5		35.5
Max Q Clear Time (g_c+I1), s	4.2	27.8		20.6	28.0	18.3		38.0
Green Ext Time (p_c), s	0.0	5.9		1.5	0.0	3.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	70.1
HCM 2010 LOS	E

Intersection	
Int Delay, s/veh	1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	20	1710	0	20	456
Future Vol, veh/h	10	20	1710	0	20	456
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	-	-	350	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	1	1	2	2
Mvmt Flow	10	21	1781	0	21	475

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2061	891	0	0	1781	0
Stage 1	1781	-	-	-	-	-
Stage 2	280	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.14	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.22	-
Pot Cap-1 Maneuver	49	289	-	-	345	-
Stage 1	123	-	-	-	-	-
Stage 2	748	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	45	289	-	-	345	-
Mov Cap-2 Maneuver	45	-	-	-	-	-
Stage 1	113	-	-	-	-	-
Stage 2	748	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	54.5	0	1.3
HCM LOS	F		

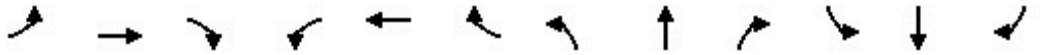
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	103	345	-
HCM Lane V/C Ratio	-	-	0.303	0.06	-
HCM Control Delay (s)	-	-	54.5	16.1	0.6
HCM Lane LOS	-	-	F	C	A
HCM 95th %tile Q(veh)	-	-	1.2	0.2	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	470	160	70	298	190	1032	40	500	288	300	250	110
Future Volume (veh/h)	470	160	70	298	190	1032	40	500	288	300	250	110
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		0.98	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	1900	1900	1900	1881	1881	1900
Adj Flow Rate, veh/h	547	186	48	347	221	0	47	581	290	349	291	106
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	2	2	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	1	1	1	1	1	1	0	0	0	1	1	1
Cap, veh/h	505	471	118	409	406	181	111	759	379	474	1034	369
Arrive On Green	0.28	0.17	0.14	0.23	0.11	0.00	0.06	0.33	0.30	0.14	0.40	0.37
Sat Flow, veh/h	1792	2821	709	1792	3574	1599	1810	2332	1163	3476	2584	922
Grp Volume(v), veh/h	547	116	118	347	221	0	47	449	422	349	199	198
Grp Sat Flow(s),veh/h/ln	1792	1787	1743	1792	1787	1599	1810	1805	1691	1738	1787	1719
Q Serve(g_s), s	31.5	6.5	6.8	20.7	6.5	0.0	2.8	25.0	25.3	10.8	8.4	8.9
Cycle Q Clear(g_c), s	31.5	6.5	6.8	20.7	6.5	0.0	2.8	25.0	25.3	10.8	8.4	8.9
Prop In Lane	1.00		0.41	1.00		1.00	1.00		0.69	1.00		0.54
Lane Grp Cap(c), veh/h	505	298	291	409	406	181	111	588	550	474	715	688
V/C Ratio(X)	1.08	0.39	0.41	0.85	0.54	0.00	0.42	0.76	0.77	0.74	0.28	0.29
Avail Cap(c_a), veh/h	505	682	666	593	1684	754	429	694	650	824	847	815
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.2	41.5	42.1	41.3	46.8	0.0	50.6	33.9	34.9	46.4	22.6	23.3
Incr Delay (d2), s/veh	64.7	0.8	0.9	7.7	1.1	0.0	2.5	5.1	5.5	2.3	0.3	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	24.5	3.3	3.3	11.1	3.3	0.0	1.5	13.3	12.6	5.3	4.2	4.3
LnGrp Delay(d),s/veh	104.8	42.3	43.1	49.0	48.0	0.0	53.1	39.0	40.4	48.6	23.0	23.7
LnGrp LOS	F	D	D	D	D		D	D	D	D	C	C
Approach Vol, veh/h		781			568			918			746	
Approach Delay, s/veh		86.2			48.6			40.3			35.2	
Approach LOS		F			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	19.2	40.4	29.5	22.7	10.9	48.8	35.5	16.7
Change Period (Y+Rc), s	5.5	7.0	6.0	6.7	5.5	7.0	5.5	6.7
Max Green Setting (Gmax), s	25.0	40.0	35.0	40.0	25.0	50.0	30.0	50.0
Max Q Clear Time (g_c+I1), s	12.8	27.3	22.7	8.8	4.8	10.9	33.5	8.5
Green Ext Time (p_c), s	1.0	6.1	0.8	1.3	0.1	3.9	0.0	1.3

Intersection Summary	
HCM 2010 Ctrl Delay	52.5
HCM 2010 LOS	D

Notes



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	300	150	20	220	200	372	30	260	202	698	370	330
Future Volume (veh/h)	300	150	20	220	200	372	30	260	202	698	370	330
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		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1900	1900	1900	1881	1881	1900	1900	1900	1900
Adj Flow Rate, veh/h	319	160	11	234	213	0	32	277	85	743	394	263
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	2	2	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	0	0	0	1	1	1	0	0	0
Cap, veh/h	227	359	25	232	386	173	89	446	134	1658	1225	808
Arrive On Green	0.13	0.11	0.09	0.13	0.11	0.00	0.05	0.16	0.14	0.47	0.59	0.56
Sat Flow, veh/h	1774	3361	229	1810	3610	1615	1792	2708	814	3510	2086	1376
Grp Volume(v), veh/h	319	84	87	234	213	0	32	181	181	743	340	317
Grp Sat Flow(s),veh/h/ln	1774	1770	1820	1810	1805	1615	1792	1787	1735	1755	1805	1657
Q Serve(g_s), s	16.0	5.5	5.6	16.0	7.0	0.0	2.2	11.8	12.2	17.7	12.0	12.7
Cycle Q Clear(g_c), s	16.0	5.5	5.6	16.0	7.0	0.0	2.2	11.8	12.2	17.7	12.0	12.7
Prop In Lane	1.00		0.13	1.00		1.00	1.00		0.47	1.00		0.83
Lane Grp Cap(c), veh/h	227	189	195	232	386	173	89	294	286	1658	1060	974
V/C Ratio(X)	1.40	0.44	0.45	1.01	0.55	0.00	0.36	0.61	0.63	0.45	0.32	0.33
Avail Cap(c_a), veh/h	227	566	583	232	1155	517	172	586	569	1658	1060	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	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.47	0.47	0.47
Uniform Delay (d), s/veh	54.5	52.3	52.5	54.5	53.0	0.0	57.5	48.5	49.4	22.1	13.1	13.9
Incr Delay (d2), s/veh	206.4	1.6	1.6	61.8	1.2	0.0	2.4	3.3	3.7	0.1	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.8	2.8	2.9	12.0	3.6	0.0	1.1	6.1	6.2	8.6	6.0	5.9
LnGrp Delay(d),s/veh	260.9	53.9	54.1	116.4	54.2	0.0	59.9	51.8	53.0	22.2	13.2	14.0
LnGrp LOS	F	D	D	F	D		E	D	D	C	B	B
Approach Vol, veh/h		490			447			394			1400	
Approach Delay, s/veh		188.7			86.7			53.0			18.2	
Approach LOS		F			F			D			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	63.1	24.6	20.0	17.4	10.2	77.4	20.0	17.4
Change Period (Y+Rc), s	5.5	7.0	6.0	6.7	5.5	7.0	5.5	6.7
Max Green Setting (Gmax), s	10.5	38.0	14.0	37.3	10.5	38.0	14.5	37.3
Max Q Clear Time (g_c+I1), s	19.7	14.2	18.0	7.6	4.2	14.7	18.0	9.0
Green Ext Time (p_c), s	0.0	3.1	0.0	0.9	0.0	6.2	0.0	1.2

Intersection Summary	
HCM 2010 Ctrl Delay	65.0
HCM 2010 LOS	E

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	0	450	60	30	40	260	440	0	0	2010	250
Future Volume (veh/h)	30	0	450	60	30	40	260	440	0	0	2010	250
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	80	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	1845	1845	1845	1900	1759	1759	1845	1845	0	0	1863	1900
Adj Flow Rate, veh/h	32	0	45	64	32	5	277	468	0	0	2138	257
Adj No. of Lanes	2	0	1	0	1	1	1	3	0	0	4	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	8	8	8	3	3	0	0	2	2
Cap, veh/h	163	0	73	87	44	115	311	3769	0	0	2821	244
Arrive On Green	0.05	0.00	0.05	0.08	0.08	0.08	0.18	0.75	0.00	0.00	0.52	0.51
Sat Flow, veh/h	3514	0	1568	1135	568	1490	1757	5202	0	0	5619	607
Grp Volume(v), veh/h	32	0	45	96	0	5	277	468	0	0	1652	743
Grp Sat Flow(s),veh/h/ln	1757	0	1568	1703	0	1490	1757	1679	0	0	1304	1756
Q Serve(g_s), s	0.8	0.0	2.6	5.1	0.0	0.3	14.1	2.4	0.0	0.0	31.9	32.2
Cycle Q Clear(g_c), s	0.8	0.0	2.6	5.1	0.0	0.3	14.1	2.4	0.0	0.0	31.9	32.2
Prop In Lane	1.00		1.00	0.67		1.00	1.00		0.00	0.00		0.35
Lane Grp Cap(c), veh/h	163	0	73	131	0	115	311	3769	0	0	2070	939
V/C Ratio(X)	0.20	0.00	0.62	0.73	0.00	0.04	0.89	0.12	0.00	0.00	0.80	0.79
Avail Cap(c_a), veh/h	996	0	444	668	0	584	402	4171	0	0	2174	976
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	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	42.9	0.0	43.8	42.2	0.0	40.0	37.6	3.3	0.0	0.0	20.4	19.6
Incr Delay (d2), s/veh	0.4	0.0	6.3	2.9	0.0	0.1	15.3	0.0	0.0	0.0	2.1	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	29.9	15.7
%ile BackOfQ(50%),veh/ln	0.4	0.0	1.3	2.5	0.0	0.1	8.3	1.1	0.0	0.0	21.2	24.2
LnGrp Delay(d),s/veh	43.3	0.0	50.0	45.1	0.0	40.0	52.8	3.3	0.0	0.0	52.3	39.7
LnGrp LOS	D		D	D		D	D	A			D	D
Approach Vol, veh/h		77			101			745			2395	
Approach Delay, s/veh		47.3			44.9			21.7			48.4	
Approach LOS		D			D			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		72.4		11.1	20.3	52.1		8.3
Change Period (Y+Rc), s		5.0		4.0	4.0	5.0		4.0
Max Green Setting (Gmax), s		75.0		36.0	21.0	50.0		26.0
Max Q Clear Time (g_c+I1), s		4.4		7.1	16.1	34.2		4.6
Green Ext Time (p_c), s		3.3		0.3	0.2	12.9		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	42.3
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	350	0	400	0	0	0	0	1450	260	0	490	280
Future Volume (veh/h)	350	0	400	0	0	0	0	1450	260	0	490	280
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	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
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1827	1827				0	1881	1900	0	1881	1881
Adj Flow Rate, veh/h	380	0	140				0	1576	276	0	533	0
Adj No. of Lanes	2	0	1				0	3	0	0	2	1
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4				0	1	1	0	1	1
Cap, veh/h	591	0	264				0	2203	385	0	2524	1080
Arrive On Green	0.17	0.00	0.17				0.00	0.71	0.68	0.00	0.71	0.00
Sat Flow, veh/h	3480	0	1553				0	4061	545	0	3668	1599
Grp Volume(v), veh/h	380	0	140				0	949	903	0	533	0
Grp Sat Flow(s),veh/h/ln	1740	0	1553				0	941	1784	0	1787	1599
Q Serve(g_s), s	6.6	0.0	5.3				0.0	19.3	19.8	0.0	3.3	0.0
Cycle Q Clear(g_c), s	6.6	0.0	5.3				0.0	19.3	19.8	0.0	3.3	0.0
Prop In Lane	1.00		1.00				0.00		0.31	0.00		1.00
Lane Grp Cap(c), veh/h	591	0	264				0	1328	1260	0	2524	1080
V/C Ratio(X)	0.64	0.00	0.53				0.00	0.71	0.72	0.00	0.21	0.00
Avail Cap(c_a), veh/h	1944	0	867				0	2218	2104	0	4215	1836
HCM Platoon Ratio	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	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	24.9	0.0	24.4				0.0	5.6	5.9	0.0	3.3	0.0
Incr Delay (d2), s/veh	1.2	0.0	1.7				0.0	0.7	0.8	0.0	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
%ile BackOfQ(50%),veh/ln	3.3	0.0	2.4				0.0	5.0	9.6	0.0	1.6	0.0
LnGrp Delay(d),s/veh	26.1	0.0	26.1				0.0	6.3	6.6	0.0	3.3	0.0
LnGrp LOS	C		C					A	A		A	
Approach Vol, veh/h		520						1852			533	
Approach Delay, s/veh		26.1						6.5			3.3	
Approach LOS		C						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		49.5		14.9		49.5		
Change Period (Y+Rc), s		6.0		4.5		6.0		
Max Green Setting (Gmax), s		74.0		35.5		74.0		
Max Q Clear Time (g_c+I1), s		21.8		8.6		5.3		
Green Ext Time (p_c), s		21.7		1.9		3.8		

Intersection Summary	
HCM 2010 Ctrl Delay	9.4
HCM 2010 LOS	A

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	270	430	80	290	760	800	90	540	250	260	270	360
Future Volume (veh/h)	270	430	80	290	760	800	90	540	250	260	270	360
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		0.99	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	1900	1900	1900	1881	1881	1900
Adj Flow Rate, veh/h	293	467	78	315	826	820	98	587	240	283	293	263
Adj No. of Lanes	1	2	0	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, %	1	1	1	1	1	1	0	0	0	1	1	1
Cap, veh/h	329	988	164	358	1210	541	137	672	274	369	542	473
Arrive On Green	0.18	0.32	0.31	0.20	0.34	0.34	0.08	0.27	0.25	0.11	0.30	0.28
Sat Flow, veh/h	1792	3062	508	1792	3574	1599	1810	2500	1021	3476	1809	1580
Grp Volume(v), veh/h	293	271	274	315	826	820	98	424	403	283	289	267
Grp Sat Flow(s),veh/h/ln	1792	1787	1783	1792	1787	1599	1810	1805	1716	1738	1787	1602
Q Serve(g_s), s	24.8	18.9	19.2	26.6	31.0	52.7	8.2	34.9	35.1	12.3	21.1	22.1
Cycle Q Clear(g_c), s	24.8	18.9	19.2	26.6	31.0	52.7	8.2	34.9	35.1	12.3	21.1	22.1
Prop In Lane	1.00		0.29	1.00		1.00	1.00		0.59	1.00		0.99
Lane Grp Cap(c), veh/h	329	577	575	358	1210	541	137	485	461	369	535	480
V/C Ratio(X)	0.89	0.47	0.48	0.88	0.68	1.52	0.72	0.87	0.87	0.77	0.54	0.56
Avail Cap(c_a), veh/h	362	577	575	426	1210	541	308	499	474	592	608	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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	62.0	42.1	42.5	60.5	44.3	51.5	70.3	54.4	55.3	67.7	45.6	47.2
Incr Delay (d2), s/veh	21.5	0.6	0.6	16.8	1.6	241.2	6.8	16.0	16.9	3.4	1.3	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	14.3	9.4	9.6	14.9	15.5	59.6	4.4	19.6	18.8	6.1	10.6	10.0
LnGrp Delay(d),s/veh	83.5	42.7	43.1	77.3	45.9	292.7	77.2	70.4	72.2	71.1	46.9	48.8
LnGrp LOS	F	D	D	E	D	F	E	E	E	E	D	D
Approach Vol, veh/h		838			1961			925			839	
Approach Delay, s/veh		57.1			154.1			71.9			55.7	
Approach LOS		E			F			E			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	20.5	45.9	35.1	54.2	15.8	50.6	32.6	56.7
Change Period (Y+Rc), s	5.5	7.0	6.0	6.7	5.5	7.0	5.5	6.7
Max Green Setting (Gmax), s	25.0	40.0	35.0	40.0	25.0	50.0	30.0	50.0
Max Q Clear Time (g_c+I1), s	14.3	37.1	28.6	21.2	10.2	24.1	26.8	54.7
Green Ext Time (p_c), s	0.7	1.8	0.5	2.9	0.2	5.4	0.3	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	101.5
HCM 2010 LOS	F

Notes

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1000	40	0	1800	0	30
Future Vol, veh/h	1000	40	0	1800	0	30
Conflicting Peds, #/hr	0	5	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	86	86	86	86	86	86
Heavy Vehicles, %	0	0	1	1	0	0
Mvmt Flow	1163	47	0	2093	0	35

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	610
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	-	-	0	-	0	442
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	440
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	440	-	-	-
HCM Lane V/C Ratio	0.079	-	-	-
HCM Control Delay (s)	13.9	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.3	-	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	940	80	50	1650	0	150	0	120	0	0	0
Future Volume (veh/h)	10	940	80	50	1650	0	150	0	120	0	0	0
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	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	1900	1900	1881	1881	1900	1900	1900	1900	1863	1863	1900
Adj Flow Rate, veh/h	12	1119	55	60	1964	0	179	0	38	0	0	0
Adj No. of Lanes	1	2	1	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	0	0	0	1	1	1	0	0	0	2	2	2
Cap, veh/h	64	2170	943	151	2322	0	253	266	226	3	3	0
Arrive On Green	0.04	0.60	0.60	0.08	0.65	0.00	0.14	0.00	0.14	0.00	0.00	0.00
Sat Flow, veh/h	1810	3610	1570	1792	3668	0	1810	1900	1612	1774	1863	0
Grp Volume(v), veh/h	12	1119	55	60	1964	0	179	0	38	0	0	0
Grp Sat Flow(s),veh/h/ln	1810	1805	1570	1792	1787	0	1810	1900	1612	1774	1863	0
Q Serve(g_s), s	0.4	12.3	1.0	2.2	29.3	0.0	6.5	0.0	1.4	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.4	12.3	1.0	2.2	29.3	0.0	6.5	0.0	1.4	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	64	2170	943	151	2322	0	253	266	226	3	3	0
V/C Ratio(X)	0.19	0.52	0.06	0.40	0.85	0.00	0.71	0.00	0.17	0.00	0.00	0.00
Avail Cap(c_a), veh/h	685	2509	1091	679	2484	0	685	1290	1094	672	1265	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)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	32.1	7.9	5.7	29.8	9.3	0.0	28.2	0.0	26.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	1.4	0.2	0.0	1.7	2.7	0.0	3.6	0.0	0.3	0.0	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	0.2	6.1	0.4	1.2	15.1	0.0	3.5	0.0	0.7	0.0	0.0	0.0
LnGrp Delay(d),s/veh	33.5	8.1	5.7	31.5	12.1	0.0	31.8	0.0	26.3	0.0	0.0	0.0
LnGrp LOS	C	A	A	C	B		C		C			
Approach Vol, veh/h		1186			2024			217			0	
Approach Delay, s/veh		8.2			12.7			30.8			0.0	
Approach LOS		A			B			C				

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.4	48.6	0.0	13.6	9.8	45.3	13.6	0.0
Change Period (Y+Rc), s	5.0	6.7	5.0	5.6	5.0	6.7	5.0	5.6
Max Green Setting (Gmax), s	25.0	45.0	25.0	45.0	25.0	45.0	25.0	45.0
Max Q Clear Time (g_c+I1), s	2.4	31.3	0.0	3.4	4.2	14.3	8.5	0.0
Green Ext Time (p_c), s	0.0	10.6	0.0	0.1	0.1	8.9	0.4	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	12.3
HCM 2010 LOS	B

Notes

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1000	60	30	1560	140	60
Future Volume (veh/h)	1000	60	30	1560	140	60
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.96	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	1900	1881	1881	1900	1900
Adj Flow Rate, veh/h	1136	63	34	1773	159	10
Adj No. of Lanes	2	0	1	2	1	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	1	1	1	1	0	0
Cap, veh/h	2440	135	95	2845	212	189
Arrive On Green	0.71	0.68	0.05	0.80	0.12	0.12
Sat Flow, veh/h	3529	190	1792	3668	1810	1615
Grp Volume(v), veh/h	591	608	34	1773	159	10
Grp Sat Flow(s),veh/h/ln	1787	1839	1792	1787	1810	1615
Q Serve(g_s), s	14.3	14.4	1.8	20.1	8.5	0.6
Cycle Q Clear(g_c), s	14.3	14.4	1.8	20.1	8.5	0.6
Prop In Lane		0.10	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1269	1306	95	2845	212	189
V/C Ratio(X)	0.47	0.47	0.36	0.62	0.75	0.05
Avail Cap(c_a), veh/h	1269	1306	215	2845	380	339
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.84	0.84	0.09	0.09	1.00	1.00
Uniform Delay (d), s/veh	6.3	6.4	45.7	4.1	42.7	39.2
Incr Delay (d2), s/veh	1.0	1.0	0.2	0.1	5.3	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	7.3	7.5	0.9	9.6	4.6	0.3
LnGrp Delay(d),s/veh	7.3	7.4	45.9	4.2	48.0	39.3
LnGrp LOS	A	A	D	A	D	D
Approach Vol, veh/h	1199			1807	169	
Approach Delay, s/veh	7.3			5.0	47.5	
Approach LOS	A			A	D	

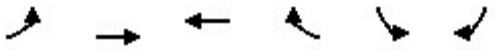
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	9.3	75.0				84.3		15.7
Change Period (Y+Rc), s	5.0	6.7				* 6.7		5.0
Max Green Setting (Gmax), s	4.3	52.3				* 69		20.0
Max Q Clear Time (g_c+I1), s	3.8	16.4				22.1		10.5
Green Ext Time (p_c), s	0.0	13.5				30.5		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	8.1
HCM 2010 LOS	A

Notes

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1040	90	50	1390	160	130
Future Volume (vph)	1040	90	50	1390	160	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0		4.0	4.0	4.0	
Lane Util. Factor	0.95		1.00	0.95	1.00	
Frpb, ped/bikes	0.99		1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00	1.00	1.00	
Frt	0.99		1.00	1.00	0.94	
Flt Protected	1.00		0.95	1.00	0.97	
Satd. Flow (prot)	3514		1787	3574	1737	
Flt Permitted	1.00		0.95	1.00	0.97	
Satd. Flow (perm)	3514		1787	3574	1737	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1156	100	56	1544	178	144
RTOR Reduction (vph)	6	0	0	0	29	0
Lane Group Flow (vph)	1250	0	56	1544	293	0
Confl. Peds. (#/hr)		18				
Confl. Bikes (#/hr)		5				
Heavy Vehicles (%)	1%	1%	1%	1%	0%	0%
Turn Type	NA		Prot	NA	Prot	
Protected Phases	2		1	6 3 5	7	
Permitted Phases						
Actuated Green, G (s)	37.7		7.0	74.9	15.0	
Effective Green, g (s)	39.7		8.0	72.4	16.0	
Actuated g/C Ratio	0.40		0.08	0.72	0.16	
Clearance Time (s)	5.0		5.0		5.0	
Vehicle Extension (s)	3.0		3.0		3.0	
Lane Grp Cap (vph)	1395		142	2587	277	
v/s Ratio Prot	c0.36		0.03	c0.43	c0.17	
v/s Ratio Perm						
v/c Ratio	0.90		0.39	0.60	1.06	
Uniform Delay, d1	28.2		43.7	6.7	42.0	
Progression Factor	1.00		1.51	0.60	1.00	
Incremental Delay, d2	9.3		0.9	0.2	69.7	
Delay (s)	37.5		67.0	4.2	111.7	
Level of Service	D		E	A	F	
Approach Delay (s)	37.5			6.4	111.7	
Approach LOS	D			A	F	

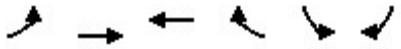
Intersection Summary			
HCM 2000 Control Delay	29.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.6
Intersection Capacity Utilization	64.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	30	1140	1390	10	30	50
Future Volume (vph)	30	1140	1390	10	30	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	3.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	*0.70		1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	1.00		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1787	3574	3946		1736	1553
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1787	3574	3946		1736	1553
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	32	1213	1479	11	32	53
RTOR Reduction (vph)	0	0	1	0	0	42
Lane Group Flow (vph)	32	1213	1489	0	32	11
Confl. Peds. (#/hr)					35	
Heavy Vehicles (%)	1%	1%	1%	1%	4%	4%
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	5	2 1 7	6		3	
Permitted Phases						3
Actuated Green, G (s)	5.1	69.7	40.1		20.2	20.2
Effective Green, g (s)	5.1	71.7	41.1		21.3	21.3
Actuated g/C Ratio	0.05	0.72	0.41		0.21	0.21
Clearance Time (s)	4.5		5.0		5.1	5.1
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	91	2562	1621		369	330
v/s Ratio Prot	0.02	c0.34	c0.38		c0.02	
v/s Ratio Perm						0.01
v/c Ratio	0.35	0.47	0.92		0.09	0.03
Uniform Delay, d1	45.9	6.1	27.9		31.6	31.2
Progression Factor	0.56	0.36	1.00		1.00	1.00
Incremental Delay, d2	0.9	0.1	9.9		0.1	0.0
Delay (s)	26.4	2.2	37.8		31.7	31.2
Level of Service	C	A	D		C	C
Approach Delay (s)		2.9	37.8		31.4	
Approach LOS		A	D		C	

Intersection Summary			
HCM 2000 Control Delay	22.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	44.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	50	1120	1380	370	50	10
Future Volume (veh/h)	50	1120	1380	370	50	10
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.97	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	1900	1863	1863
Adj Flow Rate, veh/h	54	1217	1500	388	54	1
Adj No. of Lanes	1	2	2	0	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	2	2	2	2
Cap, veh/h	108	3071	2122	525	97	87
Arrive On Green	0.06	0.86	1.00	1.00	0.05	0.05
Sat Flow, veh/h	1792	3668	2890	692	1774	1583
Grp Volume(v), veh/h	54	1217	924	964	54	1
Grp Sat Flow(s),veh/h/ln	1792	1787	1770	1719	1774	1583
Q Serve(g_s), s	2.9	7.3	0.0	0.0	3.0	0.1
Cycle Q Clear(g_c), s	2.9	7.3	0.0	0.0	3.0	0.1
Prop In Lane	1.00			0.40	1.00	1.00
Lane Grp Cap(c), veh/h	108	3071	1343	1305	97	87
V/C Ratio(X)	0.50	0.40	0.69	0.74	0.56	0.01
Avail Cap(c_a), veh/h	215	3071	1343	1305	504	450
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.32	0.32	0.18	0.18	1.00	1.00
Uniform Delay (d), s/veh	45.5	1.5	0.0	0.0	46.1	44.7
Incr Delay (d2), s/veh	1.1	0.1	0.5	0.7	4.9	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	1.5	3.4	0.2	0.3	1.6	0.1
LnGrp Delay(d),s/veh	46.6	1.6	0.5	0.7	50.9	44.7
LnGrp LOS	D	A	A	A	D	D
Approach Vol, veh/h		1271	1888		55	
Approach Delay, s/veh		3.5	0.6		50.8	
Approach LOS		A	A		D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		89.9		10.1	10.0	79.9		
Change Period (Y+Rc), s		4.6		4.6	4.6	4.6		
Max Green Setting (Gmax), s		62.4		28.4	11.4	46.4		
Max Q Clear Time (g_c+I1), s		9.3		5.0	4.9	2.0		
Green Ext Time (p_c), s		12.1		0.1	0.0	24.0		

Intersection Summary	
HCM 2010 Ctrl Delay	2.6
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	1100	40	120	1680	120	60	0	250	30	5	10
Future Volume (veh/h)	30	1100	40	120	1680	120	60	0	250	30	5	10
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	33	1170	41	128	1787	127	64	0	113	33	5	1
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	2	1	0
Peak Hour Factor	0.92	0.94	0.94	0.94	0.94	0.92	0.94	0.92	0.94	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	85	1874	66	161	1911	134	80	0	141	182	80	16
Arrive On Green	0.10	1.00	1.00	0.09	0.57	0.55	0.15	0.00	0.14	0.05	0.05	0.05
Sat Flow, veh/h	1774	3485	122	1774	3355	236	586	0	1035	3442	1508	302
Grp Volume(v), veh/h	33	594	617	128	933	981	177	0	0	33	0	6
Grp Sat Flow(s),veh/h/ln	1774	1770	1837	1774	1770	1821	1621	0	0	1721	0	1810
Q Serve(g_s), s	1.7	0.0	0.0	7.1	48.0	50.3	10.6	0.0	0.0	0.9	0.0	0.3
Cycle Q Clear(g_c), s	1.7	0.0	0.0	7.1	48.0	50.3	10.6	0.0	0.0	0.9	0.0	0.3
Prop In Lane	1.00		0.07	1.00		0.13	0.36		0.64	1.00		0.17
Lane Grp Cap(c), veh/h	85	952	988	161	1008	1037	221	0	0	182	0	96
V/C Ratio(X)	0.39	0.62	0.62	0.79	0.93	0.95	0.80	0.00	0.00	0.18	0.00	0.06
Avail Cap(c_a), veh/h	142	952	988	161	1008	1037	292	0	0	929	0	489
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.92	0.92	0.92	0.09	0.09	0.09	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.8	0.0	0.0	44.5	19.6	20.2	41.7	0.0	0.0	45.3	0.0	45.0
Incr Delay (d2), s/veh	2.6	2.8	2.7	2.5	1.9	2.5	11.2	0.0	0.0	0.5	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.8	0.8	3.6	23.9	25.8	5.4	0.0	0.0	0.4	0.0	0.2
LnGrp Delay(d),s/veh	46.4	2.8	2.7	47.1	21.5	22.6	52.8	0.0	0.0	45.8	0.0	45.3
LnGrp LOS	D	A	A	D	C	C	D			D		D
Approach Vol, veh/h		1244			2042			177			39	
Approach Delay, s/veh		3.9			23.6			52.8			45.7	
Approach LOS		A			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	13.1	57.8		10.4	9.9	61.0		18.7
Change Period (Y+Rc), s	5.1	5.5		5.1	5.1	5.5		5.1
Max Green Setting (Gmax), s	8.0	26.2		27.0	8.0	26.2		18.0
Max Q Clear Time (g_c+I1), s	9.1	2.0		2.9	3.7	52.3		12.6
Green Ext Time (p_c), s	0.0	8.8		0.1	0.0	0.0		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	18.4
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	290	750	290	630	940	300	100	950	210
Future Volume (veh/h)	0	0	0	290	750	290	630	940	300	100	950	210
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.98	1.00		0.99	1.00		0.96
Parking Bus, Adj				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	1900	1900	1845	1845	1900	1863	1863	1900
Adj Flow Rate, veh/h				296	765	296	643	959	264	102	969	214
Adj No. of Lanes				0	2	0	2	3	0	1	2	0
Peak Hour Factor				0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %				0	0	0	3	3	3	2	2	2
Cap, veh/h				284	763	309	629	1787	491	134	990	218
Arrive On Green				0.38	0.38	0.37	0.18	0.46	0.45	0.08	0.35	0.34
Sat Flow, veh/h				755	2024	821	3408	3924	1078	1774	2859	630
Grp Volume(v), veh/h				731	0	626	643	820	403	102	599	584
Grp Sat Flow(s),veh/h/ln				1862	0	1737	1704	1679	1644	1774	1770	1720
Q Serve(g_s), s				49.0	0.0	45.7	24.0	22.9	23.1	7.3	43.5	43.7
Cycle Q Clear(g_c), s				49.0	0.0	45.7	24.0	22.9	23.1	7.3	43.5	43.7
Prop In Lane				0.41		0.47	1.00		0.66	1.00		0.37
Lane Grp Cap(c), veh/h				702	0	655	629	1529	749	134	613	595
V/C Ratio(X)				1.04	0.00	0.96	1.02	0.54	0.54	0.76	0.98	0.98
Avail Cap(c_a), veh/h				702	0	655	629	1529	749	207	613	595
HCM Platoon Ratio				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
Uniform Delay (d), s/veh				40.5	0.0	39.7	53.0	25.5	25.8	58.9	42.0	42.3
Incr Delay (d2), s/veh				45.0	0.0	24.7	41.5	1.4	2.8	3.3	31.3	32.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				33.9	0.0	26.4	14.9	10.9	11.0	3.7	26.4	26.2
LnGrp Delay(d),s/veh				85.5	0.0	64.5	94.5	26.9	28.6	62.3	73.3	74.8
LnGrp LOS				F		E	F	C	C	E	E	E
Approach Vol, veh/h					1357			1866			1285	
Approach Delay, s/veh					75.8			50.6			73.1	
Approach LOS					E			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2			5	6		8
Phs Duration (G+Y+Rc), s	13.8	63.2			28.0	49.0		53.0
Change Period (Y+Rc), s	* 4.7	5.1			* 4.7	5.1		5.1
Max Green Setting (Gmax), s	15	52.7			* 23	43.9		47.9
Max Q Clear Time (g_c+I1), s	9.3	25.1			26.0	45.7		51.0
Green Ext Time (p_c), s	0.0	10.1			0.0	0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	64.6
HCM 2010 LOS	E

Notes

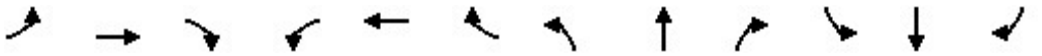
Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	270	0	0	110	0	1760	0	0	1240	0
Future Vol, veh/h	0	0	270	0	0	110	0	1760	0	0	1240	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	10	0	0	0
Sign Control	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	4	4	4	3	3	3	2	2	2
Mvmt Flow	0	0	284	0	0	116	0	1853	0	0	1305	0

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	-	-	927	-	0	-	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.18	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.94	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	229	0	-	0	0	-	0
Stage 1	0	0	-	0	-	0	0	-	0
Stage 2	0	0	-	0	-	0	0	-	0
Platoon blocked, %					-			-	
Mov Cap-1 Maneuver	-	0	229	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	0	-	-	-	-	-	-	-
Stage 1	-	0	-	-	-	-	-	-	-
Stage 2	-	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	35.8	0	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	229	-
HCM Lane V/C Ratio	-	0.506	-
HCM Control Delay (s)	-	35.8	-
HCM Lane LOS	-	E	-
HCM 95th %tile Q(veh)	-	2.6	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	140	270	0	0	270	0	1400	340	230	1000	280
Future Volume (vph)	90	140	270	0	0	270	0	1400	340	230	1000	280
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0			4.0		4.0	2.0	4.0	2.0	2.0
Lane Util. Factor		0.95	1.00			1.00		0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes		1.00	0.99			1.00		1.00	0.98	1.00	1.00	0.94
Flpb, ped/bikes		1.00	1.00			1.00		1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.85			0.85		1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98	1.00			1.00		1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		3372	1521			1568		3505	1529	3433	3539	1482
Flt Permitted		0.98	1.00			1.00		1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		3372	1521			1568		3505	1529	3433	3539	1482
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	93	144	278	0	0	278	0	1443	351	237	1031	289
RTOR Reduction (vph)	0	0	61	0	0	0	0	0	63	0	0	91
Lane Group Flow (vph)	0	237	217	0	0	278	0	1443	288	237	1031	198
Confl. Peds. (#/hr)			4						7			13
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	3%	3%	3%	2%	2%	2%
Turn Type	Split	NA	custom			custom		NA	custom	Prot	NA	custom
Protected Phases	4!	4	5	3!	3!	1 2 4!		2 3!	3	1	3 6!	3!
Permitted Phases			4						2			6
Actuated Green, G (s)		17.9	25.1			106.0		87.2	82.2	12.9	91.9	86.9
Effective Green, g (s)		18.9	27.1			101.0		88.2	84.2	12.9	88.9	88.9
Actuated g/C Ratio		0.15	0.21			0.78		0.68	0.65	0.10	0.68	0.68
Clearance Time (s)		5.0	5.0						3.0	4.0		3.0
Vehicle Extension (s)		2.0	2.0						2.0	2.0		2.0
Lane Grp Cap (vph)		490	363			1218		2378	990	340	2420	1013
v/s Ratio Prot		0.07	c0.04			0.18		c0.41	0.04	c0.07	0.29	0.03
v/s Ratio Perm			0.11						0.15			0.11
v/c Ratio		0.48	0.60			0.23		0.61	0.29	0.70	0.43	0.20
Uniform Delay, d1		51.1	46.5			3.9		11.4	9.9	56.7	9.2	7.5
Progression Factor		1.00	1.00			1.00		1.00	1.00	0.95	0.55	0.02
Incremental Delay, d2		0.3	1.8			0.0		0.3	0.1	2.8	0.0	0.0
Delay (s)		51.3	48.3			4.0		11.7	10.0	56.5	5.0	0.2
Level of Service		D	D			A		B	B	E	A	A
Approach Delay (s)		49.7			4.0			11.4			12.0	
Approach LOS		D			A			B			B	

Intersection Summary			
HCM 2000 Control Delay	15.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	77.3%	ICU Level of Service	D
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	440	500	390	300	1460	640	190	500	50	250	620	300
Future Volume (veh/h)	440	500	390	300	1460	640	190	500	50	250	620	300
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		0.97	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1881	1881	1881	1792	1792	1900	1810	1810	1810
Adj Flow Rate, veh/h	449	510	319	306	1490	516	194	510	47	255	633	199
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	2	1	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	1	1	1	6	6	6	5	5	5
Cap, veh/h	307	595	371	340	1093	474	229	993	91	335	509	432
Arrive On Green	0.17	0.28	0.27	0.19	0.31	0.31	0.13	0.32	0.31	0.10	0.28	0.28
Sat Flow, veh/h	1774	2095	1307	1792	3574	1549	1707	3151	290	3343	1810	1535
Grp Volume(v), veh/h	449	431	398	306	1490	516	194	275	282	255	633	199
Grp Sat Flow(s),veh/h/ln	1774	1770	1632	1792	1787	1549	1707	1703	1738	1672	1810	1535
Q Serve(g_s), s	26.1	34.8	35.0	25.2	46.2	46.2	16.8	19.9	20.1	11.2	42.5	16.2
Cycle Q Clear(g_c), s	26.1	34.8	35.0	25.2	46.2	46.2	16.8	19.9	20.1	11.2	42.5	16.2
Prop In Lane	1.00		0.80	1.00		1.00	1.00		0.17	1.00		1.00
Lane Grp Cap(c), veh/h	307	503	463	340	1093	474	229	537	548	335	509	432
V/C Ratio(X)	1.46	0.86	0.86	0.90	1.36	1.09	0.85	0.51	0.51	0.76	1.24	0.46
Avail Cap(c_a), veh/h	307	603	556	393	1093	474	351	537	548	755	509	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	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	62.5	51.2	51.8	59.8	52.4	52.4	63.9	42.2	42.4	66.2	54.3	44.8
Incr Delay (d2), s/veh	226.3	10.2	11.2	21.0	169.3	67.5	11.2	0.8	0.8	3.6	125.3	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	32.0	18.4	17.2	14.5	48.5	28.6	8.6	9.5	9.8	5.4	38.9	7.0
LnGrp Delay(d),s/veh	288.8	61.4	63.0	80.8	221.8	120.0	75.1	43.1	43.2	69.8	179.6	45.6
LnGrp LOS	F	E	E	F	F	F	E	D	D	E	F	D
Approach Vol, veh/h		1278			2312			751			1087	
Approach Delay, s/veh		141.8			180.4			51.4			129.3	
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	19.1	51.6	32.7	47.6	24.3	46.5	30.1	50.2
Change Period (Y+Rc), s	5.1	5.5	5.1	* 6.2	5.1	5.5	5.1	6.2
Max Green Setting (Gmax), s	33.0	40.0	32.0	* 50	30.0	41.0	25.0	44.0
Max Q Clear Time (g_c+I1), s	13.2	22.1	27.2	37.0	18.8	44.5	28.1	48.2
Green Ext Time (p_c), s	0.8	3.2	0.4	4.3	0.4	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	143.2
HCM 2010 LOS	F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	750	30	10	2300	10	110	10	10	10	0	20
Future Volume (veh/h)	40	750	30	10	2300	10	110	10	10	10	0	20
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	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	1900	1900	1900	1900	1776	1900
Adj Flow Rate, veh/h	43	798	30	11	2447	11	117	11	2	11	0	0
Adj No. of Lanes	1	2	0	1	2	0	0	1	1	0	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	1	1	1	1	1	0	0	0	7	7	7
Cap, veh/h	70	2443	92	31	2461	11	345	28	334	243	0	0
Arrive On Green	0.04	0.70	0.68	0.02	0.67	0.66	0.21	0.21	0.21	0.21	0.00	0.00
Sat Flow, veh/h	1792	3510	132	1792	3649	16	1447	136	1615	943	0	0
Grp Volume(v), veh/h	43	406	422	11	1197	1261	128	0	2	11	0	0
Grp Sat Flow(s),veh/h/ln	1792	1787	1854	1792	1787	1878	1583	0	1615	943	0	0
Q Serve(g_s), s	3.5	13.4	13.4	0.9	99.2	99.7	0.0	0.0	0.1	1.1	0.0	0.0
Cycle Q Clear(g_c), s	3.5	13.4	13.4	0.9	99.2	99.7	9.0	0.0	0.1	10.1	0.0	0.0
Prop In Lane	1.00		0.07	1.00		0.01	0.91		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	70	1244	1291	31	1205	1266	373	0	334	243	0	0
V/C Ratio(X)	0.62	0.33	0.33	0.36	0.99	1.00	0.34	0.00	0.01	0.05	0.00	0.00
Avail Cap(c_a), veh/h	84	1244	1291	84	1205	1266	373	0	334	243	0	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)	0.49	0.49	0.49	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	71.0	9.0	9.0	72.9	24.1	24.2	50.8	0.0	47.3	55.1	0.0	0.0
Incr Delay (d2), s/veh	4.7	0.3	0.3	6.9	24.4	24.2	2.5	0.0	0.0	0.1	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	1.8	6.7	6.9	0.5	56.7	59.6	4.8	0.0	0.1	0.4	0.0	0.0
LnGrp Delay(d),s/veh	75.7	9.3	9.3	79.8	48.5	48.4	53.3	0.0	47.3	55.2	0.0	0.0
LnGrp LOS	E	A	A	E	D	D	D		D	E		
Approach Vol, veh/h		871			2469			130			11	
Approach Delay, s/veh		12.6			48.6			53.2			55.2	
Approach LOS		B			D			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.6	108.4		35.0	9.8	105.2		35.0
Change Period (Y+Rc), s	4.0	5.7		4.6	4.0	5.7		4.6
Max Green Setting (Gmax), s	7.6	98.3		30.4	7.0	98.3		30.4
Max Q Clear Time (g_c+I1), s	2.9	15.4		12.1	5.5	101.7		11.0
Green Ext Time (p_c), s	0.0	5.7		0.0	0.0	0.0		0.6

Intersection Summary	
HCM 2010 Ctrl Delay	39.8
HCM 2010 LOS	D

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	50	80	590	90	250	1190
Future Volume (Veh/h)	50	80	590	90	250	1190
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	53	85	628	96	266	1266
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2474	676			724	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2474	676			724	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	81			70	
cM capacity (veh/h)	23	457			888	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	138	724	1532
Volume Left	53	0	266
Volume Right	85	96	0
cSH	56	1700	888
Volume to Capacity	2.45	0.43	0.30
Queue Length 95th (ft)	348	0	32
Control Delay (s)	815.0	0.0	10.8
Lane LOS	F		B
Approach Delay (s)	815.0	0.0	10.8
Approach LOS	F		

Intersection Summary			
Average Delay	53.9		
Intersection Capacity Utilization	130.7%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	240	600	120	190	1300	100	140	380	80	180	350	660
Future Volume (veh/h)	240	600	120	190	1300	100	140	380	80	180	350	660
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1881	1881	1900	1900	1776	1900	1900	1881	1881
Adj Flow Rate, veh/h	245	612	112	194	1327	99	143	388	79	184	357	361
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	1	1	1	7	7	7	1	1	1
Cap, veh/h	268	1072	196	220	1112	83	74	200	41	152	295	387
Arrive On Green	0.15	0.36	0.36	0.12	0.33	0.33	0.18	0.18	0.18	0.24	0.24	0.24
Sat Flow, veh/h	1774	2989	546	1792	3367	250	402	1092	222	629	1221	1599
Grp Volume(v), veh/h	245	362	362	194	702	724	610	0	0	541	0	361
Grp Sat Flow(s),veh/h/ln	1774	1770	1765	1792	1787	1830	1716	0	0	1850	0	1599
Q Serve(g_s), s	23.1	28.0	28.1	18.1	56.0	56.0	31.0	0.0	0.0	41.0	0.0	37.5
Cycle Q Clear(g_c), s	23.1	28.0	28.1	18.1	56.0	56.0	31.0	0.0	0.0	41.0	0.0	37.5
Prop In Lane	1.00		0.31	1.00		0.14	0.23		0.13	0.34		1.00
Lane Grp Cap(c), veh/h	268	634	633	220	590	604	314	0	0	447	0	387
V/C Ratio(X)	0.91	0.57	0.57	0.88	1.19	1.20	1.94	0.00	0.00	1.21	0.00	0.93
Avail Cap(c_a), veh/h	272	634	633	275	590	604	314	0	0	447	0	387
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	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	70.9	43.9	44.0	73.2	56.8	56.8	69.3	0.0	0.0	64.3	0.0	63.0
Incr Delay (d2), s/veh	32.8	1.2	1.2	23.1	101.7	104.2	436.5	0.0	0.0	113.7	0.0	29.6
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	13.7	13.9	13.9	10.4	44.2	45.7	52.7	0.0	0.0	35.0	0.0	19.8
LnGrp Delay(d),s/veh	103.7	45.1	45.2	96.3	158.5	161.1	505.9	0.0	0.0	178.0	0.0	92.6
LnGrp LOS	F	D	D	F	F	F	F			F		F
Approach Vol, veh/h		969			1620			610			902	
Approach Delay, s/veh		60.0			152.2			505.9			143.8	
Approach LOS		E			F			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	24.8	64.8		45.0	29.6	60.0		35.0
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	25.5	55.5		40.5	25.5	55.5		30.5
Max Q Clear Time (g_c+I1), s	20.1	30.1		43.0	25.1	58.0		33.0
Green Ext Time (p_c), s	0.2	4.7		0.0	0.0	0.0		0.0

Intersection Summary		
HCM 2010 Ctrl Delay		181.2
HCM 2010 LOS		F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	210	250	250	300	550	150	210	1040	50	100	1400	500
Future Volume (veh/h)	210	250	250	300	550	150	210	1040	50	100	1400	500
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	1863	1863	1863
Adj Flow Rate, veh/h	223	266	160	319	585	34	223	1106	26	106	1489	375
Adj No. of Lanes	2	2	1	2	2	1	2	2	1	2	2	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	285	617	276	377	711	318	277	1851	828	159	1730	774
Arrive On Green	0.08	0.17	0.17	0.11	0.20	0.20	0.08	0.52	0.52	0.05	0.49	0.49
Sat Flow, veh/h	3442	3539	1583	3442	3539	1583	3442	3539	1583	3442	3539	1583
Grp Volume(v), veh/h	223	266	160	319	585	34	223	1106	26	106	1489	375
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1770	1583	1721	1770	1583	1721	1770	1583
Q Serve(g_s), s	7.8	8.2	11.4	11.1	19.4	2.1	7.8	26.5	1.0	3.7	45.4	19.4
Cycle Q Clear(g_c), s	7.8	8.2	11.4	11.1	19.4	2.1	7.8	26.5	1.0	3.7	45.4	19.4
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	285	617	276	377	711	318	277	1851	828	159	1730	774
V/C Ratio(X)	0.78	0.43	0.58	0.85	0.82	0.11	0.81	0.60	0.03	0.67	0.86	0.48
Avail Cap(c_a), veh/h	436	1027	459	436	1027	459	295	2040	912	295	2040	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	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	55.0	45.1	46.4	53.5	46.8	39.9	55.3	20.2	14.2	57.4	27.6	21.0
Incr Delay (d2), s/veh	5.1	0.5	1.9	12.8	3.6	0.1	14.3	0.4	0.0	4.8	3.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	4.1	5.1	6.0	9.8	1.0	4.3	13.0	0.4	1.9	23.0	8.6
LnGrp Delay(d),s/veh	60.1	45.6	48.3	66.3	50.4	40.1	69.6	20.7	14.2	62.2	31.1	21.4
LnGrp LOS	E	D	D	E	D	D	E	C	B	E	C	C
Approach Vol, veh/h		649			938			1355			1970	
Approach Delay, s/veh		51.2			55.4			28.6			30.9	
Approach LOS		D			E			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	10.1	68.5	17.9	25.8	14.3	64.3	14.6	29.1
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	10.5	70.5	15.5	35.5	10.5	70.5	15.5	35.5
Max Q Clear Time (g_c+I1), s	15.7	28.5	13.1	13.4	9.8	47.4	9.8	21.4
Green Ext Time (p_c), s	0.1	8.6	0.3	2.2	0.1	12.4	0.4	3.2

Intersection Summary	
HCM 2010 Ctrl Delay	37.7
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	0	250	150	110	300	130	1150	0	0	760	60
Future Volume (veh/h)	110	0	250	150	110	300	130	1150	0	0	760	60
Number	3	8	18	7	4	14	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	1900	1881	1881	1863	1863	0	0	1881	1900
Adj Flow Rate, veh/h	120	0	40	163	120	212	141	1250	0	0	826	56
Adj No. of Lanes	2	0	1	0	1	1	1	3	0	0	4	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, %	1	1	1	1	1	1	2	2	0	0	1	1
Cap, veh/h	311	0	139	219	161	332	183	2411	0	0	1834	123
Arrive On Green	0.09	0.00	0.09	0.21	0.21	0.21	0.10	0.47	0.00	0.00	0.29	0.27
Sat Flow, veh/h	3583	0	1599	1053	775	1599	1774	5253	0	0	6504	419
Grp Volume(v), veh/h	120	0	40	283	0	212	141	1250	0	0	641	241
Grp Sat Flow(s),veh/h/ln	1792	0	1599	1829	0	1599	1774	1695	0	0	1618	1806
Q Serve(g_s), s	1.6	0.0	1.2	7.5	0.0	6.3	4.0	8.9	0.0	0.0	5.6	5.7
Cycle Q Clear(g_c), s	1.6	0.0	1.2	7.5	0.0	6.3	4.0	8.9	0.0	0.0	5.6	5.7
Prop In Lane	1.00		1.00	0.58		1.00	1.00		0.00	0.00		0.23
Lane Grp Cap(c), veh/h	311	0	139	380	0	332	183	2411	0	0	1426	531
V/C Ratio(X)	0.39	0.00	0.29	0.75	0.00	0.64	0.77	0.52	0.00	0.00	0.45	0.45
Avail Cap(c_a), veh/h	1797	0	802	1270	0	1110	719	7455	0	0	4774	1777
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	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	22.4	0.0	22.2	19.3	0.0	18.8	22.6	9.5	0.0	0.0	14.9	15.0
Incr Delay (d2), s/veh	0.6	0.0	0.8	1.1	0.0	0.8	2.6	0.2	0.0	0.0	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	0.0	0.6	3.9	0.0	2.8	2.1	4.1	0.0	0.0	2.5	2.9
LnGrp Delay(d),s/veh	22.9	0.0	23.0	20.4	0.0	19.5	25.2	9.7	0.0	0.0	15.1	15.6
LnGrp LOS	C		C	C		B	C	A			B	B
Approach Vol, veh/h		160			495			1391			882	
Approach Delay, s/veh		23.0			20.0			11.3			15.3	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		28.6		14.8	9.3	19.2		8.5
Change Period (Y+Rc), s		5.0		4.0	4.0	5.0		4.0
Max Green Setting (Gmax), s		75.0		36.0	21.0	50.0		26.0
Max Q Clear Time (g_c+I1), s		10.9		9.5	6.0	7.7		3.6
Green Ext Time (p_c), s		11.7		1.2	0.1	6.5		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	14.6
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1060	0	800	0	0	0	0	530	190	0	430	290
Future Volume (veh/h)	1060	0	800	0	0	0	0	530	190	0	430	290
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	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
Parking Bus, Adj	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				0	1881	1900	0	1900	1900
Adj Flow Rate, veh/h	1104	0	0				0	552	90	0	448	0
Adj No. of Lanes	2	0	1				0	3	0	0	2	1
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2				0	1	1	0	0	0
Cap, veh/h	1596	0	712				0	1472	236	0	1191	444
Arrive On Green	0.45	0.00	0.00				0.00	0.33	0.27	0.00	0.33	0.00
Sat Flow, veh/h	3548	0	1583				0	4632	716	0	3705	1615
Grp Volume(v), veh/h	1104	0	0				0	421	221	0	448	0
Grp Sat Flow(s),veh/h/ln	1774	0	1583				0	1712	1755	0	1805	1615
Q Serve(g_s), s	9.0	0.0	0.0				0.0	3.4	3.6	0.0	3.4	0.0
Cycle Q Clear(g_c), s	9.0	0.0	0.0				0.0	3.4	3.6	0.0	3.4	0.0
Prop In Lane	1.00		1.00				0.00		0.41	0.00		1.00
Lane Grp Cap(c), veh/h	1596	0	712				0	1129	579	0	1191	444
V/C Ratio(X)	0.69	0.00	0.00				0.00	0.37	0.38	0.00	0.38	0.00
Avail Cap(c_a), veh/h	3515	0	1569				0	7161	3671	0	7551	3289
HCM Platoon Ratio	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	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	8.0	0.0	0.0				0.0	9.3	9.7	0.0	9.3	0.0
Incr Delay (d2), s/veh	0.5	0.0	0.0				0.0	0.2	0.4	0.0	0.2	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
%ile BackOfQ(50%),veh/ln	4.4	0.0	0.0				0.0	1.6	1.8	0.0	1.7	0.0
LnGrp Delay(d),s/veh	8.5	0.0	0.0				0.0	9.5	10.1	0.0	9.5	0.0
LnGrp LOS	A							A	B		A	
Approach Vol, veh/h		1104						642			448	
Approach Delay, s/veh		8.5						9.7			9.5	
Approach LOS		A						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		16.0		20.3		16.0		
Change Period (Y+Rc), s		6.0		4.5		6.0		
Max Green Setting (Gmax), s		74.0		35.5		74.0		
Max Q Clear Time (g_c+I1), s		5.6		11.0		5.4		
Green Ext Time (p_c), s		4.4		4.8		3.1		

Intersection Summary	
HCM 2010 Ctrl Delay	9.1
HCM 2010 LOS	A

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	170	1100	30	160	890	290	60	260	130	660	370	200
Future Volume (veh/h)	170	1100	30	160	890	290	60	260	130	660	370	200
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	1900	1900	1900	1900	1881	1881	1900	1900	1900	1900
Adj Flow Rate, veh/h	173	1122	30	163	908	210	61	265	89	673	378	157
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	2	2	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	0	0	0	1	1	1	0	0	0
Cap, veh/h	211	1211	32	181	1173	525	95	392	129	1057	991	406
Arrive On Green	0.12	0.34	0.33	0.10	0.32	0.32	0.05	0.15	0.13	0.30	0.40	0.38
Sat Flow, veh/h	1774	3521	94	1810	3610	1615	1792	2645	868	3510	2500	1024
Grp Volume(v), veh/h	173	564	588	163	908	210	61	177	177	673	271	264
Grp Sat Flow(s),veh/h/ln	1774	1770	1846	1810	1805	1615	1792	1787	1726	1755	1805	1719
Q Serve(g_s), s	14.3	46.0	46.0	13.4	34.0	15.1	5.0	14.1	14.7	24.9	16.0	16.6
Cycle Q Clear(g_c), s	14.3	46.0	46.0	13.4	34.0	15.1	5.0	14.1	14.7	24.9	16.0	16.6
Prop In Lane	1.00		0.05	1.00		1.00	1.00		0.50	1.00		0.60
Lane Grp Cap(c), veh/h	211	609	635	181	1173	525	95	265	256	1057	715	681
V/C Ratio(X)	0.82	0.93	0.93	0.90	0.77	0.40	0.64	0.67	0.69	0.64	0.38	0.39
Avail Cap(c_a), veh/h	234	613	640	181	1173	525	141	393	380	1057	715	681
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	0.72	0.72	0.72
Uniform Delay (d), s/veh	64.5	47.4	47.5	66.8	45.7	39.3	69.6	60.4	61.4	45.3	32.2	33.0
Incr Delay (d2), s/veh	18.6	20.2	19.6	40.2	3.3	0.5	7.0	4.6	5.2	0.9	0.4	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	8.1	26.0	27.0	8.7	17.6	6.8	2.7	7.3	7.4	12.2	8.1	8.0
LnGrp Delay(d),s/veh	83.1	67.6	67.1	106.9	49.0	39.8	76.6	65.0	66.6	46.2	32.6	33.4
LnGrp LOS	F	E	E	F	D	D	E	E	E	D	C	C
Approach Vol, veh/h		1325			1281			415			1208	
Approach Delay, s/veh		69.4			54.8			67.4			40.4	
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	49.2	26.2	19.0	55.6	12.0	63.4	21.9	52.7
Change Period (Y+Rc), s	5.5	7.0	6.0	6.7	5.5	7.0	5.5	6.7
Max Green Setting (Gmax), s	32.5	30.0	13.0	49.3	10.3	52.2	18.3	44.5
Max Q Clear Time (g_c+I1), s	26.9	16.7	15.4	48.0	7.0	18.6	16.3	36.0
Green Ext Time (p_c), s	1.4	2.3	0.0	0.8	0.0	5.4	0.1	4.1

Intersection Summary	
HCM 2010 Ctrl Delay	56.5
HCM 2010 LOS	E

Notes

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1720	50	0	1360	0	20
Future Vol, veh/h	1720	50	0	1360	0	20
Conflicting Peds, #/hr	0	3	3	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	99	99	99	99	99	99
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	1737	51	0	1374	0	20

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	897
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	-	-	0	-	0	287
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	286
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	18.5
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	286	-	-	-
HCM Lane V/C Ratio	0.071	-	-	-
HCM Control Delay (s)	18.5	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	0.2	-	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	1650	80	110	1290	0	70	0	80	0	0	0
Future Volume (veh/h)	10	1650	80	110	1290	0	70	0	80	0	0	0
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1900	1900	1900	1900	1863	1863	1900
Adj Flow Rate, veh/h	10	1701	66	113	1330	0	72	0	5	0	0	0
Adj No. of Lanes	1	2	1	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	1	1	1	1	0	0	0	2	2	2
Cap, veh/h	40	2828	1261	131	3009	0	97	105	90	1	1	0
Arrive On Green	0.02	0.79	0.79	0.15	1.00	0.00	0.05	0.00	0.06	0.00	0.00	0.00
Sat Flow, veh/h	1792	3574	1594	1792	3668	0	1810	1900	1615	1774	1863	0
Grp Volume(v), veh/h	10	1701	66	113	1330	0	72	0	5	0	0	0
Grp Sat Flow(s),veh/h/ln	1792	1787	1594	1792	1787	0	1810	1900	1615	1774	1863	0
Q Serve(g_s), s	0.8	28.4	1.4	9.2	0.0	0.0	5.9	0.0	0.4	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.8	28.4	1.4	9.2	0.0	0.0	5.9	0.0	0.4	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	40	2828	1261	131	3009	0	97	105	90	1	1	0
V/C Ratio(X)	0.25	0.60	0.05	0.86	0.44	0.00	0.75	0.00	0.06	0.00	0.00	0.00
Avail Cap(c_a), veh/h	96	2828	1261	131	3009	0	97	476	405	95	467	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.85	0.85	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	72.1	6.2	3.4	63.2	0.0	0.0	70.0	0.0	67.1	0.0	0.0	0.0
Incr Delay (d2), s/veh	3.1	1.0	0.1	35.7	0.4	0.0	26.7	0.0	0.3	0.0	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	0.4	14.3	0.6	5.9	0.2	0.0	3.7	0.0	0.2	0.0	0.0	0.0
LnGrp Delay(d),s/veh	75.2	7.2	3.5	99.0	0.4	0.0	96.7	0.0	67.4	0.0	0.0	0.0
LnGrp LOS	E	A	A	F	A		F		E			
Approach Vol, veh/h		1777			1443			77			0	
Approach Delay, s/veh		7.4			8.1			94.8			0.0	
Approach LOS		A			A			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	7.4	130.3	0.0	12.3	15.0	122.7	12.0	0.3
Change Period (Y+Rc), s	5.0	6.7	5.0	5.6	5.0	6.7	5.0	5.6
Max Green Setting (Gmax), s	7.0	77.7	7.0	36.0	10.0	74.7	7.0	36.0
Max Q Clear Time (g_c+I1), s	2.8	2.0	0.0	2.4	11.2	30.4	7.9	0.0
Green Ext Time (p_c), s	0.0	13.1	0.0	0.0	0.0	19.1	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	9.8
HCM 2010 LOS	A

Notes

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1670	60	30	1270	130	50
Future Volume (veh/h)	1670	60	30	1270	130	50
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.97	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	1900	1900	1881	1881	1881	1881
Adj Flow Rate, veh/h	1898	67	34	1443	148	8
Adj No. of Lanes	2	0	1	2	1	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	0	0	1	1	1	1
Cap, veh/h	2756	97	75	3000	184	164
Arrive On Green	1.00	1.00	0.04	0.84	0.10	0.10
Sat Flow, veh/h	3649	125	1792	3668	1792	1599
Grp Volume(v), veh/h	957	1008	34	1443	148	8
Grp Sat Flow(s),veh/h/ln	1805	1874	1792	1787	1792	1599
Q Serve(g_s), s	0.0	0.0	2.8	16.3	12.1	0.7
Cycle Q Clear(g_c), s	0.0	0.0	2.8	16.3	12.1	0.7
Prop In Lane		0.07	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1400	1453	75	3000	184	164
V/C Ratio(X)	0.68	0.69	0.45	0.48	0.81	0.05
Avail Cap(c_a), veh/h	1400	1453	143	3000	311	277
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.78	0.78	0.09	0.09	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	70.2	3.2	65.8	60.7
Incr Delay (d2), s/veh	2.1	2.2	0.4	0.1	8.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.9	1.4	7.8	6.4	0.3
LnGrp Delay(d),s/veh	2.1	2.2	70.5	3.3	73.9	60.8
LnGrp LOS	A	A	E	A	E	E
Approach Vol, veh/h	1965			1477	156	
Approach Delay, s/veh	2.1			4.8	73.2	
Approach LOS	A			A	E	

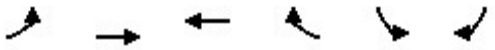
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	10.3	120.3				130.6		19.4
Change Period (Y+Rc), s	5.0	6.7				* 6.7		5.0
Max Green Setting (Gmax), s	1.6	97.3				* 1.1E2		25.0
Max Q Clear Time (g_c+I1), s	4.8	2.0				18.3		14.1
Green Ext Time (p_c), s	0.0	50.8				28.5		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	6.3
HCM 2010 LOS	A

Notes

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1610	90	140	1290	60	90
Future Volume (vph)	1610	90	140	1290	60	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0		4.0	4.0	4.0	
Lane Util. Factor	0.95		1.00	0.95	1.00	
Frpb, ped/bikes	1.00		1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00	1.00	1.00	
Frt	0.99		1.00	1.00	0.92	
Flt Protected	1.00		0.95	1.00	0.98	
Satd. Flow (prot)	3570		1787	3574	1712	
Flt Permitted	1.00		0.95	1.00	0.98	
Satd. Flow (perm)	3570		1787	3574	1712	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	1809	101	157	1449	67	101
RTOR Reduction (vph)	3	0	0	0	36	0
Lane Group Flow (vph)	1907	0	157	1449	132	0
Confl. Peds. (#/hr)		13				
Confl. Bikes (#/hr)		1				
Heavy Vehicles (%)	0%	0%	1%	1%	0%	0%
Turn Type	NA		Prot	NA	Prot	
Protected Phases	2		1	6 3 5	7	
Permitted Phases						
Actuated Green, G (s)	81.4		13.0	128.9	11.0	
Effective Green, g (s)	83.4		14.0	126.4	12.0	
Actuated g/C Ratio	0.56		0.09	0.84	0.08	
Clearance Time (s)	5.0		5.0		5.0	
Vehicle Extension (s)	3.0		3.0		3.0	
Lane Grp Cap (vph)	1984		166	3011	136	
v/s Ratio Prot	c0.53		c0.09	c0.41	c0.08	
v/s Ratio Perm						
v/c Ratio	0.96		0.95	0.48	0.97	
Uniform Delay, d1	31.8		67.6	3.1	68.8	
Progression Factor	1.00		1.39	0.02	1.00	
Incremental Delay, d2	12.9		40.5	0.1	68.1	
Delay (s)	44.7		134.6	0.1	136.9	
Level of Service	D		F	A	F	
Approach Delay (s)	44.7			13.3	136.9	
Approach LOS	D			B	F	

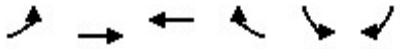
Intersection Summary			
HCM 2000 Control Delay	35.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	15.6
Intersection Capacity Utilization	74.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	70	1630	1390	20	170	40
Future Volume (vph)	70	1630	1390	20	170	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	3.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	*0.70		1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	1.00		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1805	3610	3942		1752	1568
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1805	3610	3942		1752	1568
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	83	1940	1655	24	202	48
RTOR Reduction (vph)	0	0	1	0	0	40
Lane Group Flow (vph)	83	1940	1678	0	202	8
Confl. Peds. (#/hr)					24	
Heavy Vehicles (%)	0%	0%	1%	1%	3%	3%
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	5	2 1 7	6		3	
Permitted Phases						3
Actuated Green, G (s)	13.5	115.4	81.4		24.5	24.5
Effective Green, g (s)	13.5	117.4	82.4		25.6	25.6
Actuated g/C Ratio	0.09	0.78	0.55		0.17	0.17
Clearance Time (s)	4.5		5.0		5.1	5.1
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	162	2825	2165		299	267
v/s Ratio Prot	0.05	c0.54	c0.43		c0.12	
v/s Ratio Perm						0.01
v/c Ratio	0.51	0.69	0.78		0.68	0.03
Uniform Delay, d1	65.1	7.7	26.5		58.3	51.9
Progression Factor	0.62	0.23	1.00		1.00	1.00
Incremental Delay, d2	1.1	0.3	2.8		5.9	0.0
Delay (s)	41.2	2.0	29.3		64.2	51.9
Level of Service	D	A	C		E	D
Approach Delay (s)		3.6	29.3		61.9	
Approach LOS		A	C		E	

Intersection Summary			
HCM 2000 Control Delay	18.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	61.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	40	1760	1320	160	390	90
Future Volume (veh/h)	40	1760	1320	160	390	90
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	44	1956	1467	171	433	36
Adj No. of Lanes	1	2	2	0	1	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	77	2418	1961	227	460	411
Arrive On Green	0.04	0.68	1.00	1.00	0.26	0.26
Sat Flow, veh/h	1774	3632	3291	369	1774	1583
Grp Volume(v), veh/h	44	1956	806	832	433	36
Grp Sat Flow(s),veh/h/ln	1774	1770	1770	1797	1774	1583
Q Serve(g_s), s	3.7	58.7	0.0	0.0	35.9	2.6
Cycle Q Clear(g_c), s	3.7	58.7	0.0	0.0	35.9	2.6
Prop In Lane	1.00			0.21	1.00	1.00
Lane Grp Cap(c), veh/h	77	2418	1085	1102	460	411
V/C Ratio(X)	0.57	0.81	0.74	0.75	0.94	0.09
Avail Cap(c_a), veh/h	95	2418	1085	1102	549	490
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.52	0.52	1.00	1.00
Uniform Delay (d), s/veh	70.4	16.8	0.0	0.0	54.4	42.1
Incr Delay (d2), s/veh	0.6	0.3	2.5	2.6	22.5	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	1.8	28.6	0.7	0.8	20.4	2.6
LnGrp Delay(d),s/veh	71.0	17.1	2.5	2.6	76.9	42.2
LnGrp LOS	E	B	A	A	E	D
Approach Vol, veh/h		2000	1638		469	
Approach Delay, s/veh		18.3	2.5		74.2	
Approach LOS		B	A		E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		106.5		43.5	10.5	96.0		
Change Period (Y+Rc), s		4.6		4.6	4.6	4.6		
Max Green Setting (Gmax), s		94.4		46.4	7.4	82.4		
Max Q Clear Time (g_c+I1), s		60.7		37.9	5.7	2.0		
Green Ext Time (p_c), s		21.6		1.1	0.0	20.8		

Intersection Summary	
HCM 2010 Ctrl Delay	18.4
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	2080	40	160	1390	100	30	20	130	230	30	60
Future Volume (veh/h)	30	2080	40	160	1390	100	30	20	130	230	30	60
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		0.95	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1896	1900	1863	1863	1900
Adj Flow Rate, veh/h	33	2261	42	174	1511	106	33	22	78	250	33	15
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	2	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	71	2130	39	154	2145	150	41	28	98	313	110	50
Arrive On Green	0.08	1.00	1.00	0.09	0.64	0.63	0.11	0.10	0.10	0.09	0.09	0.09
Sat Flow, veh/h	1774	3553	66	1774	3357	234	408	272	965	3442	1214	552
Grp Volume(v), veh/h	33	1122	1181	174	793	824	133	0	0	250	0	48
Grp Sat Flow(s),veh/h/ln	1774	1770	1849	1774	1770	1821	1645	0	0	1721	0	1765
Q Serve(g_s), s	2.7	89.9	89.0	13.0	43.9	44.8	11.8	0.0	0.0	10.7	0.0	3.8
Cycle Q Clear(g_c), s	2.7	89.9	89.0	13.0	43.9	44.8	11.8	0.0	0.0	10.7	0.0	3.8
Prop In Lane	1.00		0.04	1.00		0.13	0.25		0.59	1.00		0.31
Lane Grp Cap(c), veh/h	71	1061	1108	154	1131	1164	167	0	0	313	0	160
V/C Ratio(X)	0.47	1.06	1.07	1.13	0.70	0.71	0.80	0.00	0.00	0.80	0.00	0.30
Avail Cap(c_a), veh/h	95	1061	1108	154	1131	1164	197	0	0	619	0	318
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.43	0.43	0.43	0.48	0.48	0.48	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	67.5	0.0	0.0	68.5	17.7	17.9	65.7	0.0	0.0	66.8	0.0	63.7
Incr Delay (d2), s/veh	2.1	35.6	38.3	90.8	1.8	1.8	17.3	0.0	0.0	4.7	0.0	1.0
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	10.5	11.8	10.2	21.9	23.0	6.2	0.0	0.0	5.3	0.0	1.9
LnGrp Delay(d),s/veh	69.6	35.6	38.3	159.3	19.5	19.7	83.1	0.0	0.0	71.5	0.0	64.7
LnGrp LOS	E	F	F	F	B	B	F			E		E
Approach Vol, veh/h		2336			1791			133			298	
Approach Delay, s/veh		37.4			33.2			83.1			70.5	
Approach LOS		D			C			F			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	17.0	93.9		18.7	11.1	99.9		20.3
Change Period (Y+Rc), s	5.1	5.5		5.1	5.1	5.5		5.1
Max Green Setting (Gmax), s	11.9	72.3		27.0	8.0	76.2		18.0
Max Q Clear Time (g_c+I1), s	15.0	91.9		12.7	4.7	46.8		13.8
Green Ext Time (p_c), s	0.0	0.0		1.0	0.0	14.7		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	39.2
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	230	150	120	290	1370	770	90	690	140
Future Volume (veh/h)	0	0	0	230	150	120	290	1370	770	90	690	140
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.98	1.00		0.97	1.00		0.96
Parking Bus, Adj				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	1900	1900	1881	1881	1900	1863	1863	1900
Adj Flow Rate, veh/h				256	167	133	322	1522	770	100	767	156
Adj No. of Lanes				0	2	0	2	3	0	1	2	0
Peak Hour Factor				0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %				0	0	0	1	1	1	2	2	2
Cap, veh/h				335	233	189	459	1866	848	156	1458	297
Arrive On Green				0.21	0.21	0.20	0.13	0.55	0.53	0.09	0.50	0.49
Sat Flow, veh/h				1567	1090	886	3476	3424	1557	1774	2910	592
Grp Volume(v), veh/h				298	0	258	322	1522	770	100	466	457
Grp Sat Flow(s),veh/h/ln				1822	0	1721	1738	1712	1557	1774	1770	1732
Q Serve(g_s), s				12.0	0.0	10.9	6.9	28.5	35.1	4.3	14.0	14.1
Cycle Q Clear(g_c), s				12.0	0.0	10.9	6.9	28.5	35.1	4.3	14.0	14.1
Prop In Lane				0.86		0.51	1.00		1.00	1.00		0.34
Lane Grp Cap(c), veh/h				389	0	368	459	1866	848	156	887	868
V/C Ratio(X)				0.76	0.00	0.70	0.70	0.82	0.91	0.64	0.53	0.53
Avail Cap(c_a), veh/h				467	0	441	2248	1882	856	582	973	952
HCM Platoon Ratio				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
Uniform Delay (d), s/veh				29.0	0.0	28.8	32.5	14.6	16.6	34.5	13.2	13.4
Incr Delay (d2), s/veh				4.8	0.0	2.7	1.1	2.9	13.3	1.6	0.5	0.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				6.5	0.0	5.5	3.4	14.1	17.9	2.2	6.9	6.7
LnGrp Delay(d),s/veh				33.7	0.0	31.5	33.6	17.5	29.9	36.2	13.7	13.9
LnGrp LOS				C		C	C	B	C	D	B	B
Approach Vol, veh/h					556			2614			1023	
Approach Delay, s/veh					32.7			23.1			16.0	
Approach LOS					C			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2			5	6		8
Phs Duration (G+Y+Rc), s	10.9	46.7			14.3	43.3		20.8
Change Period (Y+Rc), s	* 4.7	5.1			* 4.7	5.1		5.1
Max Green Setting (Gmax), s	* 25	42.0			* 50	42.0		19.0
Max Q Clear Time (g_c+I1), s	16.3	37.1			8.9	16.1		14.0
Green Ext Time (p_c), s	0.0	4.5			0.7	6.4		1.1

Intersection Summary	
HCM 2010 Ctrl Delay	22.7
HCM 2010 LOS	C

Notes

Intersection	
Int Delay, s/veh	66.9

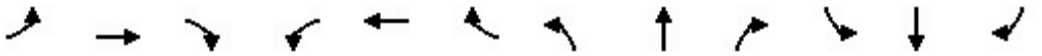
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	600	0	0	360	0	2070	0	0	920	0
Future Vol, veh/h	0	0	600	0	0	360	0	2070	0	0	920	0
Conflicting Peds, #/hr	0	0	0	0	0	0	33	0	7	7	0	33
Sign Control	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	0	0	0	1	1	1	2	2	2
Mvmt Flow	0	0	652	0	0	391	0	2250	0	0	1000	0

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	-	-	1125	-	0	-	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.1	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.9	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	~ 174	0	-	0	0	-	0
Stage 1	0	0	-	0	-	0	0	-	0
Stage 2	0	0	-	0	-	0	0	-	0
Platoon blocked, %					-			-	
Mov Cap-1 Maneuver	-	0	~ 174	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	0	-	-	-	-	-	-	-
Stage 1	-	0	-	-	-	-	-	-	-
Stage 2	-	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 622.8	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	174	-
HCM Lane V/C Ratio	-	2.249	-
HCM Control Delay (s)	-	$ 622.8	-
HCM Lane LOS	-	F	-
HCM 95th %tile Q(veh)	-	31.8	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	210	720	0	0	750	0	1200	490	310	1020	190
Future Volume (vph)	120	210	720	0	0	750	0	1200	490	310	1020	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0			4.0		4.0	2.0	4.0	2.0	2.0
Lane Util. Factor		0.95	1.00			1.00		0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes		1.00	0.99			1.00		1.00	0.99	1.00	1.00	0.90
Flpb, ped/bikes		1.00	1.00			1.00		1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.85			0.85		1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98	1.00			1.00		1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		3546	1598			1599		3574	1581	3433	3539	1428
Flt Permitted		0.98	1.00			1.00		1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		3546	1598			1599		3574	1581	3433	3539	1428
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	133	233	800	0	0	833	0	1333	544	344	1133	211
RTOR Reduction (vph)	0	0	20	0	0	0	0	0	92	0	0	106
Lane Group Flow (vph)	0	366	780	0	0	833	0	1333	452	344	1133	105
Confl. Peds. (#/hr)			12						1			29
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	1%	2%	2%	2%
Turn Type	Split	NA	custom			custom		NA	custom	Prot	NA	custom
Protected Phases	4!	4	5	3!	3!	1 2 4!		2 3!	3	1	3 6!	3!
Permitted Phases			4						2			6
Actuated Green, G (s)		29.1	65.9			106.0		74.2	69.2	14.7	51.1	46.1
Effective Green, g (s)		30.1	67.9			101.0		75.2	71.2	14.7	48.1	48.1
Actuated g/C Ratio		0.23	0.52			0.78		0.58	0.55	0.11	0.37	0.37
Clearance Time (s)		5.0	5.0						3.0	4.0		3.0
Vehicle Extension (s)		2.0	2.0						2.0	2.0		2.0
Lane Grp Cap (vph)		821	883			1242		2067	865	388	1309	528
v/s Ratio Prot		0.10	c0.26			0.52		0.37	0.07	0.10	c0.32	0.03
v/s Ratio Perm			0.23						0.22			0.05
v/c Ratio		0.45	0.88			0.67		0.64	0.52	0.89	0.87	0.20
Uniform Delay, d1		42.8	27.5			6.8		18.4	18.6	56.8	38.0	27.8
Progression Factor		1.00	1.00			1.00		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.1	10.1			1.1		0.5	0.3	20.3	6.0	0.1
Delay (s)		42.9	37.7			7.9		18.9	18.9	77.2	44.0	27.9
Level of Service		D	D			A		B	B	E	D	C
Approach Delay (s)		39.3			7.9			18.9			48.7	
Approach LOS		D			A			B			D	

Intersection Summary			
HCM 2000 Control Delay	30.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	106.0%	ICU Level of Service	G
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	660	1690	90	60	750	470	300	500	180	510	530	500
Future Volume (veh/h)	660	1690	90	60	750	470	300	500	180	510	530	500
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		0.98	1.00		0.99	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	1900	1900	1900	1900	1900	1900	1881	1881	1881
Adj Flow Rate, veh/h	673	1724	90	61	765	269	306	510	165	520	541	304
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	2	1	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	1	1	1	0	0	0	0	0	0	1	1	1
Cap, veh/h	307	1289	67	92	928	412	339	784	252	607	525	446
Arrive On Green	0.17	0.37	0.36	0.05	0.26	0.26	0.19	0.29	0.28	0.17	0.28	0.28
Sat Flow, veh/h	1792	3453	179	1810	3610	1600	1810	2686	864	3476	1881	1597
Grp Volume(v), veh/h	673	886	928	61	765	269	306	342	333	520	541	304
Grp Sat Flow(s),veh/h/ln	1792	1787	1845	1810	1805	1600	1810	1805	1745	1738	1881	1597
Q Serve(g_s), s	26.1	56.9	56.9	5.0	30.4	22.9	25.2	25.2	25.5	22.1	42.5	25.8
Cycle Q Clear(g_c), s	26.1	56.9	56.9	5.0	30.4	22.9	25.2	25.2	25.5	22.1	42.5	25.8
Prop In Lane	1.00		0.10	1.00		1.00	1.00		0.50	1.00		1.00
Lane Grp Cap(c), veh/h	307	667	689	92	928	412	339	527	510	607	525	446
V/C Ratio(X)	2.19	1.33	1.35	0.66	0.82	0.65	0.90	0.65	0.65	0.86	1.03	0.68
Avail Cap(c_a), veh/h	307	667	689	393	1095	485	369	527	510	778	525	446
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	63.1	47.7	47.8	71.0	53.3	50.5	60.5	47.1	47.6	61.0	54.9	48.9
Incr Delay (d2), s/veh	547.3	158.0	166.1	8.0	4.5	2.5	23.3	2.8	3.0	7.6	47.4	4.2
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	59.5	57.2	60.6	2.7	15.8	10.4	14.8	12.9	12.8	11.3	28.9	11.9
LnGrp Delay(d),s/veh	610.4	205.7	213.9	79.0	57.9	53.0	83.9	49.9	50.5	68.7	102.4	53.1
LnGrp LOS	F	F	F	E	E	D	F	D	D	E	F	D
Approach Vol, veh/h		2487			1095			981			1365	
Approach Delay, s/veh		318.3			57.8			60.7			78.6	
Approach LOS		F			E			E			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	30.6	48.5	11.7	61.6	32.6	46.5	30.1	43.2
Change Period (Y+Rc), s	5.1	5.5	5.1	* 6.2	5.1	5.5	5.1	6.2
Max Green Setting (Gmax), s	33.6	40.0	32.0	* 50	30.0	41.0	25.0	44.0
Max Q Clear Time (g_c+I1), s	24.1	27.5	7.0	58.9	27.2	44.5	28.1	32.4
Green Ext Time (p_c), s	1.4	3.4	0.1	0.0	0.3	0.0	0.0	4.6

Intersection Summary	
HCM 2010 Ctrl Delay	172.3
HCM 2010 LOS	F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	2250	50	10	1200	10	30	0	10	10	0	10
Future Volume (veh/h)	10	2250	50	10	1200	10	30	0	10	10	0	10
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	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	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	11	2528	55	11	1348	11	34	0	2	11	0	0
Adj No. of Lanes	1	2	0	1	2	0	0	1	1	0	1	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	1	1	1	1	1	1	0	0	0	0	0	0
Cap, veh/h	31	2498	54	31	2539	21	349	0	328	319	0	0
Arrive On Green	0.02	0.70	0.69	0.02	0.70	0.69	0.20	0.00	0.20	0.20	0.00	0.00
Sat Flow, veh/h	1792	3575	77	1792	3633	30	1477	0	1610	1326	0	0
Grp Volume(v), veh/h	11	1258	1325	11	663	696	34	0	2	11	0	0
Grp Sat Flow(s),veh/h/ln	1792	1787	1865	1792	1787	1876	1477	0	1610	1326	0	0
Q Serve(g_s), s	0.9	104.8	104.8	0.9	26.6	26.7	0.0	0.0	0.1	0.9	0.0	0.0
Cycle Q Clear(g_c), s	0.9	104.8	104.8	0.9	26.6	26.7	2.3	0.0	0.1	3.2	0.0	0.0
Prop In Lane	1.00		0.04	1.00		0.02	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	31	1249	1304	31	1249	1311	349	0	328	319	0	0
V/C Ratio(X)	0.36	1.01	1.02	0.36	0.53	0.53	0.10	0.00	0.01	0.03	0.00	0.00
Avail Cap(c_a), veh/h	84	1249	1304	84	1249	1311	349	0	328	319	0	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)	0.09	0.09	0.09	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	72.9	22.6	22.6	72.9	10.8	10.8	48.4	0.0	47.6	49.7	0.0	0.0
Incr Delay (d2), s/veh	0.6	9.6	12.0	6.9	1.6	1.5	0.6	0.0	0.0	0.0	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	0.5	54.3	57.6	0.5	13.6	14.3	1.2	0.0	0.1	0.4	0.0	0.0
LnGrp Delay(d),s/veh	73.5	32.1	34.6	79.8	12.4	12.4	49.0	0.0	47.6	49.8	0.0	0.0
LnGrp LOS	E	F	F	E	B	B	D		D	D		
Approach Vol, veh/h		2594			1370			36			11	
Approach Delay, s/veh		33.6			12.9			48.9			49.8	
Approach LOS		C			B			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.6	108.8		34.6	6.6	108.8		34.6
Change Period (Y+Rc), s	4.0	5.7		4.6	4.0	5.7		4.6
Max Green Setting (Gmax), s	7.6	98.7		30.0	7.0	98.7		30.0
Max Q Clear Time (g_c+I1), s	2.9	106.8		5.2	2.9	28.7		4.3
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	12.6		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	26.7
HCM 2010 LOS	C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	30	80	1120	50	30	600
Future Volume (Veh/h)	30	80	1120	50	30	600
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	32	85	1191	53	32	638
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1920	1218			1244	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1920	1218			1244	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	54	62			94	
cM capacity (veh/h)	70	221			567	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	117	1244	670
Volume Left	32	0	32
Volume Right	85	53	0
cSH	139	1700	567
Volume to Capacity	0.84	0.73	0.06
Queue Length 95th (ft)	134	0	4
Control Delay (s)	100.0	0.0	1.6
Lane LOS	F		A
Approach Delay (s)	100.0	0.0	1.6
Approach LOS	F		

Intersection Summary			
Average Delay	6.3		
Intersection Capacity Utilization	75.2%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	460	1280	110	60	660	150	120	560	90	150	360	150
Future Volume (veh/h)	460	1280	110	60	660	150	120	560	90	150	360	150
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	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	1900	1900	1881	1881	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	469	1306	108	61	673	141	122	571	89	153	367	35
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	1	1	1	0	0	0	0	0	0
Cap, veh/h	303	1303	107	84	783	164	58	269	42	145	349	426
Arrive On Green	0.17	0.39	0.38	0.05	0.27	0.26	0.20	0.20	0.20	0.26	0.26	0.26
Sat Flow, veh/h	1810	3370	278	1792	2943	616	288	1350	210	551	1322	1615
Grp Volume(v), veh/h	469	697	717	61	408	406	782	0	0	520	0	35
Grp Sat Flow(s),veh/h/ln	1810	1805	1843	1792	1787	1772	1848	0	0	1872	0	1615
Q Serve(g_s), s	26.0	60.0	60.0	5.2	33.8	33.8	31.0	0.0	0.0	41.0	0.0	2.5
Cycle Q Clear(g_c), s	26.0	60.0	60.0	5.2	33.8	33.8	31.0	0.0	0.0	41.0	0.0	2.5
Prop In Lane	1.00		0.15	1.00		0.35	0.16		0.11	0.29		1.00
Lane Grp Cap(c), veh/h	303	698	712	84	475	472	369	0	0	494	0	426
V/C Ratio(X)	1.55	1.00	1.01	0.73	0.86	0.86	2.12	0.00	0.00	1.05	0.00	0.08
Avail Cap(c_a), veh/h	303	698	712	300	644	639	369	0	0	494	0	426
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	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	64.7	47.6	47.7	73.0	54.2	54.3	62.2	0.0	0.0	57.2	0.0	43.0
Incr Delay (d2), s/veh	262.5	34.0	35.2	11.2	8.6	8.8	512.9	0.0	0.0	54.9	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	35.0	36.4	37.4	2.9	17.8	17.7	68.3	0.0	0.0	28.7	0.0	1.1
LnGrp Delay(d),s/veh	327.2	81.6	82.9	84.2	62.9	63.1	575.1	0.0	0.0	112.0	0.0	43.1
LnGrp LOS	F	F	F	F	E	E	F			F		D
Approach Vol, veh/h		1883			875			782			555	
Approach Delay, s/veh		143.3			64.5			575.1			107.7	
Approach LOS		F			E			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.3	64.0		45.0	30.0	45.3		35.0
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	25.5	55.5		40.5	25.5	55.5		30.5
Max Q Clear Time (g_c+I1), s	7.2	62.0		43.0	28.0	35.8		33.0
Green Ext Time (p_c), s	0.1	0.0		0.0	0.0	5.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	204.1
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	250	650	150	250	450	100	120	1700	240	150	1100	300
Future Volume (veh/h)	250	650	150	250	450	100	120	1700	240	150	1100	300
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	1863	1863	1863
Adj Flow Rate, veh/h	260	677	38	260	469	23	125	1771	156	156	1146	179
Adj No. of Lanes	2	2	1	2	2	1	2	2	1	2	2	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	311	775	347	311	775	347	173	1779	796	205	1812	810
Arrive On Green	0.09	0.22	0.22	0.09	0.22	0.22	0.05	0.50	0.50	0.06	0.51	0.51
Sat Flow, veh/h	3442	3539	1583	3442	3539	1583	3442	3539	1583	3442	3539	1583
Grp Volume(v), veh/h	260	677	38	260	469	23	125	1771	156	156	1146	179
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1770	1583	1721	1770	1583	1721	1770	1583
Q Serve(g_s), s	10.4	25.9	2.7	10.4	16.7	1.6	5.0	69.8	7.6	6.3	32.8	8.7
Cycle Q Clear(g_c), s	10.4	25.9	2.7	10.4	16.7	1.6	5.0	69.8	7.6	6.3	32.8	8.7
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	311	775	347	311	775	347	173	1779	796	205	1812	810
V/C Ratio(X)	0.83	0.87	0.11	0.84	0.61	0.07	0.72	1.00	0.20	0.76	0.63	0.22
Avail Cap(c_a), veh/h	380	896	401	380	896	401	258	1779	796	258	1812	810
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	62.7	52.9	43.8	62.7	49.3	43.4	65.6	34.7	19.2	65.0	24.7	18.8
Incr Delay (d2), s/veh	12.6	8.6	0.1	12.6	0.9	0.1	5.6	20.2	0.1	9.9	0.7	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	5.5	13.6	1.2	5.5	8.3	0.7	2.5	38.9	3.4	3.3	16.1	3.8
LnGrp Delay(d),s/veh	75.3	61.5	44.0	75.4	50.2	43.5	71.2	54.9	19.3	74.8	25.4	19.0
LnGrp LOS	E	E	D	E	D	D	E	D	B	E	C	B
Approach Vol, veh/h		975			752			2052			1481	
Approach Delay, s/veh		64.5			58.7			53.2			29.9	
Approach LOS		E			E			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.8	75.0	17.2	35.2	11.6	76.3	17.2	35.2
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	10.5	70.5	15.5	35.5	10.5	70.5	15.5	35.5
Max Q Clear Time (g_c+I1), s	9.3	71.8	12.4	27.9	7.0	34.8	12.4	18.7
Green Ext Time (p_c), s	0.1	0.0	0.3	2.8	0.1	9.5	0.3	2.7

Intersection Summary	
HCM 2010 Ctrl Delay	49.5
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	0	450	68	30	40	260	446	0	0	2017	250
Future Volume (veh/h)	30	0	450	68	30	40	260	446	0	0	2017	250
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	80	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	1845	1845	1845	1900	1759	1759	1845	1845	0	0	1863	1900
Adj Flow Rate, veh/h	32	0	56	72	32	5	277	474	0	0	2146	257
Adj No. of Lanes	2	0	1	0	1	1	1	3	0	0	4	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	8	8	8	3	3	0	0	2	2
Cap, veh/h	183	0	82	97	43	123	311	3725	0	0	2795	234
Arrive On Green	0.05	0.00	0.05	0.08	0.08	0.08	0.18	0.74	0.00	0.00	0.52	0.51
Sat Flow, veh/h	3514	0	1568	1177	523	1490	1757	5202	0	0	5622	605
Grp Volume(v), veh/h	32	0	56	104	0	5	277	474	0	0	1657	746
Grp Sat Flow(s),veh/h/ln	1757	0	1568	1700	0	1490	1757	1679	0	0	1304	1756
Q Serve(g_s), s	0.8	0.0	3.3	5.6	0.0	0.3	14.4	2.6	0.0	0.0	33.3	33.5
Cycle Q Clear(g_c), s	0.8	0.0	3.3	5.6	0.0	0.3	14.4	2.6	0.0	0.0	33.3	33.5
Prop In Lane	1.00		1.00	0.69		1.00	1.00		0.00	0.00		0.34
Lane Grp Cap(c), veh/h	183	0	82	140	0	123	311	3725	0	0	2041	928
V/C Ratio(X)	0.17	0.00	0.68	0.74	0.00	0.04	0.89	0.13	0.00	0.00	0.81	0.80
Avail Cap(c_a), veh/h	974	0	435	653	0	572	393	4082	0	0	2128	955
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	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	43.3	0.0	44.5	42.8	0.0	40.3	38.4	3.6	0.0	0.0	21.5	20.6
Incr Delay (d2), s/veh	0.3	0.0	7.3	2.9	0.0	0.0	16.3	0.0	0.0	0.0	2.4	5.0
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	33.0	17.1
%ile BackOfQ(50%),veh/ln	0.4	0.0	1.6	2.8	0.0	0.1	8.5	1.2	0.0	0.0	22.4	25.4
LnGrp Delay(d),s/veh	43.6	0.0	51.7	45.7	0.0	40.4	54.7	3.6	0.0	0.0	56.9	42.7
LnGrp LOS	D		D	D		D	D	A			E	D
Approach Vol, veh/h		88			109			751			2403	
Approach Delay, s/veh		48.8			45.5			22.4			52.5	
Approach LOS		D			D			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		73.1		11.7	20.6	52.5		8.9
Change Period (Y+Rc), s		5.0		4.0	4.0	5.0		4.0
Max Green Setting (Gmax), s		75.0		36.0	21.0	50.0		26.0
Max Q Clear Time (g_c+I1), s		4.6		7.6	16.4	35.5		5.3
Green Ext Time (p_c), s		3.4		0.3	0.2	12.0		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	45.4
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	350	0	441	0	0	0	0	1478	274	0	505	280
Future Volume (veh/h)	350	0	441	0	0	0	0	1478	274	0	505	280
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	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
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1827	1827				0	1881	1900	0	1881	1881
Adj Flow Rate, veh/h	380	0	197				0	1607	291	0	549	0
Adj No. of Lanes	2	0	1				0	3	0	0	2	1
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4				0	1	1	0	1	1
Cap, veh/h	640	0	286				0	2177	393	0	2509	1077
Arrive On Green	0.18	0.00	0.18				0.00	0.70	0.67	0.00	0.70	0.00
Sat Flow, veh/h	3480	0	1553				0	4043	560	0	3668	1599
Grp Volume(v), veh/h	380	0	197				0	973	925	0	549	0
Grp Sat Flow(s),veh/h/ln	1740	0	1553				0	941	1781	0	1787	1599
Q Serve(g_s), s	7.0	0.0	8.3				0.0	22.4	23.0	0.0	3.8	0.0
Cycle Q Clear(g_c), s	7.0	0.0	8.3				0.0	22.4	23.0	0.0	3.8	0.0
Prop In Lane	1.00		1.00				0.00		0.31	0.00		1.00
Lane Grp Cap(c), veh/h	640	0	286				0	1320	1250	0	2509	1077
V/C Ratio(X)	0.59	0.00	0.69				0.00	0.74	0.74	0.00	0.22	0.00
Avail Cap(c_a), veh/h	1788	0	798				0	2040	1932	0	3876	1689
HCM Platoon Ratio	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	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	26.2	0.0	26.7				0.0	6.4	6.7	0.0	3.7	0.0
Incr Delay (d2), s/veh	0.9	0.0	3.0				0.0	0.8	0.9	0.0	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
%ile BackOfQ(50%),veh/ln	3.5	0.0	3.8				0.0	5.8	11.2	0.0	1.8	0.0
LnGrp Delay(d),s/veh	27.1	0.0	29.7				0.0	7.3	7.6	0.0	3.7	0.0
LnGrp LOS	C		C					A	A		A	
Approach Vol, veh/h		577						1898			549	
Approach Delay, s/veh		28.0						7.4			3.7	
Approach LOS		C						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		53.2		16.9		53.2		
Change Period (Y+Rc), s		6.0		4.5		6.0		
Max Green Setting (Gmax), s		74.0		35.5		74.0		
Max Q Clear Time (g_c+I1), s		25.0		10.3		5.8		
Green Ext Time (p_c), s		22.2		2.1		3.9		

Intersection Summary	
HCM 2010 Ctrl Delay	10.7
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	270	433	80	316	834	841	90	540	294	316	270	360
Future Volume (veh/h)	270	433	80	316	834	841	90	540	294	316	270	360
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		0.99	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	1900	1900	1900	1881	1881	1900
Adj Flow Rate, veh/h	293	471	78	343	907	865	98	587	277	343	293	261
Adj No. of Lanes	1	2	0	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, %	1	1	1	1	1	1	0	0	0	1	1	1
Cap, veh/h	328	912	150	382	1172	524	136	637	300	425	572	496
Arrive On Green	0.18	0.30	0.28	0.21	0.33	0.33	0.07	0.27	0.25	0.12	0.31	0.30
Sat Flow, veh/h	1792	3066	505	1792	3574	1599	1810	2380	1122	3476	1816	1574
Grp Volume(v), veh/h	293	273	276	343	907	865	98	445	419	343	288	266
Grp Sat Flow(s),veh/h/ln	1792	1787	1784	1792	1787	1599	1810	1805	1697	1738	1787	1603
Q Serve(g_s), s	25.7	20.4	20.7	30.0	36.7	52.7	8.5	38.5	38.7	15.4	21.2	22.2
Cycle Q Clear(g_c), s	25.7	20.4	20.7	30.0	36.7	52.7	8.5	38.5	38.7	15.4	21.2	22.2
Prop In Lane	1.00		0.28	1.00		1.00	1.00		0.66	1.00		0.98
Lane Grp Cap(c), veh/h	328	532	531	382	1172	524	136	483	454	425	563	505
V/C Ratio(X)	0.89	0.51	0.52	0.90	0.77	1.65	0.72	0.92	0.92	0.81	0.51	0.53
Avail Cap(c_a), veh/h	351	532	531	412	1172	524	298	483	454	573	589	529
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	64.2	46.8	47.3	61.5	48.7	54.0	72.7	57.2	58.3	68.7	45.0	46.6
Incr Delay (d2), s/veh	23.2	0.9	0.9	21.0	3.3	301.1	7.1	23.6	24.9	6.1	1.1	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	14.8	10.2	10.3	17.1	18.7	67.1	4.5	22.4	21.3	7.8	10.7	10.1
LnGrp Delay(d),s/veh	87.4	47.7	48.2	82.5	52.0	355.1	79.8	80.8	83.1	74.8	46.1	47.9
LnGrp LOS	F	D	D	F	D	F	E	F	F	E	D	D
Approach Vol, veh/h		842			2115			962			897	
Approach Delay, s/veh		61.6			180.9			81.7			57.6	
Approach LOS		E			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	23.7	47.0	38.3	51.8	16.1	54.6	33.4	56.7
Change Period (Y+Rc), s	5.5	7.0	6.0	6.7	5.5	7.0	5.5	6.7
Max Green Setting (Gmax), s	25.0	40.0	35.0	40.0	25.0	50.0	30.0	50.0
Max Q Clear Time (g_c+I1), s	17.4	40.7	32.0	22.7	10.5	24.2	27.7	54.7
Green Ext Time (p_c), s	0.7	0.0	0.3	2.9	0.2	5.3	0.2	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	117.3
HCM 2010 LOS	F

Notes

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	22	1088	40	0	1879	8	0	0	33	25	0	65
Future Vol, veh/h	22	1088	40	0	1879	8	0	0	33	25	0	65
Conflicting Peds, #/hr	0	0	5	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	-	-	-	-	-	0	0	-	100
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	2	0	0	1	1	2	0	2	0	2	2	2
Mvmt Flow	26	1265	47	0	2185	9	0	0	38	29	0	76

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	2194	0	0	-	-	0	-	-	661	2875	-	1097
Stage 1	-	-	-	-	-	-	-	-	-	2190	-	-
Stage 2	-	-	-	-	-	-	-	-	-	685	-	-
Critical Hdwy	4.14	-	-	-	-	-	-	-	6.9	7.54	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	6.54	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	6.54	-	-
Follow-up Hdwy	2.22	-	-	-	-	-	-	-	3.3	3.52	-	3.32
Pot Cap-1 Maneuver	237	-	-	0	-	-	0	0	410	~ 7	0	208
Stage 1	-	-	-	0	-	-	0	0	-	46	0	-
Stage 2	-	-	-	0	-	-	0	0	-	404	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	237	-	-	-	-	-	-	-	408	~ 6	-	208
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	34	-	-
Stage 1	-	-	-	-	-	-	-	-	-	41	-	-
Stage 2	-	-	-	-	-	-	-	-	-	326	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0	14.7	101.6
HCM LOS			B	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	408	237	-	-	-	-	34	208
HCM Lane V/C Ratio	0.094	0.108	-	-	-	-	0.855	0.363
HCM Control Delay (s)	14.7	22	-	-	-	-	282.7	31.9
HCM Lane LOS	B	C	-	-	-	-	F	D
HCM 95th %tile Q(veh)	0.3	0.4	-	-	-	-	3	1.6

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	101	965	80	50	1658	71	150	5	120	65	3	79
Future Volume (veh/h)	101	965	80	50	1658	71	150	5	120	65	3	79
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	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	1900	1900	1881	1881	1900	1900	1900	1900	1863	1863	1863
Adj Flow Rate, veh/h	120	1149	58	60	1974	83	179	6	17	77	4	9
Adj No. of Lanes	1	2	1	1	2	0	1	1	1	1	1	1
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	0	0	0	1	1	1	0	0	0	2	2	2
Cap, veh/h	121	2268	986	106	2169	91	182	220	186	113	147	103
Arrive On Green	0.07	0.63	0.63	0.06	0.62	0.60	0.10	0.12	0.12	0.06	0.08	0.07
Sat Flow, veh/h	1810	3610	1570	1792	3497	146	1810	1900	1611	1774	1863	1576
Grp Volume(v), veh/h	120	1149	58	60	1002	1055	179	6	17	77	4	9
Grp Sat Flow(s),veh/h/ln	1810	1805	1570	1792	1787	1855	1810	1900	1611	1774	1863	1576
Q Serve(g_s), s	7.9	20.8	1.7	3.9	58.0	59.9	11.8	0.3	1.1	5.1	0.2	0.6
Cycle Q Clear(g_c), s	7.9	20.8	1.7	3.9	58.0	59.9	11.8	0.3	1.1	5.1	0.2	0.6
Prop In Lane	1.00		1.00	1.00		0.08	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	121	2268	986	106	1109	1151	182	220	186	113	147	103
V/C Ratio(X)	0.99	0.51	0.06	0.57	0.90	0.92	0.99	0.03	0.09	0.68	0.03	0.09
Avail Cap(c_a), veh/h	121	2268	986	165	1142	1185	182	582	493	193	586	474
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	55.8	12.1	8.6	54.8	19.6	20.1	53.7	46.9	47.3	54.8	50.9	52.5
Incr Delay (d2), s/veh	78.9	0.2	0.0	4.7	10.0	11.0	62.4	0.0	0.2	7.1	0.1	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	6.6	10.3	0.7	2.1	31.5	34.0	9.0	0.2	0.5	2.7	0.1	0.3
LnGrp Delay(d),s/veh	134.7	12.3	8.6	59.5	29.7	31.1	116.1	47.0	47.5	62.0	50.9	52.9
LnGrp LOS	F	B	A	E	C	C	F	D	D	E	D	D
Approach Vol, veh/h		1327			2117			202			90	
Approach Delay, s/veh		23.2			31.2			108.3			60.6	
Approach LOS		C			C			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	12.0	78.2	11.6	17.8	11.0	79.1	16.0	13.4
Change Period (Y+Rc), s	5.0	6.7	5.0	5.6	5.0	6.7	5.0	5.6
Max Green Setting (Gmax), s	7.0	73.7	12.0	35.0	10.0	70.7	11.0	36.0
Max Q Clear Time (g_c+I1), s	9.9	61.9	7.1	3.1	5.9	22.8	13.8	2.6
Green Ext Time (p_c), s	0.0	9.6	0.1	0.0	0.0	10.2	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	33.2
HCM 2010 LOS	C

Notes

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1086	63	30	1631	148	60
Future Volume (veh/h)	1086	63	30	1631	148	60
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.96	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	1900	1881	1881	1900	1900
Adj Flow Rate, veh/h	1234	69	34	1853	168	11
Adj No. of Lanes	2	0	1	2	1	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	1	1	1	1	0	0
Cap, veh/h	2421	135	95	2827	221	197
Arrive On Green	0.71	0.68	0.05	0.79	0.12	0.12
Sat Flow, veh/h	3528	192	1792	3668	1810	1615
Grp Volume(v), veh/h	641	662	34	1853	168	11
Grp Sat Flow(s),veh/h/ln	1787	1838	1792	1787	1810	1615
Q Serve(g_s), s	16.5	16.7	1.8	22.5	9.0	0.6
Cycle Q Clear(g_c), s	16.5	16.7	1.8	22.5	9.0	0.6
Prop In Lane		0.10	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1260	1296	95	2827	221	197
V/C Ratio(X)	0.51	0.51	0.36	0.66	0.76	0.06
Avail Cap(c_a), veh/h	1260	1296	215	2827	380	339
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.85	0.85	0.09	0.09	1.00	1.00
Uniform Delay (d), s/veh	6.8	6.9	45.7	4.5	42.5	38.8
Incr Delay (d2), s/veh	1.2	1.2	0.2	0.1	5.3	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	8.5	8.7	0.9	10.9	4.8	0.3
LnGrp Delay(d),s/veh	8.0	8.1	45.9	4.7	47.8	38.9
LnGrp LOS	A	A	D	A	D	D
Approach Vol, veh/h	1303			1887	179	
Approach Delay, s/veh	8.1			5.4	47.2	
Approach LOS	A			A	D	

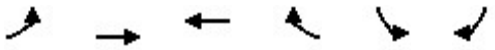
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	9.3	74.5				83.8		16.2
Change Period (Y+Rc), s	5.0	6.7				* 6.7		5.0
Max Green Setting (Gmax), s	4.3	52.3				* 69		20.0
Max Q Clear Time (g_c+I1), s	3.8	18.7				24.5		11.0
Green Ext Time (p_c), s	0.0	14.9				31.1		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	8.7
HCM 2010 LOS	A

Notes

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1123	93	50	1453	168	130
Future Volume (vph)	1123	93	50	1453	168	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0		4.0	4.0	4.0	
Lane Util. Factor	0.95		1.00	0.95	1.00	
Frpb, ped/bikes	1.00		1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00	1.00	1.00	
Frt	0.99		1.00	1.00	0.94	
Flt Protected	1.00		0.95	1.00	0.97	
Satd. Flow (prot)	3516		1787	3574	1739	
Flt Permitted	1.00		0.95	1.00	0.97	
Satd. Flow (perm)	3516		1787	3574	1739	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1248	103	56	1614	187	144
RTOR Reduction (vph)	5	0	0	0	28	0
Lane Group Flow (vph)	1346	0	56	1614	303	0
Confl. Peds. (#/hr)		18				
Confl. Bikes (#/hr)		5				
Heavy Vehicles (%)	1%	1%	1%	1%	0%	0%
Turn Type	NA		Prot	NA	Prot	
Protected Phases	2		1	6 3 5	7	
Permitted Phases						
Actuated Green, G (s)	36.9		7.0	74.9	15.0	
Effective Green, g (s)	38.9		8.0	72.4	16.0	
Actuated g/C Ratio	0.39		0.08	0.72	0.16	
Clearance Time (s)	5.0		5.0		5.0	
Vehicle Extension (s)	3.0		3.0		3.0	
Lane Grp Cap (vph)	1367		142	2587	278	
v/s Ratio Prot	c0.38		0.03	c0.45	c0.17	
v/s Ratio Perm						
v/c Ratio	0.98		0.39	0.62	1.09	
Uniform Delay, d1	30.2		43.7	6.9	42.0	
Progression Factor	1.00		1.51	0.68	1.00	
Incremental Delay, d2	20.9		0.7	0.2	80.4	
Delay (s)	51.1		66.7	4.9	122.4	
Level of Service	D		E	A	F	
Approach Delay (s)	51.1			7.0	122.4	
Approach LOS	D			A	F	

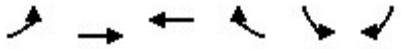
Intersection Summary			
HCM 2000 Control Delay	36.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.6
Intersection Capacity Utilization	65.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	30	1223	1453	10	30	50
Future Volume (vph)	30	1223	1453	10	30	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	3.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	*0.70		1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	1.00		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1787	3574	3946		1736	1553
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1787	3574	3946		1736	1553
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	32	1301	1546	11	32	53
RTOR Reduction (vph)	0	0	1	0	0	41
Lane Group Flow (vph)	32	1301	1556	0	32	12
Confl. Peds. (#/hr)					35	
Heavy Vehicles (%)	1%	1%	1%	1%	4%	4%
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	5	2 1 7	6		3	
Permitted Phases						3
Actuated Green, G (s)	5.1	68.9	39.3		21.0	21.0
Effective Green, g (s)	5.1	70.9	40.3		22.1	22.1
Actuated g/C Ratio	0.05	0.71	0.40		0.22	0.22
Clearance Time (s)	4.5		5.0		5.1	5.1
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	91	2533	1590		383	343
v/s Ratio Prot	0.02	c0.36	c0.39		c0.02	
v/s Ratio Perm						0.01
v/c Ratio	0.35	0.51	0.98		0.08	0.03
Uniform Delay, d1	45.9	6.7	29.4		30.9	30.6
Progression Factor	0.57	0.50	1.00		1.00	1.00
Incremental Delay, d2	0.6	0.0	18.1		0.1	0.0
Delay (s)	26.6	3.4	47.5		31.0	30.6
Level of Service	C	A	D		C	C
Approach Delay (s)		3.9	47.5		30.8	
Approach LOS		A	D		C	

Intersection Summary			
HCM 2000 Control Delay	27.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	46.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	50	1203	1443	370	50	10
Future Volume (veh/h)	50	1203	1443	370	50	10
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.97	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	1900	1863	1863
Adj Flow Rate, veh/h	54	1308	1568	389	54	1
Adj No. of Lanes	1	2	2	0	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	2	2	2	2
Cap, veh/h	108	3071	2144	507	97	87
Arrive On Green	0.06	0.86	1.00	1.00	0.05	0.05
Sat Flow, veh/h	1792	3668	2919	668	1774	1583
Grp Volume(v), veh/h	54	1308	953	1004	54	1
Grp Sat Flow(s),veh/h/ln	1792	1787	1770	1724	1774	1583
Q Serve(g_s), s	2.9	8.1	0.0	0.0	3.0	0.1
Cycle Q Clear(g_c), s	2.9	8.1	0.0	0.0	3.0	0.1
Prop In Lane	1.00			0.39	1.00	1.00
Lane Grp Cap(c), veh/h	108	3071	1343	1308	97	87
V/C Ratio(X)	0.50	0.43	0.71	0.77	0.56	0.01
Avail Cap(c_a), veh/h	215	3071	1343	1308	504	450
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.32	0.32	0.09	0.09	1.00	1.00
Uniform Delay (d), s/veh	45.5	1.6	0.0	0.0	46.1	44.7
Incr Delay (d2), s/veh	1.1	0.1	0.3	0.4	4.9	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	1.5	3.9	0.1	0.2	1.6	0.1
LnGrp Delay(d),s/veh	46.6	1.7	0.3	0.4	50.9	44.7
LnGrp LOS	D	A	A	A	D	D
Approach Vol, veh/h		1362	1957		55	
Approach Delay, s/veh		3.5	0.4		50.8	
Approach LOS		A	A		D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		89.9		10.1	10.0	79.9		
Change Period (Y+Rc), s		4.6		4.6	4.6	4.6		
Max Green Setting (Gmax), s		62.4		28.4	11.4	46.4		
Max Q Clear Time (g_c+I1), s		10.1		5.0	4.9	2.0		
Green Ext Time (p_c), s		13.6		0.1	0.0	25.6		

Intersection Summary	
HCM 2010 Ctrl Delay	2.4
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	1182	41	120	1740	120	63	0	250	30	5	10
Future Volume (veh/h)	30	1182	41	120	1740	120	63	0	250	30	5	10
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	33	1257	42	128	1851	127	67	0	121	33	5	1
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	2	1	0
Peak Hour Factor	0.92	0.94	0.94	0.94	0.94	0.92	0.94	0.92	0.94	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	85	1857	62	161	1897	129	82	0	148	182	80	16
Arrive On Green	0.10	1.00	1.00	0.09	0.56	0.55	0.15	0.00	0.14	0.05	0.05	0.05
Sat Flow, veh/h	1774	3491	117	1774	3364	228	578	0	1043	3442	1508	302
Grp Volume(v), veh/h	33	637	662	128	964	1014	188	0	0	33	0	6
Grp Sat Flow(s),veh/h/ln	1774	1770	1838	1774	1770	1822	1621	0	0	1721	0	1810
Q Serve(g_s), s	1.7	0.0	0.0	7.1	52.1	54.8	11.2	0.0	0.0	0.9	0.0	0.3
Cycle Q Clear(g_c), s	1.7	0.0	0.0	7.1	52.1	54.8	11.2	0.0	0.0	0.9	0.0	0.3
Prop In Lane	1.00		0.06	1.00		0.13	0.36		0.64	1.00		0.17
Lane Grp Cap(c), veh/h	85	941	978	161	998	1028	230	0	0	182	0	96
V/C Ratio(X)	0.39	0.68	0.68	0.79	0.97	0.99	0.82	0.00	0.00	0.18	0.00	0.06
Avail Cap(c_a), veh/h	142	941	978	161	998	1028	292	0	0	929	0	489
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.90	0.90	0.90	0.09	0.09	0.09	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.8	0.0	0.0	44.5	20.9	21.5	41.4	0.0	0.0	45.3	0.0	45.0
Incr Delay (d2), s/veh	2.6	3.5	3.4	2.5	3.7	6.0	13.2	0.0	0.0	0.5	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.9	0.9	3.6	26.2	29.0	5.9	0.0	0.0	0.4	0.0	0.2
LnGrp Delay(d),s/veh	46.4	3.5	3.4	47.1	24.6	27.5	54.6	0.0	0.0	45.8	0.0	45.3
LnGrp LOS	D	A	A	D	C	C	D			D		D
Approach Vol, veh/h		1332			2106			188			39	
Approach Delay, s/veh		4.5			27.3			54.6			45.7	
Approach LOS		A			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	13.1	57.2		10.4	9.9	60.4		19.3
Change Period (Y+Rc), s	5.1	5.5		5.1	5.1	5.5		5.1
Max Green Setting (Gmax), s	8.0	26.2		27.0	8.0	26.2		18.0
Max Q Clear Time (g_c+I1), s	9.1	2.0		2.9	3.7	56.8		13.2
Green Ext Time (p_c), s	0.0	9.7		0.1	0.0	0.0		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	20.6
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	291	750	290	630	960	301	100	957	210
Future Volume (veh/h)	0	0	0	291	750	290	630	960	301	100	957	210
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.98	1.00		0.99	1.00		0.96
Parking Bus, Adj				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	1900	1900	1845	1845	1900	1863	1863	1900
Adj Flow Rate, veh/h				297	765	296	643	980	266	102	977	214
Adj No. of Lanes				0	2	0	2	3	0	1	2	0
Peak Hour Factor				0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %				0	0	0	3	3	3	2	2	2
Cap, veh/h				285	762	309	629	1793	486	134	992	217
Arrive On Green				0.38	0.38	0.37	0.18	0.46	0.45	0.08	0.35	0.34
Sat Flow, veh/h				757	2022	820	3408	3937	1067	1774	2865	626
Grp Volume(v), veh/h				731	0	627	643	835	411	102	603	588
Grp Sat Flow(s),veh/h/ln				1862	0	1737	1704	1679	1647	1774	1770	1721
Q Serve(g_s), s				49.0	0.0	45.8	24.0	23.5	23.7	7.3	43.9	44.2
Cycle Q Clear(g_c), s				49.0	0.0	45.8	24.0	23.5	23.7	7.3	43.9	44.2
Prop In Lane				0.41		0.47	1.00		0.65	1.00		0.36
Lane Grp Cap(c), veh/h				702	0	655	629	1529	750	134	613	596
V/C Ratio(X)				1.04	0.00	0.96	1.02	0.55	0.55	0.76	0.98	0.99
Avail Cap(c_a), veh/h				702	0	655	629	1529	750	207	613	596
HCM Platoon Ratio				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
Uniform Delay (d), s/veh				40.5	0.0	39.8	53.0	25.7	26.0	58.9	42.1	42.4
Incr Delay (d2), s/veh				45.3	0.0	24.9	41.5	1.4	2.9	3.3	32.6	34.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				34.0	0.0	26.5	14.9	11.2	11.4	3.7	27.0	26.5
LnGrp Delay(d),s/veh				85.8	0.0	64.6	94.5	27.1	28.9	62.3	74.8	76.4
LnGrp LOS				F		E	F	C	C	E	E	E
Approach Vol, veh/h					1358			1889			1293	
Approach Delay, s/veh					76.0			50.4			74.5	
Approach LOS					E			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2			5	6		8
Phs Duration (G+Y+Rc), s	13.8	63.2			28.0	49.0		53.0
Change Period (Y+Rc), s	* 4.7	5.1			* 4.7	5.1		5.1
Max Green Setting (Gmax), s	* 15	52.7			* 23	43.9		47.9
Max Q Clear Time (g_c+I1), s	9.3	25.7			26.0	46.2		51.0
Green Ext Time (p_c), s	0.0	10.2			0.0	0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	64.9
HCM 2010 LOS	E

Notes

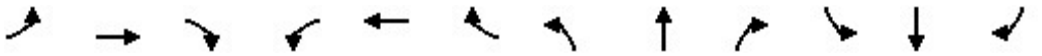
Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	285	0	0	110	0	1781	0	0	1248	0
Future Vol, veh/h	0	0	285	0	0	110	0	1781	0	0	1248	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	10	0	0	0
Sign Control	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	4	4	4	3	3	3	2	2	2
Mvmt Flow	0	0	300	0	0	116	0	1875	0	0	1314	0

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	-	-	938	-	0	-	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.18	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.94	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	225	0	-	0	0	-	0
Stage 1	0	0	-	0	-	0	0	-	0
Stage 2	0	0	-	0	-	0	0	-	0
Platoon blocked, %					-			-	
Mov Cap-1 Maneuver	-	0	225	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	0	-	-	-	-	-	-	-
Stage 1	-	0	-	-	-	-	-	-	-
Stage 2	-	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	36.8	0	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	225	-
HCM Lane V/C Ratio	-	0.515	-
HCM Control Delay (s)	-	36.8	-
HCM Lane LOS	-	E	-
HCM 95th %tile Q(veh)	-	2.7	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	140	270	0	0	270	0	1421	360	230	1023	280
Future Volume (vph)	90	140	270	0	0	270	0	1421	360	230	1023	280
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0			4.0		4.0	2.0	4.0	2.0	2.0
Lane Util. Factor		0.95	1.00			1.00		0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes		1.00	0.99			1.00		1.00	0.98	1.00	1.00	0.94
Flpb, ped/bikes		1.00	1.00			1.00		1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.85			0.85		1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98	1.00			1.00		1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		3372	1521			1568		3505	1529	3433	3539	1482
Flt Permitted		0.98	1.00			1.00		1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		3372	1521			1568		3505	1529	3433	3539	1482
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	93	144	278	0	0	278	0	1465	371	237	1055	289
RTOR Reduction (vph)	0	0	57	0	0	0	0	0	66	0	0	92
Lane Group Flow (vph)	0	237	221	0	0	278	0	1465	305	237	1055	197
Confl. Peds. (#/hr)			4						7			13
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	3%	3%	3%	2%	2%	2%
Turn Type	Split	NA	custom			custom		NA	custom	Prot	NA	custom
Protected Phases	4!	4	5	3!	3!	1 2 4!		2 3!	3	1	3 6!	3!
Permitted Phases			4						2			6
Actuated Green, G (s)		17.9	25.2			106.0		87.2	82.2	12.9	91.8	86.8
Effective Green, g (s)		18.9	27.2			101.0		88.2	84.2	12.9	88.8	88.8
Actuated g/C Ratio		0.15	0.21			0.78		0.68	0.65	0.10	0.68	0.68
Clearance Time (s)		5.0	5.0						3.0	4.0		3.0
Vehicle Extension (s)		2.0	2.0						2.0	2.0		2.0
Lane Grp Cap (vph)		490	365			1218		2378	990	340	2417	1012
v/s Ratio Prot		0.07	c0.04			0.18		c0.42	0.04	c0.07	0.30	0.03
v/s Ratio Perm			0.11						0.16			0.11
v/c Ratio		0.48	0.61			0.23		0.62	0.31	0.70	0.44	0.20
Uniform Delay, d1		51.1	46.5			3.9		11.5	10.1	56.7	9.3	7.5
Progression Factor		1.00	1.00			1.00		1.00	1.00	0.95	0.55	0.02
Incremental Delay, d2		0.3	1.9			0.0		0.3	0.1	2.8	0.0	0.0
Delay (s)		51.3	48.5			4.0		11.9	10.1	56.4	5.1	0.2
Level of Service		D	D			A		B	B	E	A	A
Approach Delay (s)		49.8			4.0			11.5			11.9	
Approach LOS		D			A			B			B	

Intersection Summary			
HCM 2000 Control Delay	15.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	77.9%	ICU Level of Service	D
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	480	524	408	300	1491	640	196	500	50	250	620	323
Future Volume (veh/h)	480	524	408	300	1491	640	196	500	50	250	620	323
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		0.97	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1881	1881	1881	1792	1792	1900	1810	1810	1810
Adj Flow Rate, veh/h	490	535	338	306	1521	521	200	510	47	255	633	214
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	2	1	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	1	1	1	6	6	6	5	5	5
Cap, veh/h	298	610	385	339	1138	494	234	980	90	333	495	420
Arrive On Green	0.17	0.29	0.28	0.19	0.32	0.32	0.14	0.31	0.30	0.10	0.27	0.27
Sat Flow, veh/h	1774	2085	1316	1792	3574	1551	1707	3151	290	3343	1810	1535
Grp Volume(v), veh/h	490	454	419	306	1521	521	200	275	282	255	633	214
Grp Sat Flow(s),veh/h/ln	1774	1770	1631	1792	1787	1551	1707	1703	1738	1672	1810	1535
Q Serve(g_s), s	26.1	37.9	38.1	25.9	49.5	49.5	17.8	20.6	20.8	11.6	42.5	18.3
Cycle Q Clear(g_c), s	26.1	37.9	38.1	25.9	49.5	49.5	17.8	20.6	20.8	11.6	42.5	18.3
Prop In Lane	1.00		0.81	1.00		1.00	1.00		0.17	1.00		1.00
Lane Grp Cap(c), veh/h	298	518	477	339	1138	494	234	530	540	333	495	420
V/C Ratio(X)	1.64	0.88	0.88	0.90	1.34	1.05	0.86	0.52	0.52	0.77	1.28	0.51
Avail Cap(c_a), veh/h	298	587	541	382	1138	494	342	530	540	734	495	420
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	64.6	52.3	52.9	61.6	52.9	52.9	65.5	44.0	44.1	68.2	56.4	47.6
Incr Delay (d2), s/veh	304.5	12.9	14.0	22.4	157.3	55.7	13.2	0.9	0.9	3.7	140.4	1.0
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	38.0	20.4	19.0	14.9	49.2	28.9	9.2	9.8	10.1	5.5	40.5	7.9
LnGrp Delay(d),s/veh	369.2	65.2	66.8	84.0	210.2	108.7	78.8	44.9	45.0	71.9	196.8	48.7
LnGrp LOS	F	E	E	F	F	F	E	D	D	E	F	D
Approach Vol, veh/h		1363			2348			757			1102	
Approach Delay, s/veh		175.0			171.2			53.9			139.1	
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	19.5	52.3	33.4	50.2	25.3	46.5	30.1	53.5
Change Period (Y+Rc), s	5.1	5.5	5.1	* 6.2	5.1	5.5	5.1	6.2
Max Green Setting (Gmax), s	33.8	40.0	32.0	* 50	30.0	41.0	25.0	44.0
Max Q Clear Time (g_c+I1), s	13.6	22.8	27.9	40.1	19.8	44.5	28.1	51.5
Green Ext Time (p_c), s	0.8	3.2	0.4	3.9	0.4	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	149.9
HCM 2010 LOS	F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	772	32	10	2326	10	114	10	10	10	0	21
Future Volume (veh/h)	41	772	32	10	2326	10	114	10	10	10	0	21
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	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	1900	1900	1900	1900	1776	1900
Adj Flow Rate, veh/h	44	821	32	11	2474	11	121	11	2	11	0	0
Adj No. of Lanes	1	2	0	1	2	0	0	1	1	0	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	1	1	1	1	1	0	0	0	7	7	7
Cap, veh/h	70	2439	95	31	2460	11	346	27	334	240	0	0
Arrive On Green	0.04	0.70	0.68	0.02	0.67	0.66	0.21	0.21	0.21	0.21	0.00	0.00
Sat Flow, veh/h	1792	3504	137	1792	3649	16	1454	132	1615	930	0	0
Grp Volume(v), veh/h	44	419	434	11	1211	1274	132	0	2	11	0	0
Grp Sat Flow(s),veh/h/ln	1792	1787	1854	1792	1787	1878	1586	0	1615	930	0	0
Q Serve(g_s), s	3.6	13.9	14.0	0.9	101.1	101.1	0.0	0.0	0.1	1.1	0.0	0.0
Cycle Q Clear(g_c), s	3.6	13.9	14.0	0.9	101.1	101.1	9.3	0.0	0.1	10.4	0.0	0.0
Prop In Lane	1.00		0.07	1.00		0.01	0.92		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	70	1244	1290	31	1205	1266	374	0	334	240	0	0
V/C Ratio(X)	0.63	0.34	0.34	0.36	1.00	1.01	0.35	0.00	0.01	0.05	0.00	0.00
Avail Cap(c_a), veh/h	84	1244	1290	84	1205	1266	374	0	334	240	0	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)	0.44	0.44	0.44	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	71.0	9.0	9.1	72.9	24.4	24.4	50.9	0.0	47.3	55.3	0.0	0.0
Incr Delay (d2), s/veh	4.7	0.3	0.3	6.9	27.1	26.9	2.6	0.0	0.0	0.1	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	1.9	7.0	7.2	0.5	58.3	61.2	5.0	0.0	0.1	0.4	0.0	0.0
LnGrp Delay(d),s/veh	75.7	9.4	9.4	79.8	51.6	51.4	53.5	0.0	47.3	55.4	0.0	0.0
LnGrp LOS	E	A	A	E	F	F	D		D	E		
Approach Vol, veh/h		897			2496			134			11	
Approach Delay, s/veh		12.6			51.6			53.4			55.4	
Approach LOS		B			D			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.6	108.4		35.0	9.9	105.1		35.0
Change Period (Y+Rc), s	4.0	5.7		4.6	4.0	5.7		4.6
Max Green Setting (Gmax), s	7.6	98.3		30.4	7.0	98.3		30.4
Max Q Clear Time (g_c+I1), s	12.9	16.0		12.4	5.6	103.1		11.3
Green Ext Time (p_c), s	0.0	5.9		0.0	0.0	0.0		0.6

Intersection Summary	
HCM 2010 Ctrl Delay	41.8
HCM 2010 LOS	D

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	50	80	596	90	250	1208
Future Volume (Veh/h)	50	80	596	90	250	1208
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	53	85	634	96	266	1285
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2499	682			730	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2499	682			730	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	81			70	
cM capacity (veh/h)	23	453			883	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	138	730	1551
Volume Left	53	0	266
Volume Right	85	96	0
cSH	54	1700	883
Volume to Capacity	2.54	0.43	0.30
Queue Length 95th (ft)	353	0	32
Control Delay (s)	860.2	0.0	10.8
Lane LOS	F		B
Approach Delay (s)	860.2	0.0	10.8
Approach LOS	F		

Intersection Summary			
Average Delay	56.0		
Intersection Capacity Utilization	131.9%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	242	600	120	190	1300	102	140	383	80	185	359	665
Future Volume (veh/h)	242	600	120	190	1300	102	140	383	80	185	359	665
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1881	1881	1900	1900	1776	1900	1900	1881	1881
Adj Flow Rate, veh/h	247	612	112	194	1327	101	143	391	79	189	366	367
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	1	1	1	7	7	7	1	1	1
Cap, veh/h	270	1074	196	220	1109	84	73	200	40	152	295	386
Arrive On Green	0.15	0.36	0.36	0.12	0.33	0.33	0.18	0.18	0.18	0.24	0.24	0.24
Sat Flow, veh/h	1774	2989	546	1792	3361	255	400	1095	221	630	1220	1599
Grp Volume(v), veh/h	247	362	362	194	704	724	613	0	0	555	0	367
Grp Sat Flow(s),veh/h/ln	1774	1770	1766	1792	1787	1829	1717	0	0	1850	0	1599
Q Serve(g_s), s	23.3	28.0	28.1	18.1	56.0	56.0	31.0	0.0	0.0	41.0	0.0	38.4
Cycle Q Clear(g_c), s	23.3	28.0	28.1	18.1	56.0	56.0	31.0	0.0	0.0	41.0	0.0	38.4
Prop In Lane	1.00		0.31	1.00		0.14	0.23		0.13	0.34		1.00
Lane Grp Cap(c), veh/h	270	636	634	220	589	603	313	0	0	447	0	386
V/C Ratio(X)	0.92	0.57	0.57	0.88	1.19	1.20	1.96	0.00	0.00	1.24	0.00	0.95
Avail Cap(c_a), veh/h	272	636	634	274	589	603	313	0	0	447	0	386
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	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	70.9	43.8	43.9	73.3	56.9	56.9	69.4	0.0	0.0	64.4	0.0	63.4
Incr Delay (d2), s/veh	33.2	1.2	1.2	23.2	103.1	105.7	441.7	0.0	0.0	127.0	0.0	33.2
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	13.9	13.9	13.9	10.4	44.4	45.9	53.1	0.0	0.0	36.6	0.0	20.6
LnGrp Delay(d),s/veh	104.2	45.0	45.2	96.5	160.0	162.6	511.1	0.0	0.0	191.4	0.0	96.6
LnGrp LOS	F	D	D	F	F	F	F			F		F
Approach Vol, veh/h		971			1622			613			922	
Approach Delay, s/veh		60.1			153.6			511.1			153.6	
Approach LOS		E			F			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	24.8	65.0		45.0	29.8	60.0		35.0
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	25.5	55.5		40.5	25.5	55.5		30.5
Max Q Clear Time (g_c+I1), s	20.1	30.1		43.0	25.3	58.0		33.0
Green Ext Time (p_c), s	0.2	4.7		0.0	0.0	0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	184.7
HCM 2010 LOS	F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	210	250	250	309	550	215	210	1040	53	100	1400	500
Future Volume (veh/h)	210	250	250	309	550	215	210	1040	53	100	1400	500
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	1863	1863	1863
Adj Flow Rate, veh/h	223	266	164	329	585	102	223	1106	27	106	1489	379
Adj No. of Lanes	2	2	1	2	2	1	2	2	1	2	2	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	284	612	274	386	716	320	277	1849	827	159	1728	773
Arrive On Green	0.08	0.17	0.17	0.11	0.20	0.20	0.08	0.52	0.52	0.05	0.49	0.49
Sat Flow, veh/h	3442	3539	1583	3442	3539	1583	3442	3539	1583	3442	3539	1583
Grp Volume(v), veh/h	223	266	164	329	585	102	223	1106	27	106	1489	379
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1770	1583	1721	1770	1583	1721	1770	1583
Q Serve(g_s), s	7.8	8.3	11.7	11.5	19.4	6.7	7.8	26.7	1.0	3.7	45.7	19.8
Cycle Q Clear(g_c), s	7.8	8.3	11.7	11.5	19.4	6.7	7.8	26.7	1.0	3.7	45.7	19.8
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	284	612	274	386	716	320	277	1849	827	159	1728	773
V/C Ratio(X)	0.78	0.43	0.60	0.85	0.82	0.32	0.81	0.60	0.03	0.67	0.86	0.49
Avail Cap(c_a), veh/h	434	1023	458	434	1023	458	294	2031	909	294	2031	909
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	55.3	45.4	46.9	53.5	46.8	41.8	55.5	20.4	14.2	57.7	27.8	21.1
Incr Delay (d2), s/veh	5.2	0.5	2.1	13.9	3.5	0.6	14.4	0.4	0.0	4.8	3.6	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	4.1	5.3	6.2	9.9	3.0	4.3	13.0	0.5	1.9	23.0	8.7
LnGrp Delay(d),s/veh	60.4	45.9	49.0	67.4	50.4	42.3	70.0	20.8	14.3	62.4	31.3	21.6
LnGrp LOS	E	D	D	E	D	D	E	C	B	E	C	C
Approach Vol, veh/h		653			1016			1356			1974	
Approach Delay, s/veh		51.6			55.1			28.7			31.1	
Approach LOS		D			E			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	68.7	18.3	25.7	14.4	64.5	14.7	29.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	10.5	70.5	15.5	35.5	10.5	70.5	15.5	35.5
Max Q Clear Time (g_c+I1), s	5.7	28.7	13.5	13.7	9.8	47.7	9.8	21.4
Green Ext Time (p_c), s	0.1	8.6	0.2	2.2	0.0	12.3	0.4	3.4

Intersection Summary	
HCM 2010 Ctrl Delay	38.0
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	0	250	172	110	300	130	1158	0	0	780	60
Future Volume (veh/h)	110	0	250	172	110	300	130	1158	0	0	780	60
Number	3	8	18	7	4	14	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	1900	1881	1881	1863	1863	0	0	1881	1900
Adj Flow Rate, veh/h	120	0	39	187	120	214	141	1259	0	0	848	56
Adj No. of Lanes	2	0	1	0	1	1	1	3	0	0	4	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, %	1	1	1	1	1	1	2	2	0	0	1	1
Cap, veh/h	303	0	135	245	157	352	183	2400	0	0	1840	120
Arrive On Green	0.08	0.00	0.08	0.22	0.22	0.22	0.10	0.47	0.00	0.00	0.29	0.28
Sat Flow, veh/h	3583	0	1599	1112	714	1599	1774	5253	0	0	6516	409
Grp Volume(v), veh/h	120	0	39	307	0	214	141	1259	0	0	657	247
Grp Sat Flow(s),veh/h/ln	1792	0	1599	1826	0	1599	1774	1695	0	0	1618	1808
Q Serve(g_s), s	1.7	0.0	1.2	8.5	0.0	6.5	4.2	9.3	0.0	0.0	5.9	6.0
Cycle Q Clear(g_c), s	1.7	0.0	1.2	8.5	0.0	6.5	4.2	9.3	0.0	0.0	5.9	6.0
Prop In Lane	1.00		1.00	0.61		1.00	1.00		0.00	0.00		0.23
Lane Grp Cap(c), veh/h	303	0	135	401	0	352	183	2400	0	0	1428	532
V/C Ratio(X)	0.40	0.00	0.29	0.76	0.00	0.61	0.77	0.52	0.00	0.00	0.46	0.46
Avail Cap(c_a), veh/h	1737	0	775	1225	0	1073	695	7206	0	0	4615	1719
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	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	23.3	0.0	23.0	19.6	0.0	18.8	23.4	9.9	0.0	0.0	15.4	15.6
Incr Delay (d2), s/veh	0.6	0.0	0.9	1.2	0.0	0.6	2.6	0.2	0.0	0.0	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	0.9	0.0	0.6	4.4	0.0	2.9	2.2	4.4	0.0	0.0	2.6	3.1
LnGrp Delay(d),s/veh	23.9	0.0	23.9	20.8	0.0	19.5	26.0	10.1	0.0	0.0	15.7	16.2
LnGrp LOS	C		C	C		B	C	B			B	B
Approach Vol, veh/h		159			521			1400			904	
Approach Delay, s/veh		23.9			20.2			11.7			15.8	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		29.3		15.8	9.5	19.8		8.5
Change Period (Y+Rc), s		5.0		4.0	4.0	5.0		4.0
Max Green Setting (Gmax), s		75.0		36.0	21.0	50.0		26.0
Max Q Clear Time (g_c+I1), s		11.3		10.5	6.2	8.0		3.7
Green Ext Time (p_c), s		11.8		1.3	0.1	6.7		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	15.1
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1060	0	919	0	0	0	0	624	199	0	472	290
Future Volume (veh/h)	1060	0	919	0	0	0	0	624	199	0	472	290
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	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
Parking Bus, Adj	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				0	1881	1900	0	1900	1900
Adj Flow Rate, veh/h	1104	0	788				0	650	115	0	492	0
Adj No. of Lanes	2	0	1				0	3	0	0	2	1
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2				0	1	1	0	0	0
Cap, veh/h	2014	0	899				0	1285	224	0	1054	415
Arrive On Green	0.57	0.00	0.57				0.00	0.29	0.26	0.00	0.29	0.00
Sat Flow, veh/h	3548	0	1583				0	4570	769	0	3705	1615
Grp Volume(v), veh/h	1104	0	788				0	504	261	0	492	0
Grp Sat Flow(s),veh/h/ln	1774	0	1583				0	1712	1746	0	1805	1615
Q Serve(g_s), s	11.1	0.0	24.4				0.0	7.0	7.2	0.0	6.4	0.0
Cycle Q Clear(g_c), s	11.1	0.0	24.4				0.0	7.0	7.2	0.0	6.4	0.0
Prop In Lane	1.00		1.00				0.00		0.44	0.00		1.00
Lane Grp Cap(c), veh/h	2014	0	899				0	1000	510	0	1054	415
V/C Ratio(X)	0.55	0.00	0.88				0.00	0.50	0.51	0.00	0.47	0.00
Avail Cap(c_a), veh/h	2240	0	999				0	4563	2326	0	4811	2096
HCM Platoon Ratio	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	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	7.7	0.0	10.6				0.0	16.8	17.2	0.0	16.5	0.0
Incr Delay (d2), s/veh	0.2	0.0	8.3				0.0	0.4	0.8	0.0	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
%ile BackOfQ(50%),veh/ln	5.4	0.0	12.6				0.0	3.3	3.6	0.0	3.2	0.0
LnGrp Delay(d),s/veh	8.0	0.0	18.9				0.0	17.2	18.0	0.0	16.9	0.0
LnGrp LOS	A		B					B	B		B	
Approach Vol, veh/h		1892						765			492	
Approach Delay, s/veh		12.5						17.4			16.9	
Approach LOS		B						B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		20.7		36.4		20.7		
Change Period (Y+Rc), s		6.0		4.5		6.0		
Max Green Setting (Gmax), s		74.0		35.5		74.0		
Max Q Clear Time (g_c+I1), s		9.2		26.4		8.4		
Green Ext Time (p_c), s		5.5		5.4		3.4		

Intersection Summary	
HCM 2010 Ctrl Delay	14.4
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	170	1110	30	263	896	393	60	260	223	821	370	200
Future Volume (veh/h)	170	1110	30	263	896	393	60	260	223	821	370	200
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	1900	1900	1900	1900	1881	1881	1900	1900	1900	1900
Adj Flow Rate, veh/h	173	1133	30	268	914	313	61	265	121	838	378	157
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	2	2	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	0	0	0	1	1	1	0	0	0
Cap, veh/h	211	1216	32	181	1178	527	95	382	170	1016	987	404
Arrive On Green	0.12	0.35	0.33	0.10	0.33	0.33	0.05	0.16	0.14	0.29	0.39	0.37
Sat Flow, veh/h	1774	3522	93	1810	3610	1615	1792	2408	1069	3510	2500	1024
Grp Volume(v), veh/h	173	569	594	268	914	313	61	195	191	838	271	264
Grp Sat Flow(s),veh/h/ln	1774	1770	1846	1810	1805	1615	1792	1787	1690	1755	1805	1719
Q Serve(g_s), s	14.3	46.6	46.6	15.0	34.3	24.3	5.0	15.4	16.2	33.4	16.1	16.7
Cycle Q Clear(g_c), s	14.3	46.6	46.6	15.0	34.3	24.3	5.0	15.4	16.2	33.4	16.1	16.7
Prop In Lane	1.00		0.05	1.00		1.00	1.00		0.63	1.00		0.60
Lane Grp Cap(c), veh/h	211	611	637	181	1178	527	95	284	268	1016	713	679
V/C Ratio(X)	0.82	0.93	0.93	1.48	0.78	0.59	0.64	0.69	0.71	0.82	0.38	0.39
Avail Cap(c_a), veh/h	234	613	640	181	1178	527	141	393	372	1016	713	679
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	0.59	0.59	0.59
Uniform Delay (d), s/veh	64.5	47.4	47.5	67.5	45.6	42.2	69.6	59.6	60.8	49.7	32.3	33.1
Incr Delay (d2), s/veh	18.6	21.1	20.5	243.7	3.3	1.8	7.0	4.6	5.8	3.4	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.1	26.3	27.4	19.7	17.7	11.1	2.7	8.0	8.0	16.7	8.1	8.0
LnGrp Delay(d),s/veh	83.1	68.5	68.0	311.2	48.9	44.0	76.6	64.2	66.6	53.2	32.6	33.5
LnGrp LOS	F	E	E	F	D	D	E	E	E	D	C	C
Approach Vol, veh/h		1336			1495			447			1373	
Approach Delay, s/veh		70.2			94.9			66.9			45.3	
Approach LOS		E			F			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	47.4	27.8	19.0	55.8	12.0	63.2	21.9	52.9
Change Period (Y+Rc), s	5.5	7.0	6.0	6.7	5.5	7.0	5.5	6.7
Max Green Setting (Gmax), s	32.5	30.0	13.0	49.3	10.3	52.2	18.3	44.5
Max Q Clear Time (g_c+I1), s	35.4	18.2	17.0	48.6	7.0	18.7	16.3	36.3
Green Ext Time (p_c), s	0.0	2.4	0.0	0.5	0.0	5.4	0.1	4.2

Intersection Summary	
HCM 2010 Ctrl Delay	70.5
HCM 2010 LOS	E

Notes

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	73	1925	50	0	1544	27	0	0	26	16	0	44
Future Vol, veh/h	73	1925	50	0	1544	27	0	0	26	16	0	44
Conflicting Peds, #/hr	0	0	3	3	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	-	-	-	-	-	0	0	-	100
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	99	99	99	99	99	99	99	99	99	99	99	99
Heavy Vehicles, %	2	0	0	0	0	2	0	2	0	2	2	2
Mvmt Flow	74	1944	51	0	1560	27	0	0	26	16	0	44

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1587	0	0	-	-	0	-	-	1001	2694	-	794
Stage 1	-	-	-	-	-	-	-	-	-	1574	-	-
Stage 2	-	-	-	-	-	-	-	-	-	1120	-	-
Critical Hdwy	4.14	-	-	-	-	-	-	-	6.9	7.54	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	6.54	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	6.54	-	-
Follow-up Hdwy	2.22	-	-	-	-	-	-	-	3.3	3.52	-	3.32
Pot Cap-1 Maneuver	410	-	-	0	-	-	0	0	245	~ 10	0	331
Stage 1	-	-	-	0	-	-	0	0	-	115	0	-
Stage 2	-	-	-	0	-	-	0	0	-	220	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	410	-	-	-	-	-	-	-	244	~ 8	-	331
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	58	-	-
Stage 1	-	-	-	-	-	-	-	-	-	94	-	-
Stage 2	-	-	-	-	-	-	-	-	-	161	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0	21.5	36.8
HCM LOS			C	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	244	410	-	-	-	-	58	331
HCM Lane V/C Ratio	0.108	0.18	-	-	-	-	0.279	0.134
HCM Control Delay (s)	21.5	15.7	-	-	-	-	89.5	17.6
HCM Lane LOS	C	C	-	-	-	-	F	C
HCM 95th %tile Q(veh)	0.4	0.6	-	-	-	-	1	0.5

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	282	1607	80	110	1251	222	67	17	77	248	20	251
Future Volume (veh/h)	282	1607	80	110	1251	222	67	17	77	248	20	251
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1900	1900	1900	1900	1863	1863	1863
Adj Flow Rate, veh/h	291	1657	48	113	1290	220	69	18	6	256	21	49
Adj No. of Lanes	1	2	1	1	2	0	1	1	1	1	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	1	1	1	1	0	0	0	2	2	2
Cap, veh/h	287	2163	964	119	1566	265	97	109	93	291	313	249
Arrive On Green	0.16	0.61	0.61	0.13	1.00	0.99	0.05	0.06	0.06	0.16	0.17	0.16
Sat Flow, veh/h	1792	3574	1592	1792	3059	517	1810	1900	1615	1774	1863	1583
Grp Volume(v), veh/h	291	1657	48	113	749	761	69	18	6	256	21	49
Grp Sat Flow(s),veh/h/ln	1792	1787	1592	1792	1787	1789	1810	1900	1615	1774	1863	1583
Q Serve(g_s), s	24.0	51.2	1.8	9.4	0.0	1.3	5.6	1.4	0.5	21.1	1.4	4.0
Cycle Q Clear(g_c), s	24.0	51.2	1.8	9.4	0.0	1.3	5.6	1.4	0.5	21.1	1.4	4.0
Prop In Lane	1.00		1.00	1.00		0.29	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	287	2163	964	119	915	916	97	109	93	291	313	249
V/C Ratio(X)	1.02	0.77	0.05	0.95	0.82	0.83	0.71	0.17	0.06	0.88	0.07	0.20
Avail Cap(c_a), veh/h	287	2163	964	119	915	916	97	160	136	390	467	380
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.79	0.79	0.79	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	63.0	21.8	12.1	64.7	0.0	0.1	69.9	67.3	66.9	61.2	52.5	54.9
Incr Delay (d2), s/veh	57.1	2.7	0.1	57.2	6.5	7.0	22.1	0.7	0.3	15.9	0.1	0.4
Initial Q Delay(d3),s/veh	0.1	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	16.4	25.9	0.8	6.5	1.7	1.9	3.4	0.7	0.2	11.7	0.7	1.8
LnGrp Delay(d),s/veh	120.2	24.5	12.2	121.9	6.5	7.2	92.0	68.0	67.2	77.2	52.6	55.3
LnGrp LOS	F	C	B	F	A	A	F	E	E	E	D	E
Approach Vol, veh/h		1996			1623			93			326	
Approach Delay, s/veh		38.1			14.9			85.7			72.3	
Approach LOS		D			B			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	28.0	80.8	28.6	12.6	14.0	94.8	12.0	29.2
Change Period (Y+Rc), s	5.0	6.7	5.0	5.6	5.0	6.7	5.0	5.6
Max Green Setting (Gmax), s	23.0	61.7	32.0	11.0	9.0	75.7	7.0	36.0
Max Q Clear Time (g_c+I1), s	26.0	3.3	23.1	3.4	11.4	53.2	7.6	6.0
Green Ext Time (p_c), s	0.0	14.8	0.5	0.0	0.0	13.0	0.0	0.2

Intersection Summary	
HCM 2010 Ctrl Delay	32.6
HCM 2010 LOS	C

Notes

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1845	80	30	1437	147	50
Future Volume (veh/h)	1845	80	30	1437	147	50
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.97	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	1900	1900	1881	1881	1881	1881
Adj Flow Rate, veh/h	2097	89	34	1633	167	14
Adj No. of Lanes	2	0	1	2	1	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	0	0	1	1	1	1
Cap, veh/h	2696	113	75	2962	203	181
Arrive On Green	1.00	1.00	0.04	0.83	0.11	0.11
Sat Flow, veh/h	3620	148	1792	3668	1792	1599
Grp Volume(v), veh/h	1065	1121	34	1633	167	14
Grp Sat Flow(s),veh/h/ln	1805	1869	1792	1787	1792	1599
Q Serve(g_s), s	0.0	0.0	2.8	21.6	13.7	1.2
Cycle Q Clear(g_c), s	0.0	0.0	2.8	21.6	13.7	1.2
Prop In Lane		0.08	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1380	1429	75	2962	203	181
V/C Ratio(X)	0.77	0.78	0.45	0.55	0.82	0.08
Avail Cap(c_a), veh/h	1380	1429	143	2962	311	277
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.54	0.54	0.09	0.09	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	70.2	4.0	65.0	59.5
Incr Delay (d2), s/veh	2.3	2.4	0.4	0.1	10.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	1.0	1.4	10.5	7.3	0.5
LnGrp Delay(d),s/veh	2.3	2.4	70.5	4.1	75.1	59.7
LnGrp LOS	A	A	E	A	E	E
Approach Vol, veh/h	2186			1667	181	
Approach Delay, s/veh	2.4			5.5	73.9	
Approach LOS	A			A	E	

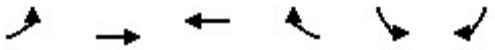
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	10.3	118.7				129.0		21.0
Change Period (Y+Rc), s	5.0	6.7				* 6.7		5.0
Max Green Setting (Gmax), s	1.6	97.3				* 1.1E2		25.0
Max Q Clear Time (g_c+I1), s	4.8	2.0				23.6		15.7
Green Ext Time (p_c), s	0.0	64.4				36.5		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	6.9
HCM 2010 LOS	A

Notes

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1766	110	140	1441	77	90
Future Volume (vph)	1766	110	140	1441	77	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0		4.0	4.0	4.0	
Lane Util. Factor	0.95		1.00	0.95	1.00	
Frpb, ped/bikes	1.00		1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00	1.00	1.00	
Frt	0.99		1.00	1.00	0.93	
Flt Protected	1.00		0.95	1.00	0.98	
Satd. Flow (prot)	3565		1787	3574	1722	
Flt Permitted	1.00		0.95	1.00	0.98	
Satd. Flow (perm)	3565		1787	3574	1722	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	1984	124	157	1619	87	101
RTOR Reduction (vph)	3	0	0	0	28	0
Lane Group Flow (vph)	2105	0	157	1619	160	0
Confl. Peds. (#/hr)		13				
Confl. Bikes (#/hr)		1				
Heavy Vehicles (%)	0%	0%	1%	1%	0%	0%
Turn Type	NA		Prot	NA	Prot	
Protected Phases	2		1	6 3 5	7	
Permitted Phases						
Actuated Green, G (s)	81.0		13.0	128.9	11.0	
Effective Green, g (s)	83.0		14.0	126.4	12.0	
Actuated g/C Ratio	0.55		0.09	0.84	0.08	
Clearance Time (s)	5.0		5.0		5.0	
Vehicle Extension (s)	3.0		3.0		3.0	
Lane Grp Cap (vph)	1972		166	3011	137	
v/s Ratio Prot	c0.59		c0.09	c0.45	c0.09	
v/s Ratio Perm						
v/c Ratio	1.07		0.95	0.54	1.17	
Uniform Delay, d1	33.5		67.6	3.4	69.0	
Progression Factor	1.00		1.39	0.01	1.00	
Incremental Delay, d2	41.0		35.3	0.1	130.1	
Delay (s)	74.5		129.3	0.1	199.1	
Level of Service	E		F	A	F	
Approach Delay (s)	74.5			11.6	199.1	
Approach LOS	E			B	F	

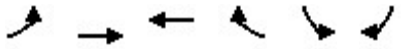
Intersection Summary			
HCM 2000 Control Delay	52.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	15.6
Intersection Capacity Utilization	79.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	70	1786	1541	20	170	40
Future Volume (vph)	70	1786	1541	20	170	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	3.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	*0.70		1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	1.00		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1805	3610	3943		1752	1568
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1805	3610	3943		1752	1568
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	83	2126	1835	24	202	48
RTOR Reduction (vph)	0	0	0	0	0	40
Lane Group Flow (vph)	83	2126	1859	0	202	8
Confl. Peds. (#/hr)					24	
Heavy Vehicles (%)	0%	0%	1%	1%	3%	3%
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	5	2 1 7	6		3	
Permitted Phases						3
Actuated Green, G (s)	13.5	115.0	81.0		24.9	24.9
Effective Green, g (s)	13.5	117.0	82.0		26.0	26.0
Actuated g/C Ratio	0.09	0.78	0.55		0.17	0.17
Clearance Time (s)	4.5		5.0		5.1	5.1
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	162	2815	2155		303	271
v/s Ratio Prot	0.05	c0.59	c0.47		c0.12	
v/s Ratio Perm						0.01
v/c Ratio	0.51	0.76	0.86		0.67	0.03
Uniform Delay, d1	65.1	8.8	29.2		57.9	51.5
Progression Factor	0.62	0.47	1.00		1.00	1.00
Incremental Delay, d2	0.2	0.1	4.9		5.5	0.0
Delay (s)	40.5	4.3	34.0		63.4	51.6
Level of Service	D	A	C		E	D
Approach Delay (s)		5.6	34.0		61.1	
Approach LOS		A	C		E	

Intersection Summary			
HCM 2000 Control Delay	21.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	65.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	40	1916	1471	160	390	90
Future Volume (veh/h)	40	1916	1471	160	390	90
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	44	2129	1634	178	433	100
Adj No. of Lanes	1	2	2	0	1	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	77	2415	1975	212	462	412
Arrive On Green	0.04	0.68	1.00	1.00	0.26	0.26
Sat Flow, veh/h	1774	3632	3317	347	1774	1583
Grp Volume(v), veh/h	44	2129	887	925	433	100
Grp Sat Flow(s),veh/h/ln	1774	1770	1770	1801	1774	1583
Q Serve(g_s), s	3.7	71.9	0.0	0.0	35.8	7.5
Cycle Q Clear(g_c), s	3.7	71.9	0.0	0.0	35.8	7.5
Prop In Lane	1.00			0.19	1.00	1.00
Lane Grp Cap(c), veh/h	77	2415	1084	1103	462	412
V/C Ratio(X)	0.57	0.88	0.82	0.84	0.94	0.24
Avail Cap(c_a), veh/h	95	2415	1084	1103	549	490
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.38	0.38	1.00	1.00
Uniform Delay (d), s/veh	70.4	19.0	0.0	0.0	54.3	43.8
Incr Delay (d2), s/veh	0.6	0.5	2.8	3.1	22.0	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	1.8	35.1	0.8	0.9	20.4	7.3
LnGrp Delay(d),s/veh	71.0	19.5	2.8	3.1	76.2	44.1
LnGrp LOS	E	B	A	A	E	D
Approach Vol, veh/h		2173	1812		533	
Approach Delay, s/veh		20.5	2.9		70.2	
Approach LOS		C	A		E	

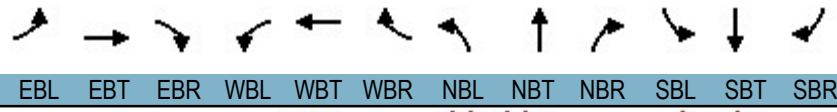
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		106.3		43.7	10.5	95.9		
Change Period (Y+Rc), s		4.6		4.6	4.6	4.6		
Max Green Setting (Gmax), s		94.4		46.4	7.4	82.4		
Max Q Clear Time (g_c+I1), s		73.9		37.8	5.7	2.0		
Green Ext Time (p_c), s		16.3		1.2	0.0	26.7		

Intersection Summary	
HCM 2010 Ctrl Delay	19.3
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	2229	47	160	1535	100	36	20	130	230	30	60
Future Volume (veh/h)	30	2229	47	160	1535	100	36	20	130	230	30	60
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		0.95	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1896	1900	1863	1863	1900
Adj Flow Rate, veh/h	33	2423	50	174	1668	106	39	22	84	250	33	15
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	2	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	71	2107	43	154	2144	135	47	27	102	313	110	50
Arrive On Green	0.08	1.00	1.00	0.09	0.63	0.62	0.11	0.11	0.11	0.09	0.09	0.09
Sat Flow, veh/h	1774	3544	73	1774	3381	213	443	250	955	3442	1214	552
Grp Volume(v), veh/h	33	1205	1268	174	867	907	145	0	0	250	0	48
Grp Sat Flow(s),veh/h/ln	1774	1770	1847	1774	1770	1825	1649	0	0	1721	0	1765
Q Serve(g_s), s	2.7	89.2	89.2	13.0	52.7	54.3	12.9	0.0	0.0	10.7	0.0	3.8
Cycle Q Clear(g_c), s	2.7	89.2	89.2	13.0	52.7	54.3	12.9	0.0	0.0	10.7	0.0	3.8
Prop In Lane	1.00		0.04	1.00		0.12	0.27		0.58	1.00		0.31
Lane Grp Cap(c), veh/h	71	1052	1098	154	1122	1157	175	0	0	313	0	160
V/C Ratio(X)	0.47	1.14	1.15	1.13	0.77	0.78	0.83	0.00	0.00	0.80	0.00	0.30
Avail Cap(c_a), veh/h	95	1052	1098	154	1122	1157	198	0	0	619	0	318
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.32	0.32	0.32	0.37	0.37	0.37	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	67.5	0.0	0.0	68.5	19.7	20.0	65.5	0.0	0.0	66.8	0.0	63.7
Incr Delay (d2), s/veh	1.5	69.2	73.2	85.2	2.0	2.0	22.1	0.0	0.0	4.7	0.0	1.0
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	20.2	22.3	10.0	26.2	27.9	7.0	0.0	0.0	5.3	0.0	1.9
LnGrp Delay(d),s/veh	69.0	69.2	73.2	153.7	21.7	22.1	87.6	0.0	0.0	71.5	0.0	64.7
LnGrp LOS	E	F	F	F	C	C	F			E		E
Approach Vol, veh/h		2506			1948			145			298	
Approach Delay, s/veh		71.3			33.6			87.6			70.5	
Approach LOS		E			C			F			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	17.0	93.2		18.7	11.1	99.1		21.1
Change Period (Y+Rc), s	5.1	5.5		5.1	5.1	5.5		5.1
Max Green Setting (Gmax), s	11.9	72.3		27.0	8.0	76.2		18.0
Max Q Clear Time (g_c+I1), s	15.0	91.2		12.7	4.7	56.3		14.9
Green Ext Time (p_c), s	0.0	0.0		1.0	0.0	13.1		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	56.7
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	233	150	120	290	1390	773	90	707	140
Future Volume (veh/h)	0	0	0	233	150	120	290	1390	773	90	707	140
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.98	1.00		0.97	1.00		0.96
Parking Bus, Adj				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	1900	1900	1881	1881	1900	1863	1863	1900
Adj Flow Rate, veh/h				259	167	133	322	1544	773	100	786	156
Adj No. of Lanes				0	2	0	2	3	0	1	2	0
Peak Hour Factor				0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %				0	0	0	1	1	1	2	2	2
Cap, veh/h				338	233	189	459	1865	848	156	1465	291
Arrive On Green				0.21	0.21	0.20	0.13	0.54	0.53	0.09	0.50	0.49
Sat Flow, veh/h				1577	1085	881	3476	3424	1557	1774	2924	580
Grp Volume(v), veh/h				299	0	260	322	1544	773	100	476	466
Grp Sat Flow(s),veh/h/ln				1821	0	1722	1738	1712	1557	1774	1770	1735
Q Serve(g_s), s				12.1	0.0	11.0	7.0	29.4	35.4	4.3	14.4	14.5
Cycle Q Clear(g_c), s				12.1	0.0	11.0	7.0	29.4	35.4	4.3	14.4	14.5
Prop In Lane				0.87		0.51	1.00		1.00	1.00		0.33
Lane Grp Cap(c), veh/h				390	0	369	459	1865	848	156	886	869
V/C Ratio(X)				0.77	0.00	0.70	0.70	0.83	0.91	0.64	0.54	0.54
Avail Cap(c_a), veh/h				466	0	441	2244	1879	855	581	971	952
HCM Platoon Ratio				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
Uniform Delay (d), s/veh				29.0	0.0	28.8	32.6	14.8	16.7	34.6	13.4	13.5
Incr Delay (d2), s/veh				4.9	0.0	2.8	1.1	3.2	13.8	1.6	0.5	0.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				6.6	0.0	5.5	3.4	14.6	18.3	2.2	7.1	7.0
LnGrp Delay(d),s/veh				33.9	0.0	31.6	33.7	18.0	30.5	36.2	13.9	14.0
LnGrp LOS				C		C	C	B	C	D	B	B
Approach Vol, veh/h					559			2639			1042	
Approach Delay, s/veh					32.8			23.6			16.1	
Approach LOS					C			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2			5	6		8
Phs Duration (G+Y+Rc), s	10.9	46.8			14.4	43.3		20.8
Change Period (Y+Rc), s	* 4.7	5.1			* 4.7	5.1		5.1
Max Green Setting (Gmax), s	* 25	42.0			* 50	42.0		19.0
Max Q Clear Time (g_c+I1), s	16.3	37.4			9.0	16.5		14.1
Green Ext Time (p_c), s	0.0	4.2			0.7	6.5		1.1

Intersection Summary	
HCM 2010 Ctrl Delay	23.0
HCM 2010 LOS	C

Notes

Intersection	
Int Delay, s/veh	68.7

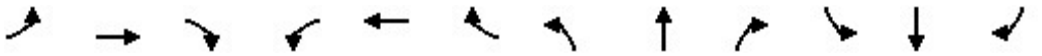
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	636	0	0	360	0	2093	0	0	940	0
Future Vol, veh/h	0	0	636	0	0	360	0	2093	0	0	940	0
Conflicting Peds, #/hr	0	0	0	0	0	0	33	0	7	7	0	33
Sign Control	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	0	0	0	1	1	1	2	2	2
Mvmt Flow	0	0	691	0	0	391	0	2275	0	0	1022	0

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	-	-	1138	-	0	-	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.1	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.9	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	~ 170	0	-	0	0	-	0
Stage 1	0	0	-	0	-	0	0	-	0
Stage 2	0	0	-	0	-	0	0	-	0
Platoon blocked, %					-			-	
Mov Cap-1 Maneuver	-	0	~ 170	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	0	-	-	-	-	-	-	-
Stage 1	-	0	-	-	-	-	-	-	-
Stage 2	-	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 647.3	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	170	-
HCM Lane V/C Ratio	-	2.302	-
HCM Control Delay (s)	-	$ 647.3	-
HCM Lane LOS	-	F	-
HCM 95th %tile Q(veh)	-	32.2	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	210	720	0	0	750	0	1223	531	310	1076	190
Future Volume (vph)	120	210	720	0	0	750	0	1223	531	310	1076	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0			4.0		4.0	2.0	4.0	2.0	2.0
Lane Util. Factor		0.95	1.00			1.00		0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes		1.00	0.99			1.00		1.00	0.99	1.00	1.00	0.90
Flpb, ped/bikes		1.00	1.00			1.00		1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.85			0.85		1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98	1.00			1.00		1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		3546	1598			1599		3574	1581	3433	3539	1428
Flt Permitted		0.98	1.00			1.00		1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		3546	1598			1599		3574	1581	3433	3539	1428
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	133	233	800	0	0	833	0	1359	590	344	1196	211
RTOR Reduction (vph)	0	0	20	0	0	0	0	0	92	0	0	101
Lane Group Flow (vph)	0	366	780	0	0	833	0	1359	498	344	1196	110
Confl. Peds. (#/hr)			12						1			29
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	1%	2%	2%	2%
Turn Type	Split	NA	custom			custom		NA	custom	Prot	NA	custom
Protected Phases	4!	4	5	3!	3!	1 2 4!		2 3!	3	1	3 6!	3!
Permitted Phases			4						2			6
Actuated Green, G (s)		29.1	65.9			106.0		74.2	69.2	14.7	51.1	46.1
Effective Green, g (s)		30.1	67.9			101.0		75.2	71.2	14.7	48.1	48.1
Actuated g/C Ratio		0.23	0.52			0.78		0.58	0.55	0.11	0.37	0.37
Clearance Time (s)		5.0	5.0						3.0	4.0		3.0
Vehicle Extension (s)		2.0	2.0						2.0	2.0		2.0
Lane Grp Cap (vph)		821	883			1242		2067	865	388	1309	528
v/s Ratio Prot		0.10	c0.26			0.52		0.38	0.08	0.10	c0.34	0.03
v/s Ratio Perm			0.23						0.24			0.05
v/c Ratio		0.45	0.88			0.67		0.66	0.58	0.89	0.91	0.21
Uniform Delay, d1		42.8	27.5			6.8		18.6	19.4	56.8	39.0	28.0
Progression Factor		1.00	1.00			1.00		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.1	10.1			1.1		0.6	0.6	20.3	9.7	0.1
Delay (s)		42.9	37.7			7.9		19.2	20.0	77.2	48.7	28.0
Level of Service		D	D			A		B	B	E	D	C
Approach Delay (s)		39.3			7.9			19.5			51.8	
Approach LOS		D			A			B			D	

Intersection Summary			
HCM 2000 Control Delay	31.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	106.6%	ICU Level of Service	G
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	724	1763	102	60	819	470	320	500	180	510	530	556
Future Volume (veh/h)	724	1763	102	60	819	470	320	500	180	510	530	556
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		0.98	1.00		0.99	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	1900	1900	1900	1900	1900	1900	1881	1881	1881
Adj Flow Rate, veh/h	739	1799	102	61	836	288	327	510	164	520	541	348
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	2	1	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	1	1	1	0	0	0	0	0	0	1	1	1
Cap, veh/h	295	1304	73	91	973	431	355	784	251	602	505	429
Arrive On Green	0.16	0.38	0.37	0.05	0.27	0.27	0.20	0.29	0.28	0.17	0.27	0.27
Sat Flow, veh/h	1792	3436	193	1810	3610	1601	1810	2690	861	3476	1881	1597
Grp Volume(v), veh/h	739	927	974	61	836	288	327	341	333	520	541	348
Grp Sat Flow(s),veh/h/ln	1792	1787	1842	1810	1805	1601	1810	1805	1746	1738	1881	1597
Q Serve(g_s), s	26.1	60.1	60.1	5.2	34.9	25.4	28.1	26.2	26.5	23.0	42.5	32.3
Cycle Q Clear(g_c), s	26.1	60.1	60.1	5.2	34.9	25.4	28.1	26.2	26.5	23.0	42.5	32.3
Prop In Lane	1.00		0.10	1.00		1.00	1.00		0.49	1.00		1.00
Lane Grp Cap(c), veh/h	295	678	699	91	973	431	355	526	509	602	505	429
V/C Ratio(X)	2.50	1.37	1.39	0.67	0.86	0.67	0.92	0.65	0.65	0.86	1.07	0.81
Avail Cap(c_a), veh/h	295	678	699	378	1053	467	355	526	509	748	505	429
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	66.1	49.1	49.2	73.9	55.0	51.5	62.4	49.0	49.4	63.7	57.9	54.2
Incr Delay (d2), s/veh	686.3	174.4	185.6	8.2	6.9	3.3	28.5	2.8	3.0	8.7	60.6	11.3
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	69.2	62.4	66.5	2.8	18.3	11.6	16.9	13.5	13.2	11.8	30.5	15.5
LnGrp Delay(d),s/veh	752.4	223.5	234.8	82.2	61.9	54.8	90.9	51.8	52.4	72.3	118.5	65.5
LnGrp LOS	F	F	F	F	E	D	F	D	D	E	F	E
Approach Vol, veh/h		2640			1185			1001			1409	
Approach Delay, s/veh		375.8			61.2			64.8			88.4	
Approach LOS		F			E			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	31.4	50.2	12.0	64.8	35.1	46.5	30.1	46.7
Change Period (Y+Rc), s	5.1	5.5	5.1	* 6.2	5.1	5.5	5.1	6.2
Max Green Setting (Gmax), s	33.6	40.0	32.0	* 50	30.0	41.0	25.0	44.0
Max Q Clear Time (g_c+I1), s	25.0	28.5	7.2	62.1	30.1	44.5	28.1	36.9
Green Ext Time (p_c), s	1.3	3.3	0.1	0.0	0.0	0.0	0.0	3.6

Intersection Summary	
HCM 2010 Ctrl Delay	201.1
HCM 2010 LOS	F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	2310	60	10	1258	10	38	0	10	10	0	13
Future Volume (veh/h)	13	2310	60	10	1258	10	38	0	10	10	0	13
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	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	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	15	2596	66	11	1413	11	43	0	2	11	0	0
Adj No. of Lanes	1	2	0	1	2	0	0	1	1	0	1	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	1	1	1	1	1	1	0	0	0	0	0	0
Cap, veh/h	39	2488	63	31	2524	20	351	0	328	313	0	0
Arrive On Green	0.02	0.70	0.69	0.02	0.69	0.68	0.20	0.00	0.20	0.20	0.00	0.00
Sat Flow, veh/h	1792	3560	90	1792	3635	28	1485	0	1610	1297	0	0
Grp Volume(v), veh/h	15	1297	1365	11	694	730	43	0	2	11	0	0
Grp Sat Flow(s),veh/h/ln	1792	1787	1863	1792	1787	1876	1485	0	1610	1297	0	0
Q Serve(g_s), s	1.2	104.8	104.8	0.9	29.1	29.2	0.0	0.0	0.1	0.9	0.0	0.0
Cycle Q Clear(g_c), s	1.2	104.8	104.8	0.9	29.1	29.2	2.9	0.0	0.1	3.9	0.0	0.0
Prop In Lane	1.00		0.05	1.00		0.02	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	39	1249	1302	31	1241	1303	351	0	328	313	0	0
V/C Ratio(X)	0.39	1.04	1.05	0.36	0.56	0.56	0.12	0.00	0.01	0.04	0.00	0.00
Avail Cap(c_a), veh/h	84	1249	1302	84	1241	1303	351	0	328	313	0	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)	0.09	0.09	0.09	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	72.4	22.6	22.6	72.9	11.5	11.5	48.7	0.0	47.6	50.3	0.0	0.0
Incr Delay (d2), s/veh	0.6	20.3	24.3	6.9	1.8	1.7	0.7	0.0	0.0	0.0	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	0.6	58.0	62.0	0.5	14.9	15.6	1.5	0.0	0.1	0.4	0.0	0.0
LnGrp Delay(d),s/veh	73.0	42.9	47.0	79.8	13.3	13.2	49.4	0.0	47.6	50.3	0.0	0.0
LnGrp LOS	E	F	F	E	B	B	D		D	D		
Approach Vol, veh/h		2677			1435			45			11	
Approach Delay, s/veh		45.1			13.8			49.3			50.3	
Approach LOS		D			B			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.6	108.8		34.6	7.3	108.1		34.6
Change Period (Y+Rc), s	4.0	5.7		4.6	4.0	5.7		4.6
Max Green Setting (Gmax), s	7.6	98.7		30.0	7.0	98.7		30.0
Max Q Clear Time (g_c+I1), s	2.9	106.8		5.9	3.2	31.2		4.9
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	13.8		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	34.4
HCM 2010 LOS	C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	30	80	1140	50	30	612
Future Volume (Veh/h)	30	80	1140	50	30	612
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	32	85	1213	53	32	651
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1954	1240			1266	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1954	1240			1266	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	52	60			94	
cM capacity (veh/h)	67	215			556	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	117	1266	683
Volume Left	32	0	32
Volume Right	85	53	0
cSH	134	1700	556
Volume to Capacity	0.88	0.74	0.06
Queue Length 95th (ft)	142	0	5
Control Delay (s)	110.7	0.0	1.6
Lane LOS	F		A
Approach Delay (s)	110.7	0.0	1.6
Approach LOS	F		

Intersection Summary			
Average Delay	6.8		
Intersection Capacity Utilization	76.3%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	465	1280	110	60	660	155	120	570	90	153	366	153
Future Volume (veh/h)	465	1280	110	60	660	155	120	570	90	153	366	153
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	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	1900	1900	1881	1881	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	474	1306	108	61	673	145	122	582	89	156	373	36
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	1	1	1	0	0	0	0	0	0
Cap, veh/h	302	1306	108	84	782	168	57	270	41	146	348	426
Arrive On Green	0.17	0.39	0.38	0.05	0.27	0.26	0.20	0.20	0.20	0.26	0.26	0.26
Sat Flow, veh/h	1810	3370	278	1792	2927	630	284	1357	208	552	1320	1615
Grp Volume(v), veh/h	474	697	717	61	411	407	793	0	0	529	0	36
Grp Sat Flow(s),veh/h/ln	1810	1805	1843	1792	1787	1770	1849	0	0	1872	0	1615
Q Serve(g_s), s	26.0	60.0	60.3	5.2	34.0	34.1	31.0	0.0	0.0	41.0	0.0	2.6
Cycle Q Clear(g_c), s	26.0	60.0	60.3	5.2	34.0	34.1	31.0	0.0	0.0	41.0	0.0	2.6
Prop In Lane	1.00		0.15	1.00		0.36	0.15		0.11	0.29		1.00
Lane Grp Cap(c), veh/h	302	699	714	84	478	473	368	0	0	493	0	426
V/C Ratio(X)	1.57	1.00	1.00	0.73	0.86	0.86	2.15	0.00	0.00	1.07	0.00	0.08
Avail Cap(c_a), veh/h	302	699	714	299	643	637	368	0	0	493	0	426
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	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	64.8	47.6	47.7	73.1	54.2	54.3	62.3	0.0	0.0	57.3	0.0	43.2
Incr Delay (d2), s/veh	270.8	33.3	34.5	11.2	8.8	9.0	527.5	0.0	0.0	61.2	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	35.7	36.3	37.4	2.9	17.9	17.8	69.7	0.0	0.0	29.5	0.0	1.2
LnGrp Delay(d),s/veh	335.6	80.9	82.2	84.3	63.0	63.3	589.8	0.0	0.0	118.5	0.0	43.2
LnGrp LOS	F	F	F	F	E	E	F			F		D
Approach Vol, veh/h		1888			879			793			565	
Approach Delay, s/veh		145.4			64.6			589.8			113.7	
Approach LOS		F			E			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.3	64.3		45.0	30.0	45.6		35.0
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	25.5	55.5		40.5	25.5	55.5		30.5
Max Q Clear Time (g_c+I1), s	7.2	62.3		43.0	28.0	36.1		33.0
Green Ext Time (p_c), s	0.1	0.0		0.0	0.0	5.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	209.3
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	250	650	150	256	450	100	120	1700	250	150	1100	300
Future Volume (veh/h)	250	650	150	256	450	100	120	1700	250	150	1100	300
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	1863	1863	1863
Adj Flow Rate, veh/h	260	677	38	267	469	23	125	1771	162	156	1146	179
Adj No. of Lanes	2	2	1	2	2	1	2	2	1	2	2	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	311	775	346	318	781	349	173	1775	794	204	1807	808
Arrive On Green	0.09	0.22	0.22	0.09	0.22	0.22	0.05	0.50	0.50	0.06	0.51	0.51
Sat Flow, veh/h	3442	3539	1583	3442	3539	1583	3442	3539	1583	3442	3539	1583
Grp Volume(v), veh/h	260	677	38	267	469	23	125	1771	162	156	1146	179
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1770	1583	1721	1770	1583	1721	1770	1583
Q Serve(g_s), s	10.5	26.0	2.7	10.7	16.7	1.6	5.0	70.2	8.0	6.3	33.0	8.8
Cycle Q Clear(g_c), s	10.5	26.0	2.7	10.7	16.7	1.6	5.0	70.2	8.0	6.3	33.0	8.8
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	311	775	346	318	781	349	173	1775	794	204	1807	808
V/C Ratio(X)	0.84	0.87	0.11	0.84	0.60	0.07	0.72	1.00	0.20	0.76	0.63	0.22
Avail Cap(c_a), veh/h	379	894	400	379	894	400	257	1775	794	257	1807	808
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	62.9	53.0	44.0	62.8	49.2	43.3	65.8	35.0	19.5	65.1	24.9	19.0
Incr Delay (d2), s/veh	12.7	8.7	0.1	13.5	0.9	0.1	5.6	20.8	0.1	10.0	0.7	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	5.5	13.6	1.2	5.7	8.3	0.7	2.5	39.3	3.5	3.3	16.3	3.9
LnGrp Delay(d),s/veh	75.6	61.7	44.1	76.3	50.1	43.4	71.4	55.8	19.6	75.1	25.6	19.1
LnGrp LOS	E	E	D	E	D	D	E	E	B	E	C	B
Approach Vol, veh/h		975			759			2058			1481	
Approach Delay, s/veh		64.7			59.1			53.9			30.1	
Approach LOS		E			E			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.8	75.0	17.5	35.3	11.6	76.3	17.2	35.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	10.5	70.5	15.5	35.5	10.5	70.5	15.5	35.5
Max Q Clear Time (g_c+I1), s	8.3	72.2	12.7	28.0	7.0	35.0	12.5	18.7
Green Ext Time (p_c), s	0.1	0.0	0.2	2.8	0.1	9.5	0.3	2.7

Intersection Summary	
HCM 2010 Ctrl Delay	50.0
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	270	433	80	316	834	841	90	540	294	316	270	360
Future Volume (veh/h)	270	433	80	316	834	841	90	540	294	316	270	360
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		0.99	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	1900	1900	1900	1881	1881	1900
Adj Flow Rate, veh/h	293	471	78	343	907	0	98	587	277	343	293	261
Adj No. of Lanes	1	2	0	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, %	1	1	1	1	1	1	0	0	0	1	1	1
Cap, veh/h	332	828	136	387	1075	481	138	671	316	433	600	520
Arrive On Green	0.19	0.27	0.25	0.22	0.30	0.00	0.08	0.28	0.26	0.12	0.33	0.31
Sat Flow, veh/h	1792	3066	505	1792	3574	1599	1810	2380	1122	3476	1816	1574
Grp Volume(v), veh/h	293	273	276	343	907	0	98	445	419	343	288	266
Grp Sat Flow(s),veh/h/ln	1792	1787	1784	1792	1787	1599	1810	1805	1697	1738	1787	1603
Q Serve(g_s), s	23.7	19.6	19.9	27.6	35.4	0.0	7.9	35.0	35.1	14.3	19.2	20.1
Cycle Q Clear(g_c), s	23.7	19.6	19.9	27.6	35.4	0.0	7.9	35.0	35.1	14.3	19.2	20.1
Prop In Lane	1.00		0.28	1.00		1.00	1.00		0.66	1.00		0.98
Lane Grp Cap(c), veh/h	332	483	482	387	1075	481	138	509	478	433	590	529
V/C Ratio(X)	0.88	0.57	0.57	0.89	0.84	0.00	0.71	0.87	0.88	0.79	0.49	0.50
Avail Cap(c_a), veh/h	379	513	512	446	1266	566	322	522	491	619	637	571
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	59.0	46.8	47.2	56.6	48.7	0.0	67.1	50.9	51.9	63.2	39.8	41.3
Incr Delay (d2), s/veh	19.3	1.3	1.4	17.4	4.7	0.0	6.5	15.6	16.5	4.5	1.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.5	9.9	10.0	15.6	18.2	0.0	4.2	19.6	18.7	7.1	9.6	9.1
LnGrp Delay(d),s/veh	78.3	48.1	48.6	73.9	53.4	0.0	73.6	66.5	68.5	67.8	40.8	42.5
LnGrp LOS	E	D	D	E	D		E	E	E	E	D	D
Approach Vol, veh/h		842			1250			962			897	
Approach Delay, s/veh		58.8			59.1			68.1			51.6	
Approach LOS		E			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	22.5	45.9	36.1	44.2	15.4	53.1	31.5	48.7
Change Period (Y+Rc), s	5.5	7.0	6.0	6.7	5.5	7.0	5.5	6.7
Max Green Setting (Gmax), s	25.0	40.0	35.0	40.0	25.0	50.0	30.0	50.0
Max Q Clear Time (g_c+I1), s	16.3	37.1	29.6	21.9	9.9	22.1	25.7	37.4
Green Ext Time (p_c), s	0.8	1.8	0.5	2.9	0.2	5.5	0.3	4.7

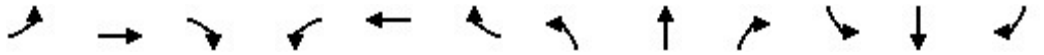
Intersection Summary	
HCM 2010 Ctrl Delay	59.5
HCM 2010 LOS	E

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	1182	41	120	1740	120	63	0	250	30	5	10
Future Volume (veh/h)	30	1182	41	120	1740	120	63	0	250	30	5	10
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		0.97	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	33	1257	42	128	1851	127	67	0	121	33	5	1
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	2	1	0
Peak Hour Factor	0.92	0.94	0.94	0.94	0.94	0.92	0.94	0.92	0.94	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	85	1962	66	161	1998	136	218	0	172	182	80	16
Arrive On Green	0.10	1.00	1.00	0.09	0.59	0.58	0.12	0.00	0.11	0.05	0.05	0.05
Sat Flow, veh/h	1774	3491	117	1774	3364	228	1774	0	1537	3442	1508	302
Grp Volume(v), veh/h	33	637	662	128	964	1014	67	0	121	33	0	6
Grp Sat Flow(s),veh/h/ln	1774	1770	1838	1774	1770	1822	1774	0	1537	1721	0	1810
Q Serve(g_s), s	1.7	0.0	0.0	7.1	48.5	51.0	3.4	0.0	7.6	0.9	0.0	0.3
Cycle Q Clear(g_c), s	1.7	0.0	0.0	7.1	48.5	51.0	3.4	0.0	7.6	0.9	0.0	0.3
Prop In Lane	1.00		0.06	1.00		0.13	1.00		1.00	1.00		0.17
Lane Grp Cap(c), veh/h	85	995	1033	161	1051	1083	218	0	172	182	0	96
V/C Ratio(X)	0.39	0.64	0.64	0.79	0.92	0.94	0.31	0.00	0.70	0.18	0.00	0.06
Avail Cap(c_a), veh/h	142	995	1033	161	1051	1083	339	0	277	929	0	489
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.90	0.90	0.90	0.09	0.09	0.09	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.8	0.0	0.0	44.5	18.1	18.7	40.0	0.0	42.8	45.3	0.0	45.0
Incr Delay (d2), s/veh	2.6	2.9	2.8	2.5	1.6	2.1	0.8	0.0	5.1	0.5	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.8	0.8	3.6	23.8	26.0	1.7	0.0	3.5	0.4	0.0	0.2
LnGrp Delay(d),s/veh	46.4	2.9	2.8	47.1	19.7	20.7	40.8	0.0	47.9	45.8	0.0	45.3
LnGrp LOS	D	A	A	D	B	C	D		D	D		D
Approach Vol, veh/h		1332			2106			188			39	
Approach Delay, s/veh		3.9			21.9			45.4			45.7	
Approach LOS		A			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	13.1	60.2		10.4	9.9	63.4		16.3
Change Period (Y+Rc), s	5.1	5.5		5.1	5.1	5.5		5.1
Max Green Setting (Gmax), s	8.0	26.2		27.0	8.0	26.2		18.0
Max Q Clear Time (g_c+I1), s	9.1	2.0		2.9	3.7	53.0		9.6
Green Ext Time (p_c), s	0.0	9.7		0.1	0.0	0.0		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	16.8
HCM 2010 LOS	B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	480	524	408	300	1491	640	196	500	50	250	620	323
Future Volume (veh/h)	480	524	408	300	1491	640	196	500	50	250	620	323
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		0.97	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1881	1881	1881	1792	1792	1900	1810	1810	1810
Adj Flow Rate, veh/h	490	535	338	306	1521	521	200	510	47	255	633	214
Adj No. of Lanes	2	2	0	1	2	1	1	2	0	2	1	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	1	1	1	6	6	6	5	5	5
Cap, veh/h	554	610	385	339	1163	505	234	980	90	333	495	420
Arrive On Green	0.16	0.29	0.28	0.19	0.33	0.33	0.14	0.31	0.30	0.10	0.27	0.27
Sat Flow, veh/h	3442	2085	1316	1792	3574	1551	1707	3151	290	3343	1810	1535
Grp Volume(v), veh/h	490	454	419	306	1521	521	200	275	282	255	633	214
Grp Sat Flow(s),veh/h/ln	1721	1770	1631	1792	1787	1551	1707	1703	1738	1672	1810	1535
Q Serve(g_s), s	21.6	37.9	38.1	25.9	50.6	50.6	17.8	20.6	20.8	11.6	42.5	18.3
Cycle Q Clear(g_c), s	21.6	37.9	38.1	25.9	50.6	50.6	17.8	20.6	20.8	11.6	42.5	18.3
Prop In Lane	1.00		0.81	1.00		1.00	1.00		0.17	1.00		1.00
Lane Grp Cap(c), veh/h	554	518	477	339	1163	505	234	530	540	333	495	420
V/C Ratio(X)	0.88	0.88	0.88	0.90	1.31	1.03	0.86	0.52	0.52	0.77	1.28	0.51
Avail Cap(c_a), veh/h	578	587	541	382	1163	505	342	530	540	734	495	420
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	63.7	52.3	52.9	61.6	52.4	52.4	65.5	44.0	44.1	68.2	56.4	47.6
Incr Delay (d2), s/veh	14.7	12.9	14.0	22.4	144.8	48.6	13.2	0.9	0.9	3.7	140.4	1.0
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	11.4	20.4	19.0	14.9	48.3	28.5	9.2	9.8	10.1	5.5	40.5	7.9
LnGrp Delay(d),s/veh	78.4	65.2	66.8	84.0	197.2	101.0	78.8	44.9	45.0	71.9	196.8	48.7
LnGrp LOS	E	E	E	F	F	F	E	D	D	E	F	D
Approach Vol, veh/h		1363			2348			757			1102	
Approach Delay, s/veh		70.4			161.1			53.9			139.1	
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	19.5	52.3	33.4	50.2	25.3	46.5	29.0	54.6
Change Period (Y+Rc), s	5.1	5.5	5.1	* 6.2	5.1	5.5	5.1	6.2
Max Green Setting (Gmax), s	33.0	40.0	32.0	* 50	30.0	41.0	25.0	44.0
Max Q Clear Time (g_c+I1), s	13.6	22.8	27.9	40.1	19.8	44.5	23.6	52.6
Green Ext Time (p_c), s	0.8	3.2	0.4	3.9	0.4	0.0	0.3	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	120.0
HCM 2010 LOS	F

Notes

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	50	80	596	90	250	1208
Future Volume (veh/h)	50	80	596	90	250	1208
Number	3	18	2	12	1	6
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	1900	1900	1845	1900	1900	1900
Adj Flow Rate, veh/h	53	85	634	96	266	1285
Adj No. of Lanes	0	0	1	0	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	0	3	3	0	0
Cap, veh/h	67	107	1215	184	556	1475
Arrive On Green	0.10	0.10	0.78	0.78	0.78	0.78
Sat Flow, veh/h	643	1031	1566	237	737	1900
Grp Volume(v), veh/h	139	0	0	730	266	1285
Grp Sat Flow(s),veh/h/ln	1686	0	0	1803	737	1900
Q Serve(g_s), s	6.0	0.0	0.0	11.4	15.9	35.1
Cycle Q Clear(g_c), s	6.0	0.0	0.0	11.4	27.4	35.1
Prop In Lane	0.38	0.61		0.13	1.00	
Lane Grp Cap(c), veh/h	175	0	0	1399	556	1475
V/C Ratio(X)	0.79	0.00	0.00	0.52	0.48	0.87
Avail Cap(c_a), veh/h	348	0	0	1813	725	1911
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.8	0.0	0.0	3.2	8.3	5.8
Incr Delay (d2), s/veh	7.9	0.0	0.0	0.3	0.6	3.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	0.0	0.0	5.6	3.3	19.0
LnGrp Delay(d),s/veh	40.7	0.0	0.0	3.5	8.9	9.6
LnGrp LOS	D			A	A	A
Approach Vol, veh/h	139		730			1551
Approach Delay, s/veh	40.7		3.5			9.5
Approach LOS	D		A			A

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		62.8				62.8		12.3
Change Period (Y+Rc), s		4.5				4.5		4.5
Max Green Setting (Gmax), s		75.5				75.5		15.5
Max Q Clear Time (g_c+I1), s		13.4				37.1		8.0
Green Ext Time (p_c), s		6.2				21.2		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	9.5
HCM 2010 LOS	A

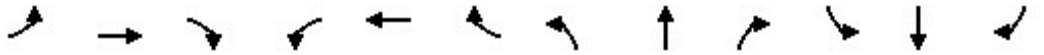
Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	242	600	120	190	1300	102	140	383	80	185	359	665
Future Volume (veh/h)	242	600	120	190	1300	102	140	383	80	185	359	665
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1881	1881	1900	1900	1776	1900	1900	1881	1881
Adj Flow Rate, veh/h	247	612	112	194	1327	101	143	391	79	189	366	367
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	1	1	1	7	7	7	1	1	1
Cap, veh/h	270	1074	196	220	1109	84	73	200	40	152	295	629
Arrive On Green	0.15	0.36	0.36	0.12	0.33	0.33	0.18	0.18	0.18	0.24	0.24	0.24
Sat Flow, veh/h	1774	2989	546	1792	3361	255	400	1095	221	630	1220	1599
Grp Volume(v), veh/h	247	362	362	194	704	724	613	0	0	555	0	367
Grp Sat Flow(s),veh/h/ln	1774	1770	1766	1792	1787	1829	1717	0	0	1850	0	1599
Q Serve(g_s), s	23.3	28.0	28.1	18.1	56.0	56.0	31.0	0.0	0.0	41.0	0.0	30.7
Cycle Q Clear(g_c), s	23.3	28.0	28.1	18.1	56.0	56.0	31.0	0.0	0.0	41.0	0.0	30.7
Prop In Lane	1.00		0.31	1.00		0.14	0.23		0.13	0.34		1.00
Lane Grp Cap(c), veh/h	270	636	634	220	589	603	313	0	0	447	0	629
V/C Ratio(X)	0.92	0.57	0.57	0.88	1.19	1.20	1.96	0.00	0.00	1.24	0.00	0.58
Avail Cap(c_a), veh/h	272	636	634	274	589	603	313	0	0	447	0	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	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	70.9	43.8	43.9	73.3	56.9	56.9	69.4	0.0	0.0	64.4	0.0	40.5
Incr Delay (d2), s/veh	33.2	1.2	1.2	23.2	103.1	105.7	441.7	0.0	0.0	127.0	0.0	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.9	13.9	13.9	10.4	44.4	45.9	53.1	0.0	0.0	36.6	0.0	13.8
LnGrp Delay(d),s/veh	104.2	45.0	45.2	96.5	160.0	162.6	511.1	0.0	0.0	191.4	0.0	41.9
LnGrp LOS	F	D	D	F	F	F	F			F		D
Approach Vol, veh/h		971			1622			613			922	
Approach Delay, s/veh		60.1			153.6			511.1			131.9	
Approach LOS		E			F			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	24.8	65.0		45.0	29.8	60.0		35.0
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	25.5	55.5		40.5	25.5	55.5		30.5
Max Q Clear Time (g_c+I1), s	20.1	30.1		43.0	25.3	58.0		33.0
Green Ext Time (p_c), s	0.2	4.7		0.0	0.0	0.0		0.0

Intersection Summary		
HCM 2010 Ctrl Delay		179.8
HCM 2010 LOS		F

Notes



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	170	1110	30	263	896	393	60	260	223	821	370	200
Future Volume (veh/h)	170	1110	30	263	896	393	60	260	223	821	370	200
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	1900	1900	1900	1900	1881	1881	1900	1900	1900	1900
Adj Flow Rate, veh/h	173	1133	30	268	914	0	61	265	121	838	378	157
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	2	2	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	0	0	0	1	1	1	0	0	0
Cap, veh/h	211	1216	32	181	1178	527	95	382	170	1016	987	404
Arrive On Green	0.12	0.35	0.33	0.10	0.33	0.00	0.05	0.16	0.14	0.29	0.39	0.37
Sat Flow, veh/h	1774	3522	93	1810	3610	1615	1792	2408	1069	3510	2500	1024
Grp Volume(v), veh/h	173	569	594	268	914	0	61	195	191	838	271	264
Grp Sat Flow(s),veh/h/ln	1774	1770	1846	1810	1805	1615	1792	1787	1690	1755	1805	1719
Q Serve(g_s), s	14.3	46.6	46.6	15.0	34.3	0.0	5.0	15.4	16.2	33.4	16.1	16.7
Cycle Q Clear(g_c), s	14.3	46.6	46.6	15.0	34.3	0.0	5.0	15.4	16.2	33.4	16.1	16.7
Prop In Lane	1.00		0.05	1.00		1.00	1.00		0.63	1.00		0.60
Lane Grp Cap(c), veh/h	211	611	637	181	1178	527	95	284	268	1016	713	679
V/C Ratio(X)	0.82	0.93	0.93	1.48	0.78	0.00	0.64	0.69	0.71	0.82	0.38	0.39
Avail Cap(c_a), veh/h	234	613	640	181	1178	527	141	393	372	1016	713	679
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	0.00	1.00	1.00	1.00	0.59	0.59	0.59
Uniform Delay (d), s/veh	64.5	47.4	47.5	67.5	45.6	0.0	69.6	59.6	60.8	49.7	32.3	33.1
Incr Delay (d2), s/veh	18.6	21.1	20.5	243.7	3.3	0.0	7.0	4.6	5.8	3.4	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.1	26.3	27.4	19.7	17.7	0.0	2.7	8.0	8.0	16.7	8.1	8.0
LnGrp Delay(d),s/veh	83.1	68.5	68.0	311.2	48.9	0.0	76.6	64.2	66.6	53.2	32.6	33.5
LnGrp LOS	F	E	E	F	D		E	E	E	D	C	C
Approach Vol, veh/h		1336			1182			447			1373	
Approach Delay, s/veh		70.2			108.4			66.9			45.3	
Approach LOS		E			F			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	47.4	27.8	19.0	55.8	12.0	63.2	21.9	52.9
Change Period (Y+Rc), s	5.5	7.0	6.0	6.7	5.5	7.0	5.5	6.7
Max Green Setting (Gmax), s	32.5	30.0	13.0	49.3	10.3	52.2	18.3	44.5
Max Q Clear Time (g_c+I1), s	35.4	18.2	17.0	48.6	7.0	18.7	16.3	36.3
Green Ext Time (p_c), s	0.0	2.4	0.0	0.5	0.0	5.4	0.1	3.6

Intersection Summary	
HCM 2010 Ctrl Delay	72.4
HCM 2010 LOS	E

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	2229	47	160	1535	100	36	20	130	230	30	60
Future Volume (veh/h)	30	2229	47	160	1535	100	36	20	130	230	30	60
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		0.94	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1895	1900	1863	1863	1900
Adj Flow Rate, veh/h	33	2423	50	174	1668	106	39	22	84	250	33	15
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	2	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	0	2	2	2	2	2
Cap, veh/h	71	2158	44	154	2192	138	180	30	116	313	110	50
Arrive On Green	0.08	1.00	1.00	0.09	0.65	0.64	0.10	0.09	0.09	0.09	0.09	0.09
Sat Flow, veh/h	1774	3544	73	1774	3381	213	1810	329	1257	3442	1214	552
Grp Volume(v), veh/h	33	1205	1268	174	867	907	39	0	106	250	0	48
Grp Sat Flow(s),veh/h/ln	1774	1770	1847	1774	1770	1825	1810	0	1586	1721	0	1765
Q Serve(g_s), s	2.7	91.3	91.3	13.0	50.7	52.2	3.0	0.0	9.7	10.7	0.0	3.8
Cycle Q Clear(g_c), s	2.7	91.3	91.3	13.0	50.7	52.2	3.0	0.0	9.7	10.7	0.0	3.8
Prop In Lane	1.00		0.04	1.00		0.12	1.00		0.79	1.00		0.31
Lane Grp Cap(c), veh/h	71	1077	1125	154	1147	1183	180	0	146	313	0	160
V/C Ratio(X)	0.47	1.12	1.13	1.13	0.76	0.77	0.22	0.00	0.72	0.80	0.00	0.30
Avail Cap(c_a), veh/h	95	1077	1125	154	1147	1183	230	0	190	619	0	318
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.32	0.32	0.32	0.37	0.37	0.37	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	67.5	0.0	0.0	68.5	18.2	18.5	62.1	0.0	66.2	66.8	0.0	63.7
Incr Delay (d2), s/veh	1.5	57.8	61.6	85.2	1.8	1.8	0.6	0.0	9.2	4.7	0.0	1.0
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	17.3	19.3	10.0	25.1	26.8	1.5	0.0	4.6	5.3	0.0	1.9
LnGrp Delay(d),s/veh	69.0	57.8	61.6	153.7	20.0	20.3	62.7	0.0	75.4	71.5	0.0	64.7
LnGrp LOS	E	F	F	F	B	C	E		E	E		E
Approach Vol, veh/h		2506			1948			145			298	
Approach Delay, s/veh		59.9			32.1			72.0			70.5	
Approach LOS		E			C			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	17.0	95.3		18.7	11.1	101.3		18.9
Change Period (Y+Rc), s	5.1	5.5		5.1	5.1	5.5		5.1
Max Green Setting (Gmax), s	11.9	72.3		27.0	8.0	76.2		18.0
Max Q Clear Time (g_c+I1), s	15.0	93.3		12.7	4.7	54.2		11.7
Green Ext Time (p_c), s	0.0	0.0		1.0	0.0	14.1		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	49.8
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	724	1763	102	60	819	470	320	500	180	510	530	556
Future Volume (veh/h)	724	1763	102	60	819	470	320	500	180	510	530	556
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		0.98	1.00		0.99	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	1900	1900	1900	1900	1900	1900	1881	1881	1881
Adj Flow Rate, veh/h	739	1799	102	61	836	288	327	510	164	520	541	348
Adj No. of Lanes	2	2	0	1	2	1	1	2	0	2	1	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	1	1	1	0	0	0	0	0	0	1	1	1
Cap, veh/h	573	1304	73	91	973	431	355	784	251	602	505	429
Arrive On Green	0.16	0.38	0.37	0.05	0.27	0.27	0.20	0.29	0.28	0.17	0.27	0.27
Sat Flow, veh/h	3476	3436	193	1810	3610	1601	1810	2690	861	3476	1881	1597
Grp Volume(v), veh/h	739	927	974	61	836	288	327	341	333	520	541	348
Grp Sat Flow(s),veh/h/ln	1738	1787	1842	1810	1805	1601	1810	1805	1746	1738	1881	1597
Q Serve(g_s), s	26.1	60.1	60.1	5.2	34.9	25.4	28.1	26.2	26.5	23.0	42.5	32.3
Cycle Q Clear(g_c), s	26.1	60.1	60.1	5.2	34.9	25.4	28.1	26.2	26.5	23.0	42.5	32.3
Prop In Lane	1.00		0.10	1.00		1.00	1.00		0.49	1.00		1.00
Lane Grp Cap(c), veh/h	573	678	699	91	973	431	355	526	509	602	505	429
V/C Ratio(X)	1.29	1.37	1.39	0.67	0.86	0.67	0.92	0.65	0.65	0.86	1.07	0.81
Avail Cap(c_a), veh/h	573	678	699	378	1053	467	355	526	509	748	505	429
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	66.1	49.1	49.2	73.9	55.0	51.5	62.4	49.0	49.4	63.7	57.9	54.2
Incr Delay (d2), s/veh	143.3	174.4	185.6	8.2	6.9	3.3	28.5	2.8	3.0	8.7	60.6	11.3
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	23.9	62.4	66.5	2.8	18.3	11.6	16.9	13.5	13.2	11.8	30.5	15.5
LnGrp Delay(d),s/veh	209.4	223.5	234.8	82.2	61.9	54.8	90.9	51.8	52.4	72.3	118.5	65.5
LnGrp LOS	F	F	F	F	E	D	F	D	D	E	F	E
Approach Vol, veh/h		2640			1185			1001			1409	
Approach Delay, s/veh		223.8			61.2			64.8			88.4	
Approach LOS		F			E			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	31.4	50.2	12.0	64.8	35.1	46.5	30.1	46.7
Change Period (Y+Rc), s	5.1	5.5	5.1	* 6.2	5.1	5.5	5.1	6.2
Max Green Setting (Gmax), s	33.0	40.0	32.0	* 50	30.0	41.0	25.0	44.0
Max Q Clear Time (g_c+I1), s	25.0	28.5	7.2	62.1	30.1	44.5	28.1	36.9
Green Ext Time (p_c), s	1.3	3.3	0.1	0.0	0.0	0.0	0.0	3.6

Intersection Summary	
HCM 2010 Ctrl Delay	136.8
HCM 2010 LOS	F

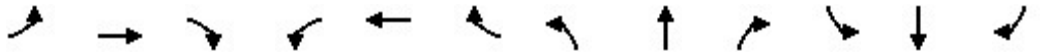
Notes

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	30	80	1140	50	30	612
Future Volume (veh/h)	30	80	1140	50	30	612
Number	3	18	2	12	1	6
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	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	32	85	1213	53	32	651
Adj No. of Lanes	0	0	1	0	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	41	108	1394	61	245	1466
Arrive On Green	0.09	0.09	0.77	0.77	0.77	0.77
Sat Flow, veh/h	447	1188	1807	79	445	1900
Grp Volume(v), veh/h	118	0	0	1266	32	651
Grp Sat Flow(s),veh/h/ln	1649	0	0	1886	445	1900
Q Serve(g_s), s	4.6	0.0	0.0	30.6	3.5	7.8
Cycle Q Clear(g_c), s	4.6	0.0	0.0	30.6	34.1	7.8
Prop In Lane	0.27	0.72		0.04	1.00	
Lane Grp Cap(c), veh/h	151	0	0	1455	245	1466
V/C Ratio(X)	0.78	0.00	0.00	0.87	0.13	0.44
Avail Cap(c_a), veh/h	390	0	0	2170	414	2186
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.2	0.0	0.0	5.2	17.1	2.6
Incr Delay (d2), s/veh	8.6	0.0	0.0	2.7	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	0.0	16.2	0.5	4.1
LnGrp Delay(d),s/veh	37.8	0.0	0.0	8.0	17.3	2.8
LnGrp LOS	D			A	B	A
Approach Vol, veh/h	118		1266			683
Approach Delay, s/veh	37.8		8.0			3.5
Approach LOS	D		A			A

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		55.1				55.1		10.5
Change Period (Y+Rc), s		4.5				4.5		4.5
Max Green Setting (Gmax), s		75.5				75.5		15.5
Max Q Clear Time (g_c+I1), s		32.6				36.1		6.6
Green Ext Time (p_c), s		18.0				5.5		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	8.2
HCM 2010 LOS	A

Notes



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	465	1280	110	60	660	155	120	570	90	153	366	153
Future Volume (veh/h)	465	1280	110	60	660	155	120	570	90	153	366	153
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	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	1900	1900	1881	1881	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	474	1306	108	61	673	145	122	582	89	156	373	36
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	1	1	1	0	0	0	0	0	0
Cap, veh/h	302	1306	108	84	782	168	57	270	41	146	348	696
Arrive On Green	0.17	0.39	0.38	0.05	0.27	0.26	0.20	0.20	0.20	0.26	0.26	0.26
Sat Flow, veh/h	1810	3370	278	1792	2927	630	284	1357	208	552	1320	1615
Grp Volume(v), veh/h	474	697	717	61	411	407	793	0	0	529	0	36
Grp Sat Flow(s),veh/h/ln	1810	1805	1843	1792	1787	1770	1849	0	0	1872	0	1615
Q Serve(g_s), s	26.0	60.0	60.3	5.2	34.0	34.1	31.0	0.0	0.0	41.0	0.0	2.0
Cycle Q Clear(g_c), s	26.0	60.0	60.3	5.2	34.0	34.1	31.0	0.0	0.0	41.0	0.0	2.0
Prop In Lane	1.00		0.15	1.00		0.36	0.15		0.11	0.29		1.00
Lane Grp Cap(c), veh/h	302	699	714	84	478	473	368	0	0	493	0	696
V/C Ratio(X)	1.57	1.00	1.00	0.73	0.86	0.86	2.15	0.00	0.00	1.07	0.00	0.05
Avail Cap(c_a), veh/h	302	699	714	299	643	637	368	0	0	493	0	696
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	64.8	47.6	47.7	73.1	54.2	54.3	62.3	0.0	0.0	57.3	0.0	25.8
Incr Delay (d2), s/veh	270.8	33.3	34.5	11.2	8.8	9.0	527.5	0.0	0.0	61.2	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	35.7	36.3	37.4	2.9	17.9	17.8	69.7	0.0	0.0	29.5	0.0	0.9
LnGrp Delay(d),s/veh	335.6	80.9	82.2	84.3	63.0	63.3	589.8	0.0	0.0	118.5	0.0	25.8
LnGrp LOS	F	F	F	F	E	E	F			F		C
Approach Vol, veh/h		1888			879			793			565	
Approach Delay, s/veh		145.4			64.6			589.8			112.6	
Approach LOS		F			E			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.3	64.3		45.0	30.0	45.6		35.0
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	25.5	55.5		40.5	25.5	55.5		30.5
Max Q Clear Time (g_c+I1), s	7.2	62.3		43.0	28.0	36.1		33.0
Green Ext Time (p_c), s	0.1	0.0		0.0	0.0	5.0		0.0

Intersection Summary		
HCM 2010 Ctrl Delay	209.1	
HCM 2010 LOS	F	

Appendix C: Signal Warrant Assessment

FEHR PEERS

Major Street	West Leland Road
Minor Street	Tomales Bay Drive

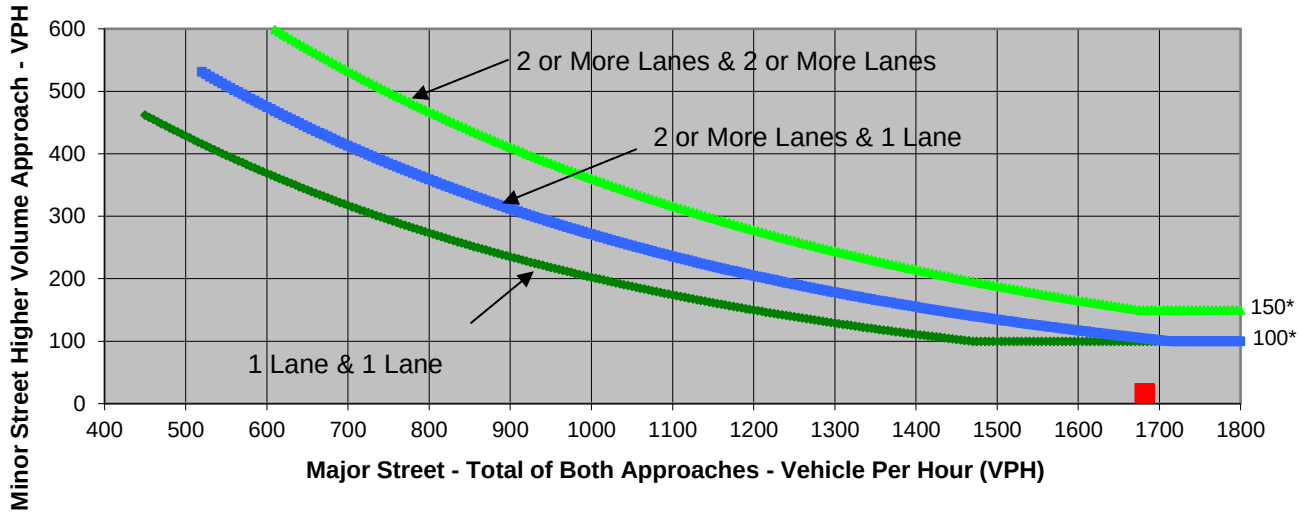
Project	Alves Ranch
Scenario	Existing
Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left		0		
Through		0	451	1,209
Right	17		22	
Total	17	0	473	1,209

Major Street Direction

	North/South
X	East/West



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

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	West Leland Road	Tomales Bay Drive	
Number of Approach Lanes	**2**	**1**	**NO**
Traffic Volume (VPH) *	**1,682**	**17**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Major Street	West Leland Road
Minor Street	Tomales Bay Drive

Project	Alves Ranch
Scenario	Existing
Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	0	0	0
Through	0	0	451	1,209
Right	17	0	22	0
Total	17	0	473	1,209

Major Street Direction

	North/South
X	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	10.1
Approach with Worst Case Delay	NB
Total Vehicles on Approach	17

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Existing	**0**	**17**	**1,699**
Limiting Value	**4**	**100**	**650**
Condition Satisfied?	**Not Met**	**Not Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

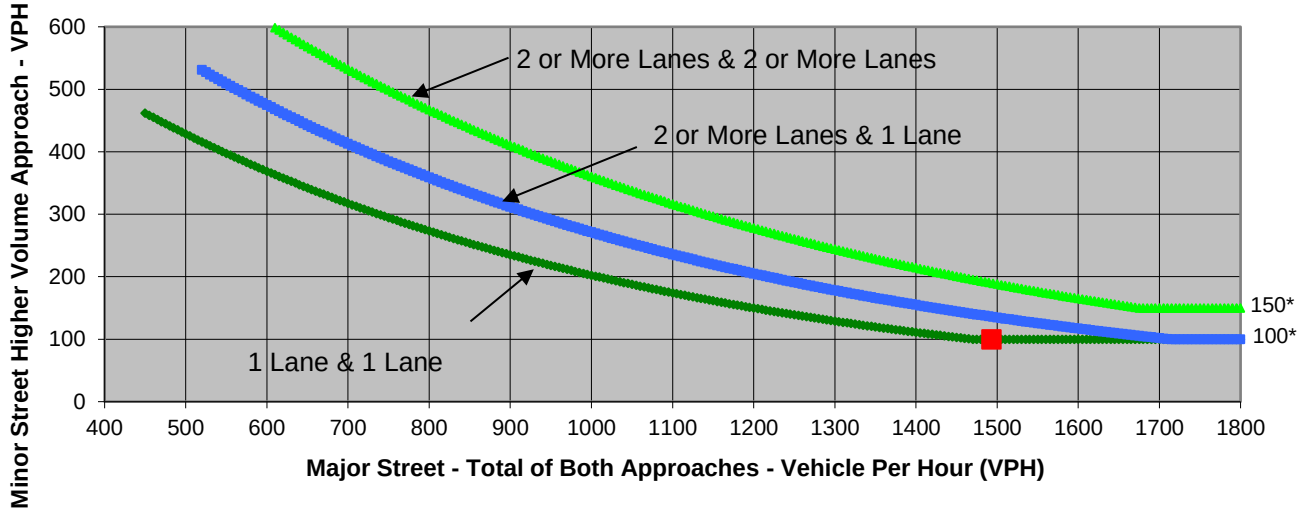
Major Street	Bailey Road	Project	Alves Ranch
Minor Street	Myrtle Drive	Scenario	Existing
		Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left		202		32
Through	241	998	0	0
Right	52		0	68
Total	293	1,200	0	100

Major Street Direction

x	North/South
	East/West



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

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	Bailey Road	Myrtle Drive	
Number of Approach Lanes	**1**	**1**	**YES**
Traffic Volume (VPH) *	**1,493**	**100**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Major Street	Bailey Road
Minor Street	Myrtle Drive

Project	Alves Ranch
Scenario	Existing
Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	0	0	32
Through	1,333	839	0	0
Right	0	0	246	90
Total	1,333	839	246	122

Major Street Direction

x	North/South
	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	4

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	43.1
Approach with Worst Case Delay	WB
Total Vehicles on Approach	100

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Existing	**1.2**	**246**	**2,540**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Not Met**	**Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

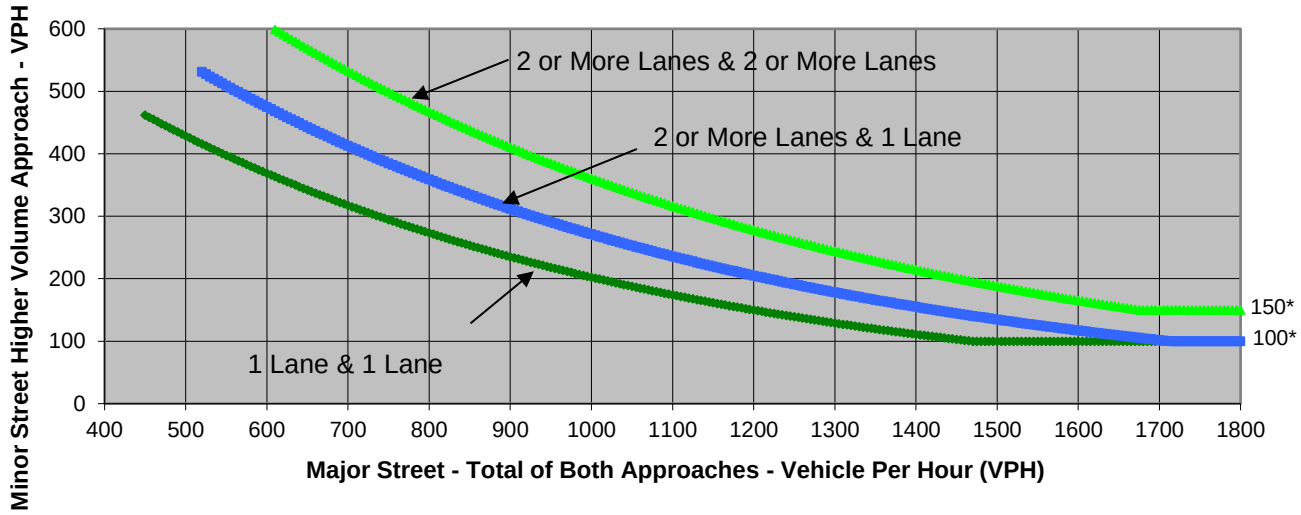
Major Street	Willow Pass Road	Project	Alves Ranch
Minor Street	Avila	Scenario	Existing
		Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left		6		1
Through	584	1,217	0	0
Right	1		0	11
Total	585	1,223	0	12

Major Street Direction

x	North/South
	East/West



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

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	Willow Pass Road	Avila	
Number of Approach Lanes	**2**	**1**	**NO**
Traffic Volume (VPH) *	**1,808**	**12**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Major Street	Willow Pass Road
Minor Street	Avila

Project	Alves Ranch
Scenario	Existing
Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	0	0	1
Through	1,333	839	0	0
Right	0	0	246	90
Total	1,333	839	246	91

Major Street Direction

x	North/South
	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	4

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	13.3
Approach with Worst Case Delay	WB
Total Vehicles on Approach	12

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Existing	**0**	**246**	**2,509**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Not Met**	**Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

Major Street	West Leland Road
Minor Street	Tomales Bay Drive

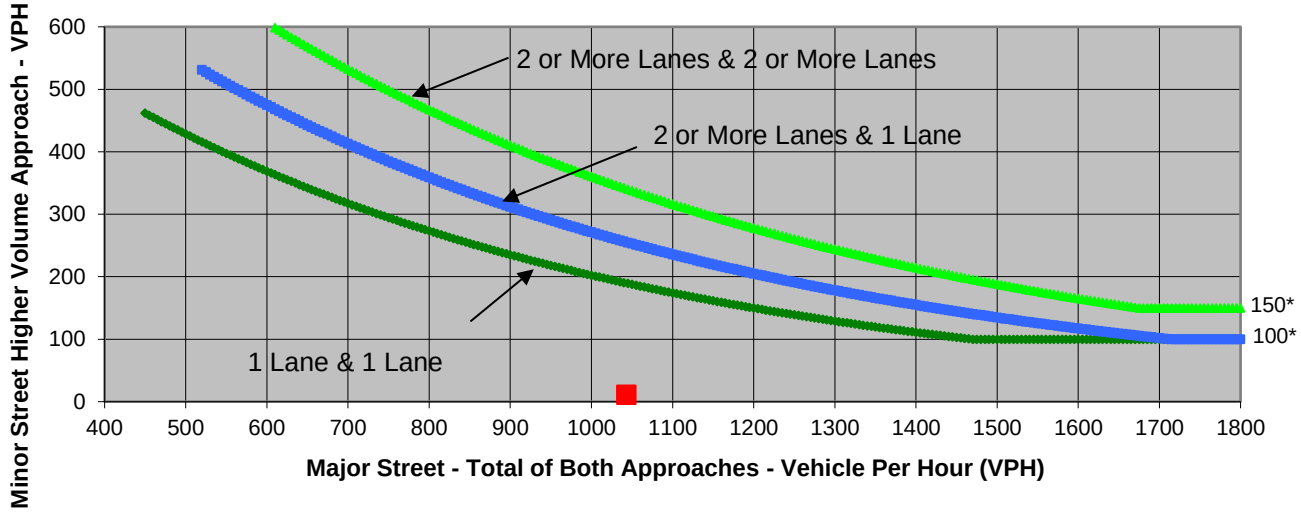
Project	Alves Ranch
Scenario	Existing
Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left		0		
Through		0	569	442
Right	11		32	
Total	11	0	601	442

Major Street Direction

	North/South
X	East/West



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

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	West Leland Road	Tomales Bay Drive	
Number of Approach Lanes	**2**	**1**	**NO**
Traffic Volume (VPH) *	**1,043**	**11**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Project	Alves Ranch
Scenario	Existing
Peak Hour	PM

Major Street	West Leland Road
Minor Street	Tomales Bay Drive

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	0	0	0
Through	0	0	569	442
Right	11	0	32	0
Total	11	0	601	442

Major Street Direction

	North/South
X	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	10.3
Approach with Worst Case Delay	NB
Total Vehicles on Approach	11

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Existing	**0**	**11**	**1,054**
Limiting Value	**4**	**100**	**650**
Condition Satisfied?	**Not Met**	**Not Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

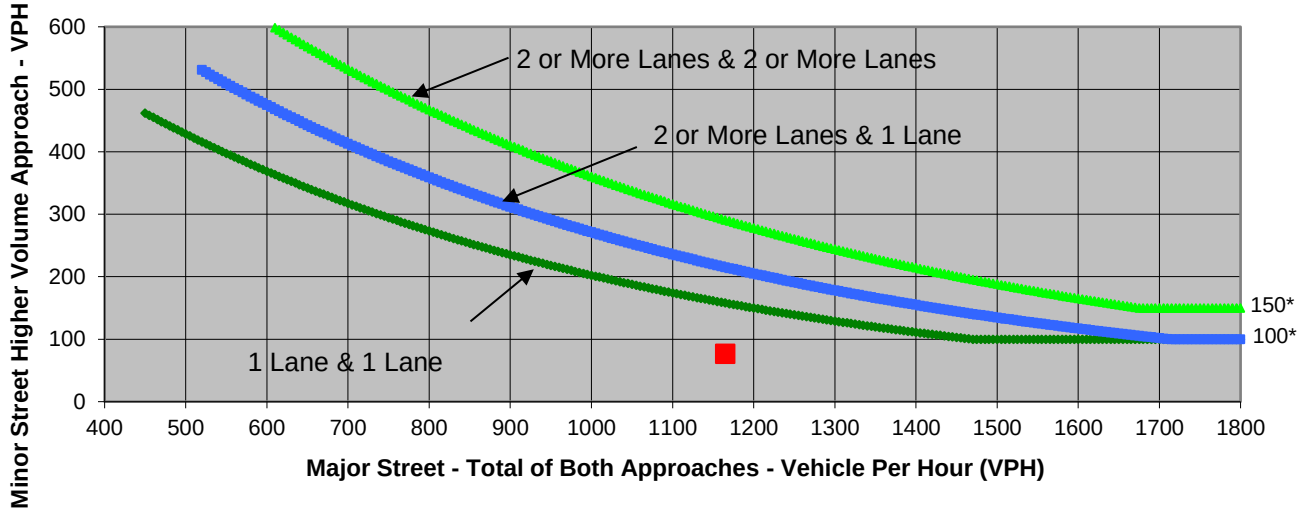
Major Street	Bailey Road	Project	Alves Ranch
Minor Street	Myrtle Drive	Scenario	Existing
		Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left		274		17
Through	820	23	0	0
Right	48		0	60
Total	868	297	0	77

Major Street Direction

x	North/South
	East/West



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

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	Bailey Road	Myrtle Drive	
Number of Approach Lanes	**1**	**1**	**NO**
Traffic Volume (VPH) *	**1,165**	**77**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Major Street	Bailey Road
Minor Street	Myrtle Drive

Project	Alves Ranch
Scenario	Existing
Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	0	0	17
Through	1,333	839	0	0
Right	0	0	246	90
Total	1,333	839	246	107

Major Street Direction

x	North/South
	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	4

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	22.3
Approach with Worst Case Delay	WB
Total Vehicles on Approach	77

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Existing	**0.5**	**246**	**2,525**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Not Met**	**Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

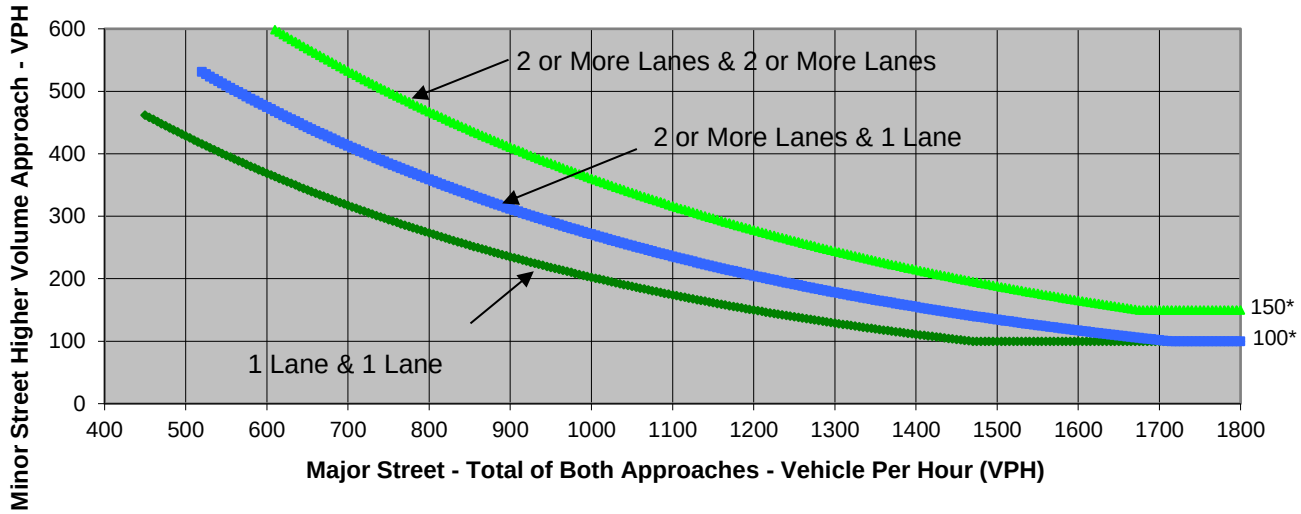
Major Street	Willow Pass Road	Project	Alves Ranch
Minor Street	Avila	Scenario	Existing
		Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left		14		6
Through	1,590	414	0	0
Right	0		0	13
Total	1,590	428	0	19

Major Street Direction

x	North/South
	East/West



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

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	Willow Pass Road	Avila	
Number of Approach Lanes	**2**	**1**	**NO**
Traffic Volume (VPH) *	**2,018**	**19**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Major Street	Willow Pass Road
Minor Street	Avila

Project	Alves Ranch
Scenario	Existing
Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	0	0	6
Through	1,333	839	0	0
Right	0	0	246	90
Total	1,333	839	246	96

Major Street Direction

x	North/South
	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	4

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	36.7
Approach with Worst Case Delay	WB
Total Vehicles on Approach	19

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Existing	**0.2**	**246**	**2,514**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Not Met**	**Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

Major Street	West Leland Road
Minor Street	Tomales Bay Drive

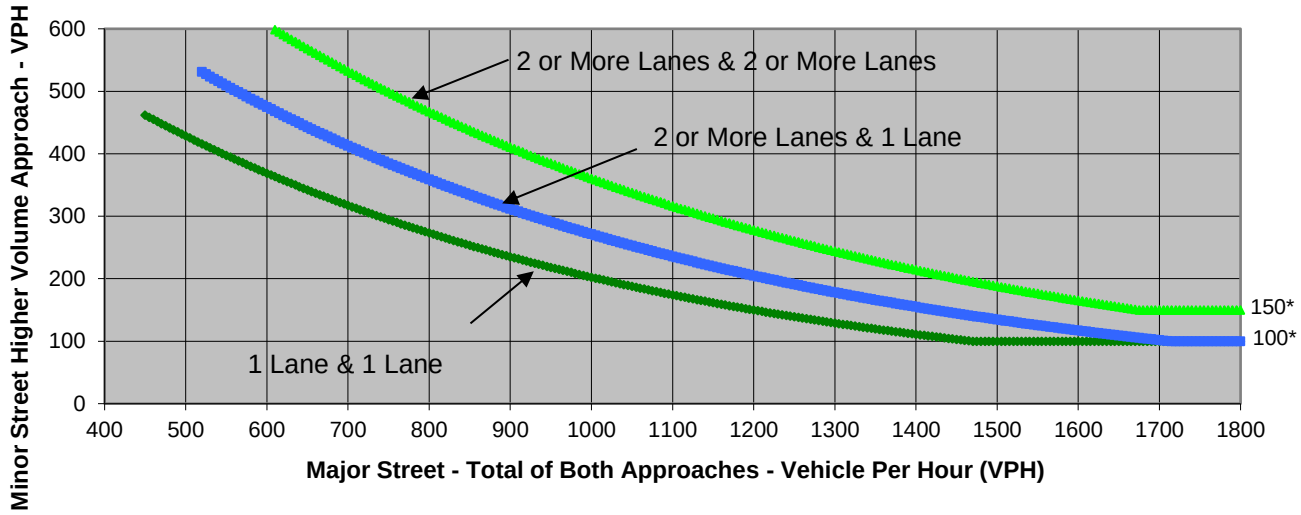
Project	Alves Ranch
Scenario	Existing Plus Project
Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left		25	22	8
Through		0	546	1,307
Right	20	67	22	
Total	20	92	590	1,315

Major Street Direction

	North/South
X	East/West



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

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	West Leland Road	Tomales Bay Drive	
Number of Approach Lanes	**2**	**1**	**NO**
Traffic Volume (VPH) *	**1,905**	**92**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Project	Alves Ranch
Major Street	West Leland Road
Scenario	Existing Plus Project
Minor Street	Tomales Bay Drive
Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	25	22	8
Through	0	0	546	1,307
Right	20	67	22	0
Total	20	92	590	1,315

Major Street Direction

	North/South
X	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	4

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	28.5
Approach with Worst Case Delay	SB
Total Vehicles on Approach	92

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Existing Plus Project	**0.7**	**92**	**2,017**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Not Met**	**Not Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

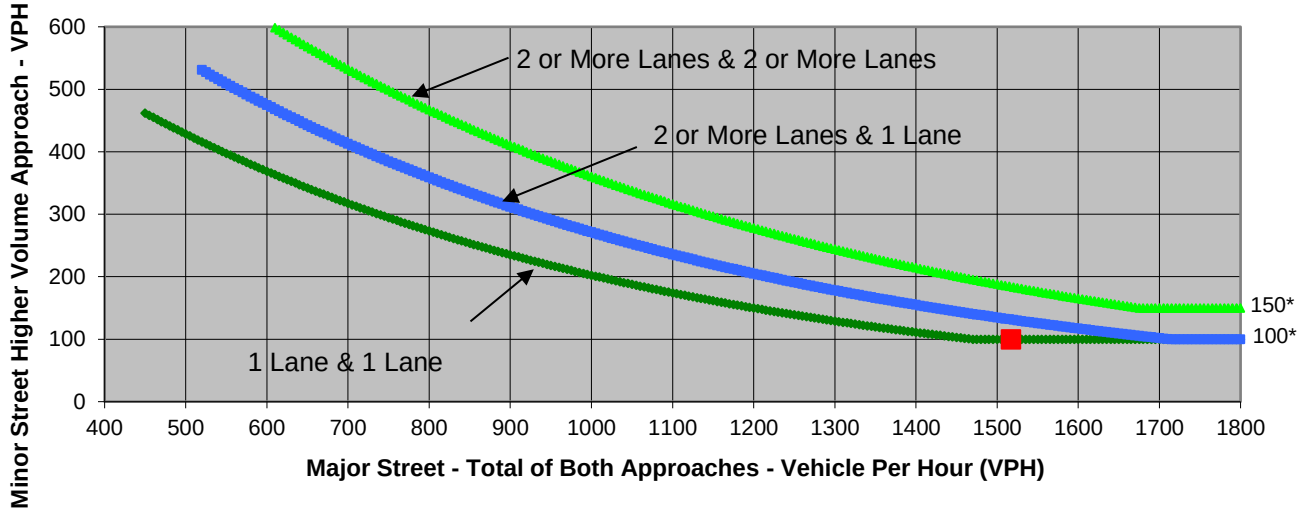
Major Street	Bailey Road	Project	Alves Ranch
Minor Street	Myrtle Drive	Scenario	Existing Plus Project
		Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left		202		32
Through	247	1,016	0	0
Right	52		0	68
Total	299	1,218	0	100

Major Street Direction

x	North/South
	East/West



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

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	Bailey Road	Myrtle Drive	
Number of Approach Lanes	**1**	**1**	**YES**
Traffic Volume (VPH) *	**1,517**	**100**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Project	Alves Ranch
Major Street	Bailey Road
Minor Street	Myrtle Drive
Scenario	Existing Plus Project
Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	0	0	32
Through	1,333	839	0	0
Right	0	0	246	90
Total	1,333	839	246	122

Major Street Direction

x	North/South
	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	4

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	45.6
Approach with Worst Case Delay	WB
Total Vehicles on Approach	100

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Existing Plus Project	**1.3**	**246**	**2,540**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Not Met**	**Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

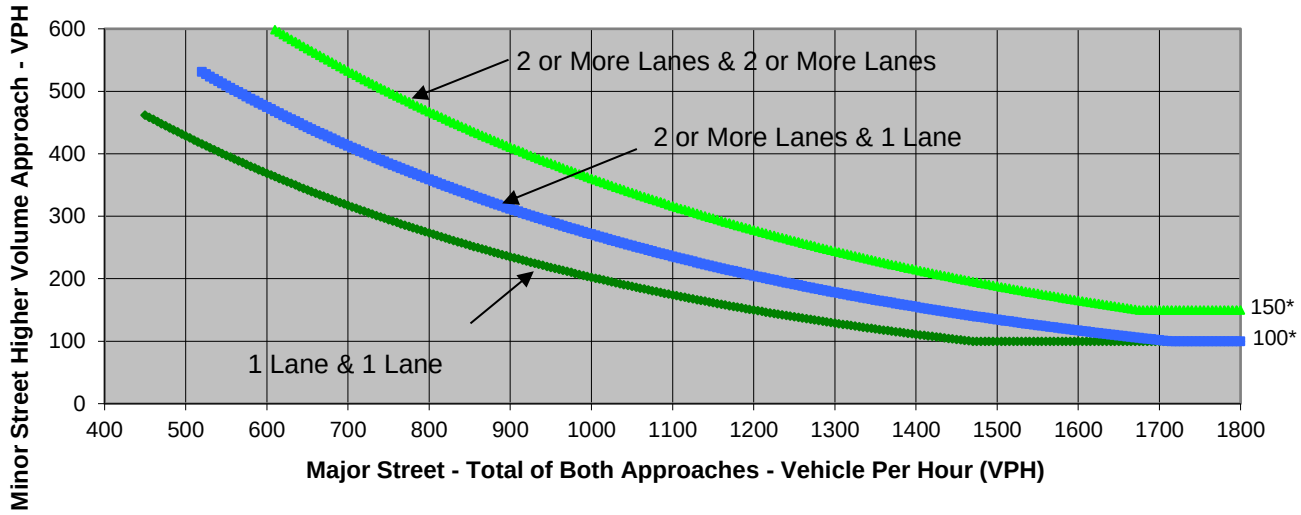
Major Street	Willow Pass Road	Project	Alves Ranch
Minor Street	Avila	Scenario	Existing Plus Project
		Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left		6		1
Through	587	1,226	0	0
Right	1		0	11
Total	588	1,232	0	12

Major Street Direction

x	North/South
	East/West



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

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	Willow Pass Road	Avila	
Number of Approach Lanes	**2**	**1**	**NO**
Traffic Volume (VPH) *	**1,820**	**12**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Major Street	Willow Pass Road
Minor Street	Avila

Project	Alves Ranch
Scenario	Existing Plus Project
Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	0	0	1
Through	1,333	839	0	0
Right	0	0	246	90
Total	1,333	839	246	91

Major Street Direction

x	North/South
	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	4

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	13.3
Approach with Worst Case Delay	WB
Total Vehicles on Approach	12

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Existing Plus Project	**0**	**246**	**2,509**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Not Met**	**Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

Major Street	West Leland Road
Minor Street	Tomales Bay Drive

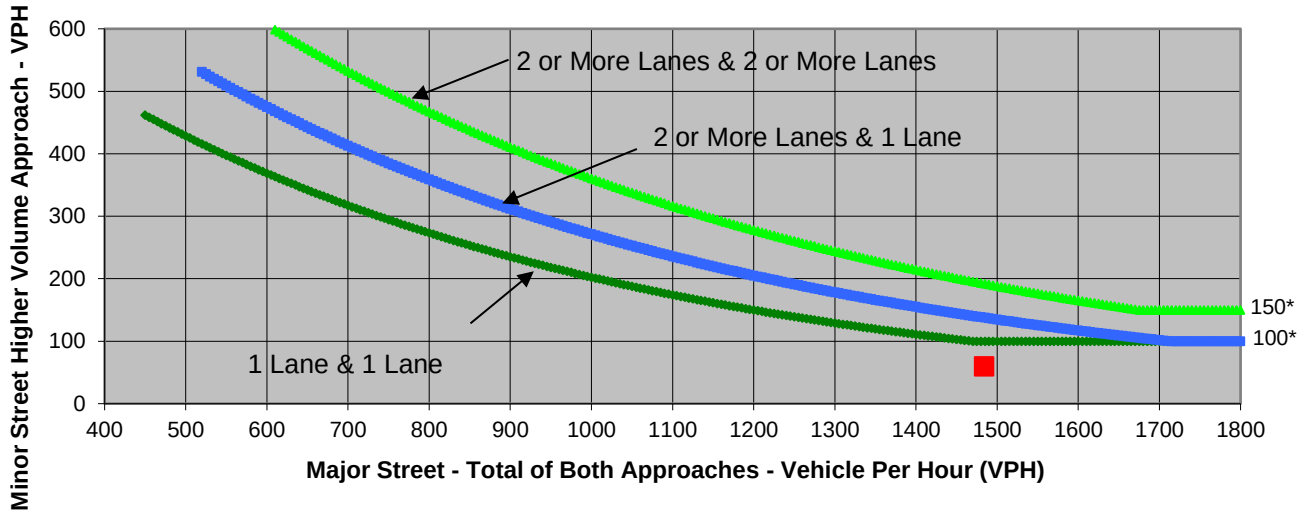
Project	Alves Ranch
Scenario	Existing Plus Project
Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left		16	75	28
Through		0	757	592
Right	16	44	32	
Total	16	60	864	620

Major Street Direction

	North/South
X	East/West



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

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	West Leland Road	Tomales Bay Drive	
Number of Approach Lanes	**2**	**1**	**NO**
Traffic Volume (VPH) *	**1,484**	**60**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Project	Alves Ranch
Major Street	West Leland Road
Scenario	Existing Plus Project
Minor Street	Tomales Bay Drive
Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	16	75	28
Through	0	0	757	592
Right	16	44	32	0
Total	16	60	864	620

Major Street Direction

	North/South
X	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	4

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	13.2
Approach with Worst Case Delay	SB
Total Vehicles on Approach	60

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Existing Plus Project	**0.2**	**60**	**1,560**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Not Met**	**Not Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

Major Street	Bailey Road
Minor Street	Myrtle Drive

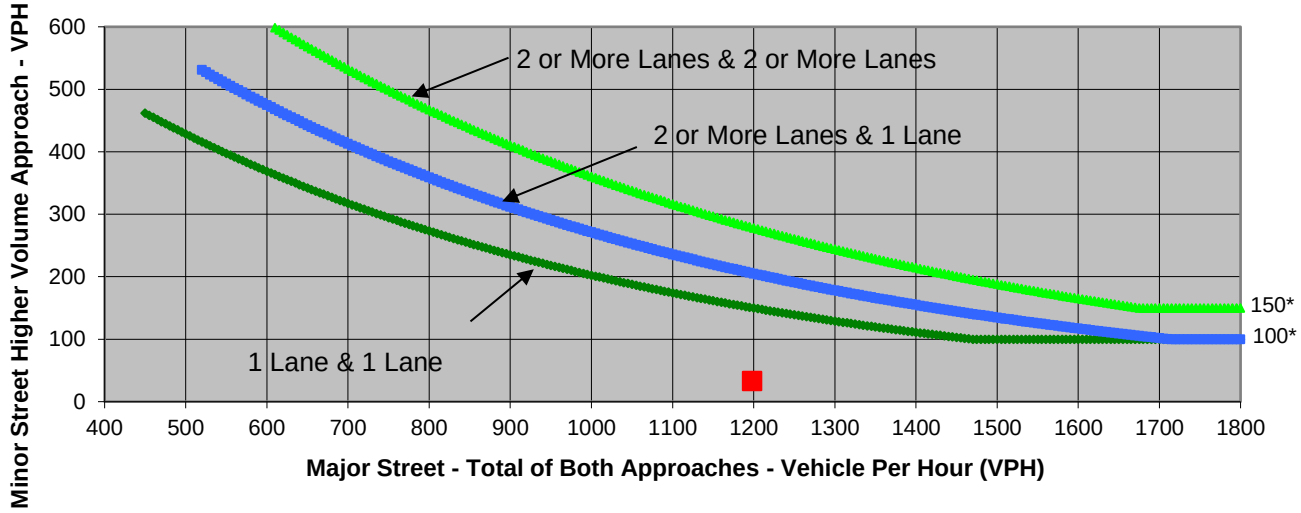
Project	Alves Ranch
Scenario	Existing Plus Project
Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left		23		17
Through	841	286	0	0
Right	48		0	16
Total	889	309	0	33

Major Street Direction

x	North/South
	East/West



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

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	Bailey Road	Myrtle Drive	
Number of Approach Lanes	**1**	**1**	**NO**
Traffic Volume (VPH) *	**1,198**	**33**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Project	Alves Ranch
Major Street	Bailey Road
Scenario	Existing Plus Project
Minor Street	Myrtle Drive
Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	0	0	17
Through	1,333	839	0	0
Right	0	0	246	90
Total	1,333	839	246	107

Major Street Direction

x	North/South
	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	4

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	23.2
Approach with Worst Case Delay	WB
Total Vehicles on Approach	33

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Existing Plus Project	**0.2**	**246**	**2,525**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Not Met**	**Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

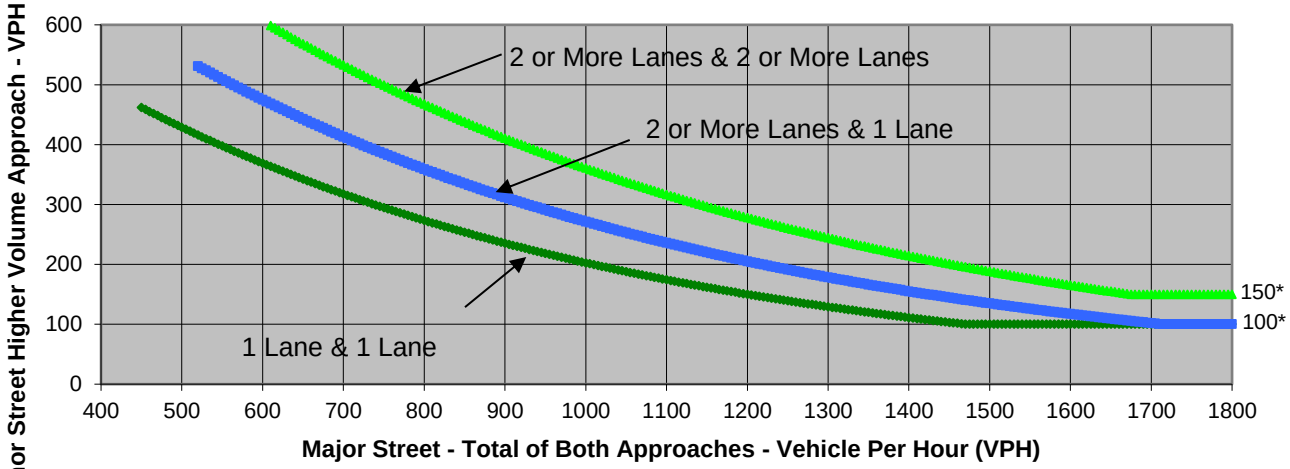
Major Street	Willow Pass Road	Project	Alves Ranch
Minor Street	Avila	Scenario	Existing Plus Project
		Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left		6		1
Through	587	1,226	0	0
Right	1		0	11
Total	588	1,232	0	12

Major Street Direction

x	North/South
	East/West



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

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	Willow Pass Road	Avila	
Number of Approach Lanes	**2**	**1**	**NO**
Traffic Volume (VPH) *	**1,820**	**12**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Major Street	Willow Pass Road	Project	Alves Ranch
Minor Street	Avila	Scenario	Existing Plus Project
		Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	0	0	1
Through	1,333	839	0	0
Right	0	0	246	90
Total	1,333	839	246	91

Major Street Direction

x	North/South
	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	4

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	13.3
Approach with Worst Case Delay	WB
Total Vehicles on Approach	12

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Existing Plus Project	**0**	**246**	**2,509**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Not Met**	**Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

Major Street	West Leland Road
Minor Street	Tomales Bay Drive

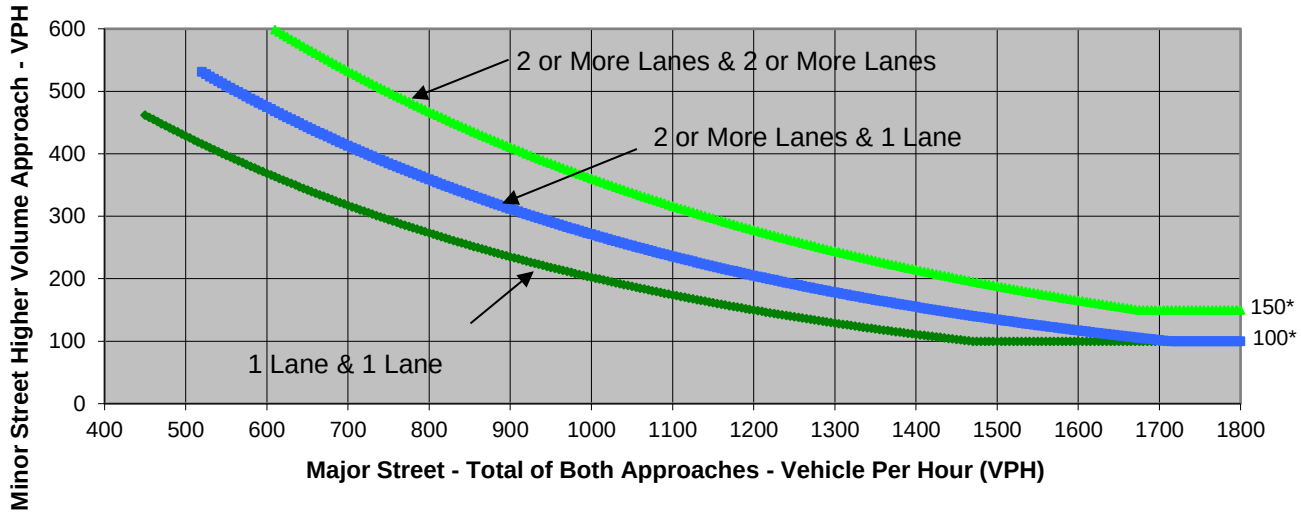
Project	Alves Ranch
Scenario	Near Term No Project
Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left		0	0	0
Through	710	0	710	1,310
Right	30	0	30	
Total	740	0	740	1,310

Major Street Direction

	North/South
X	East/West



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

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	West Leland Road	Tomales Bay Drive	
Number of Approach Lanes	**2**	**1**	**YES**
Traffic Volume (VPH) *	**2,050**	**740**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Project	Alves Ranch
Major Street	West Leland Road
Scenario	Near Term No Project
Minor Street	Tomales Bay Drive
Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	0	0	0
Through	710	0	710	1,310
Right	30	0	30	0
Total	740	0	740	1,310

Major Street Direction

	North/South
X	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	11.6
Approach with Worst Case Delay	NB
Total Vehicles on Approach	740

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Near Term No Project	**2.4**	**740**	**2,790**
Limiting Value	**4**	**100**	**650**
Condition Satisfied?	**Not Met**	**Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

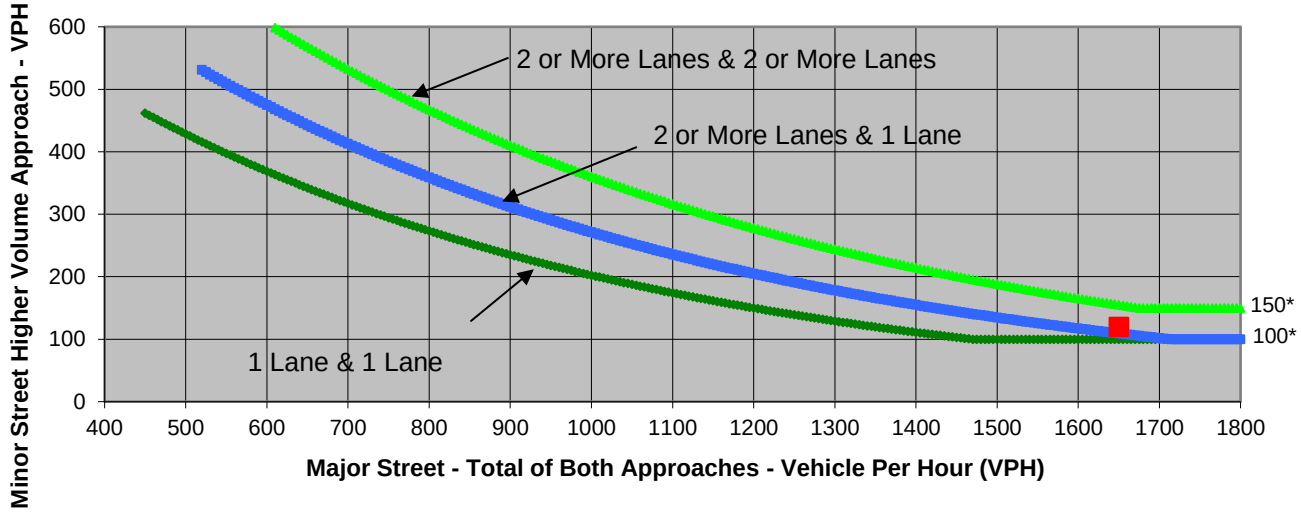
Major Street	Bailey Road	Project	Alves Ranch
Minor Street	Myrtle Drive	Scenario	Near Term
		Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left		220		40
Through	270	1,100	0	0
Right	60		0	80
Total	330	1,320	0	120

Major Street Direction

x	North/South
	East/West



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

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	Bailey Road	Myrtle Drive	
Number of Approach Lanes	**1**	**1**	**YES**
Traffic Volume (VPH) *	**1,650**	**120**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Project	Alves Ranch
Major Street	Bailey Road
Scenario	Near Term
Minor Street	Myrtle Drive
Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	0	0	40
Through	1,333	839	0	0
Right	0	0	246	90
Total	1,333	839	246	130

Major Street Direction

x	North/South
	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	4

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	101.6
Approach with Worst Case Delay	WB
Total Vehicles on Approach	120

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Near Term	**3.4**	**246**	**2,548**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Not Met**	**Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

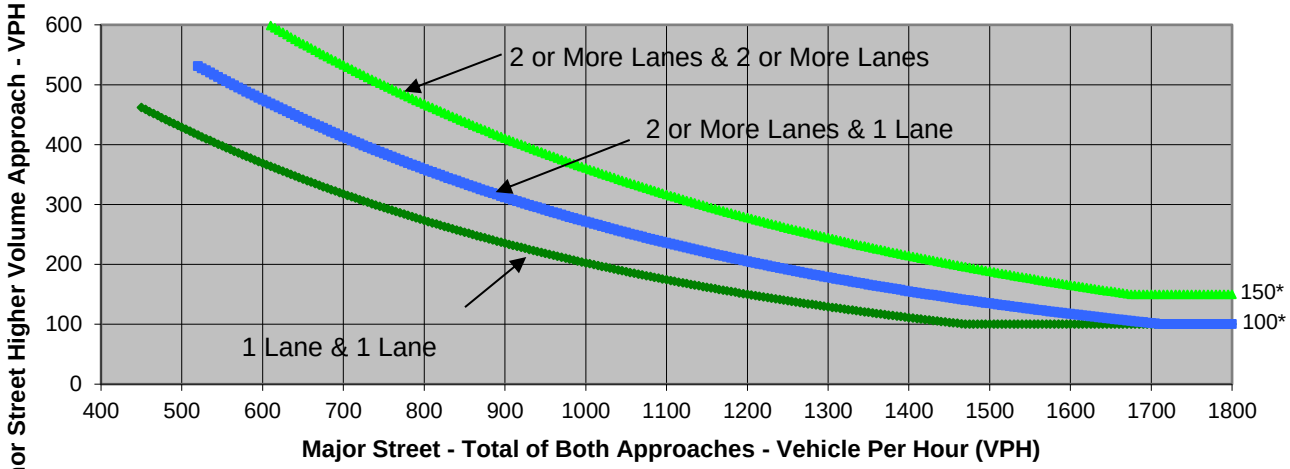
Major Street	Willow Pass Road	Project	Alves Ranch
Minor Street	Avila	Scenario	Near Term
		Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left		10		10
Through	630	1,310	0	0
Right	10		0	20
Total	640	1,320	0	30

Major Street Direction

x	North/South
	East/West



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

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	Willow Pass Road	Avila	
Number of Approach Lanes	**2**	**1**	**NO**
Traffic Volume (VPH) *	**1,960**	**30**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Major Street	Willow Pass Road	Project	Alves Ranch
Minor Street	Avila	Scenario	Near Term
		Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	0	0	10
Through	1,333	839	0	0
Right	0	0	246	90
Total	1,333	839	246	100

Major Street Direction

x	North/South
	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	4

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	24.7
Approach with Worst Case Delay	WB
Total Vehicles on Approach	30

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Near Term	**0.2**	**246**	**2,518**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Not Met**	**Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

Major Street	West Leland Road
Minor Street	Tomales Bay Drive

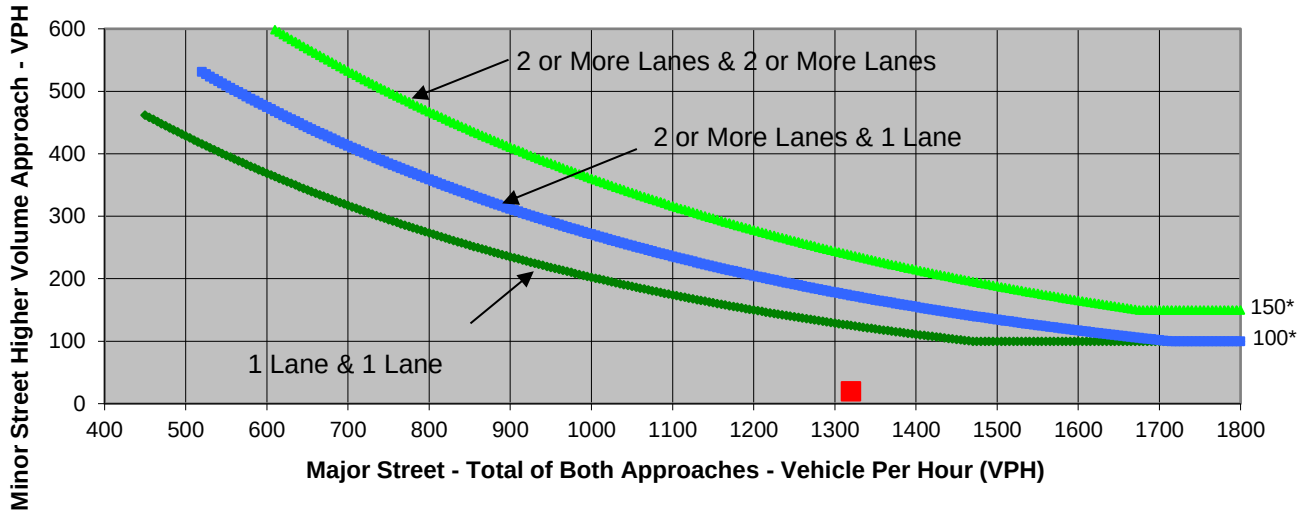
Project	Alves Ranch
Scenario	Near Term No Project
Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left		0	0	0
Through		0	650	630
Right	20	0	40	
Total	20	0	690	630

Major Street Direction

	North/South
X	East/West



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

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	West Leland Road	Tomales Bay Drive	
Number of Approach Lanes	**2**	**1**	**NO**
Traffic Volume (VPH) *	**1,320**	**20**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Major Street	West Leland Road
Minor Street	Tomales Bay Drive

Project	Alves Ranch
Scenario	Near Term No Project
Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	0	0	0
Through	0	0	650	630
Right	20	0	40	0
Total	20	0	690	630

Major Street Direction

	North/South
X	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	10.7
Approach with Worst Case Delay	NB
Total Vehicles on Approach	20

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Near Term No Project	**0.1**	**20**	**1,340**
Limiting Value	**4**	**100**	**650**
Condition Satisfied?	**Not Met**	**Not Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

Major Street	Bailey Road
Minor Street	Myrtle Drive

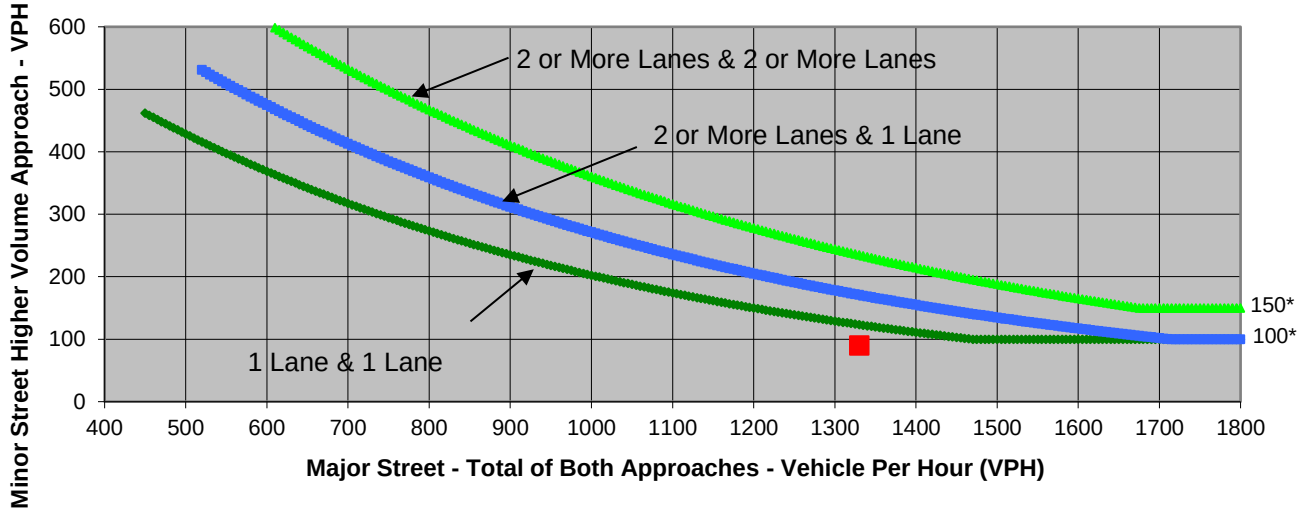
Project	Alves Ranch
Scenario	Near Term
Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left		30		20
Through	920	320	0	0
Right	60		0	70
Total	980	350	0	90

Major Street Direction

x	North/South
	East/West



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

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	Bailey Road	Myrtle Drive	
Number of Approach Lanes	**1**	**1**	**NO**
Traffic Volume (VPH) *	**1,330**	**90**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Project	Alves Ranch
Major Street	Bailey Road
Scenario	Near Term
Minor Street	Myrtle Drive
Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	0	0	20
Through	1,333	839	0	0
Right	0	0	246	90
Total	1,333	839	246	110

Major Street Direction

x	North/South
	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	4

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	29.7
Approach with Worst Case Delay	WB
Total Vehicles on Approach	90

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Near Term	**0.7**	**246**	**2,528**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Not Met**	**Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

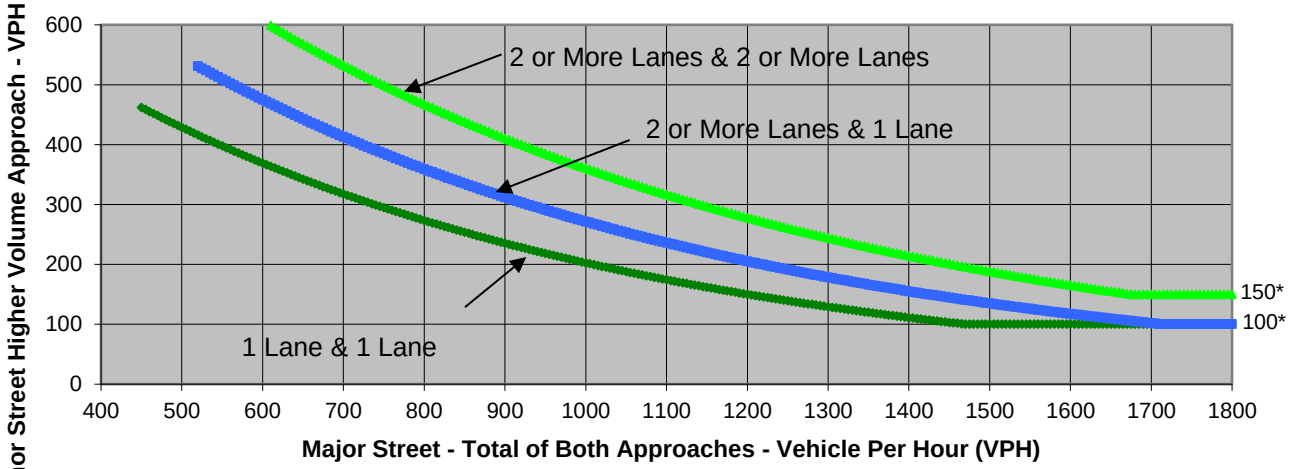
Major Street	Willow Pass Road	Project	Alves Ranch
Minor Street	Avila	Scenario	Near Term
		Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left		20		10
Through	1,700	450	0	0
Right	0		0	20
Total	1,700	470	0	30

Major Street Direction

x	North/South
	East/West



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

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	Willow Pass Road	Avila	
Number of Approach Lanes	**2**	**1**	**NO**
Traffic Volume (VPH) *	**2,170**	**30**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Major Street	Willow Pass Road	Project	Alves Ranch
Minor Street	Avila	Scenario	Near Term
		Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	0	0	10
Through	1,333	839	0	0
Right	0	0	246	90
Total	1,333	839	246	100

Major Street Direction

x	North/South
	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	4

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	53.2
Approach with Worst Case Delay	WB
Total Vehicles on Approach	30

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Near Term	**0.4**	**246**	**2,518**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Not Met**	**Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

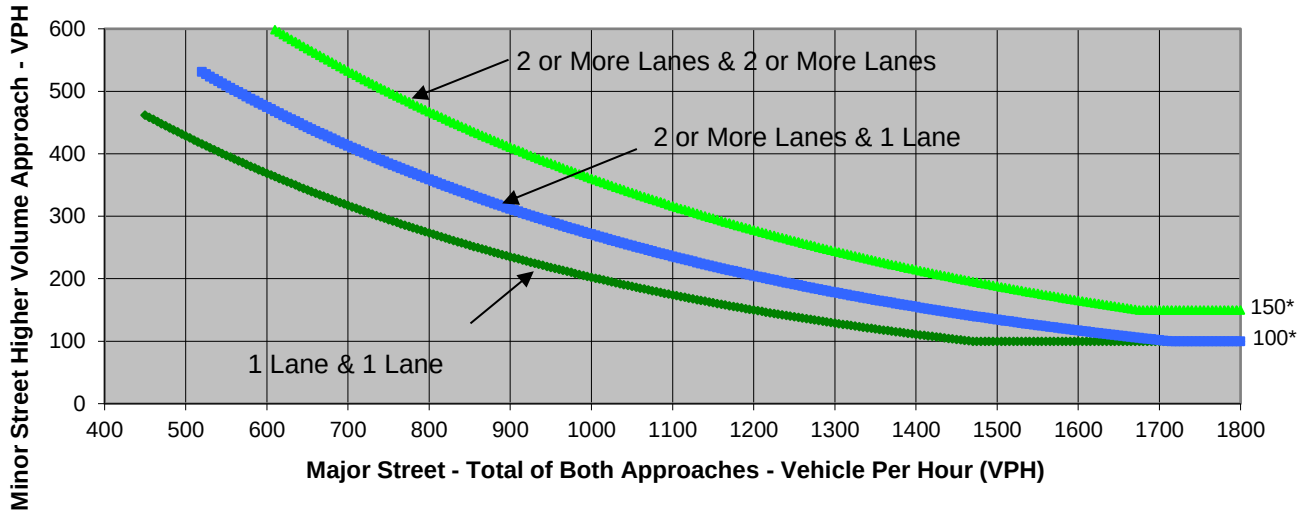
Major Street	West Leland Road	Project	Alves Ranch
Minor Street	Tomales Bay Drive	Scenario	Near Term Plus Project
		Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	25	22	0
Through	0	0	805	1,408
Right	23	67	30	8
Total	23	92	857	1,416

Major Street Direction

x	North/South
	East/West



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

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	West Leland Road	Tomales Bay Drive	
Number of Approach Lanes	**2**	**1**	**YES**
Traffic Volume (VPH) *	**115**	**1,416**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Project	Alves Ranch
Major Street	West Leland Road
Scenario	Cumulative No Project
Minor Street	Tomales Bay Drive
Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	25	22	0
Through	0	0	805	1,408
Right	23	67	30	8
Total	23	92	857	1,416

Major Street Direction

x	North/South
	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	4

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	33.8
Approach with Worst Case Delay	SB
Total Vehicles on Approach	92

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Cumulative No Project	**0.9**	**1,416**	**2,388**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Not Met**	**Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

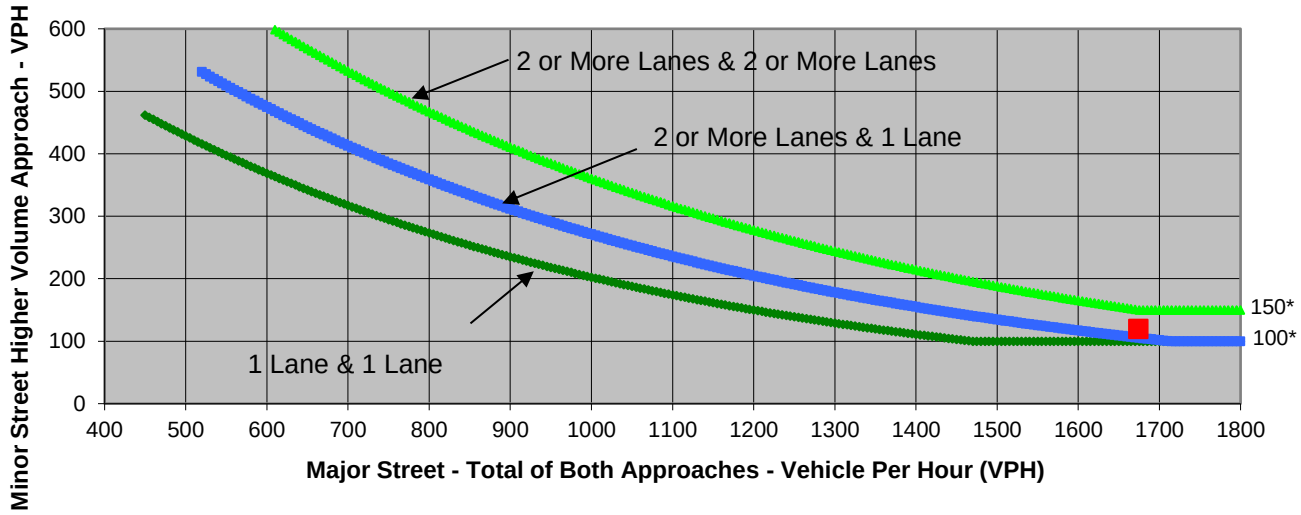
Major Street	Bailey Road	Project	Alves Ranch
Minor Street	Myrtle Drive	Scenario	Near Term Plus Project
		Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left		220		40
Through	276	1,118	0	0
Right	60		0	80
Total	336	1,338	0	120

Major Street Direction

x	North/South
	East/West



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

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	Bailey Road	Myrtle Drive	
Number of Approach Lanes	**1**	**1**	**YES**
Traffic Volume (VPH) *	**1,674**	**120**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Project	Alves Ranch
Scenario	Near Term Plus Project
Peak Hour	AM

Major Street	Bailey Road
Minor Street	Myrtle Drive

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	0	0	40
Through	1,333	839	0	0
Right	0	0	246	90
Total	1,333	839	246	130

Major Street Direction

x	North/South
	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	4

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	110.9
Approach with Worst Case Delay	WB
Total Vehicles on Approach	120

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Near Term Plus Project	**3.7**	**246**	**2,548**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Not Met**	**Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

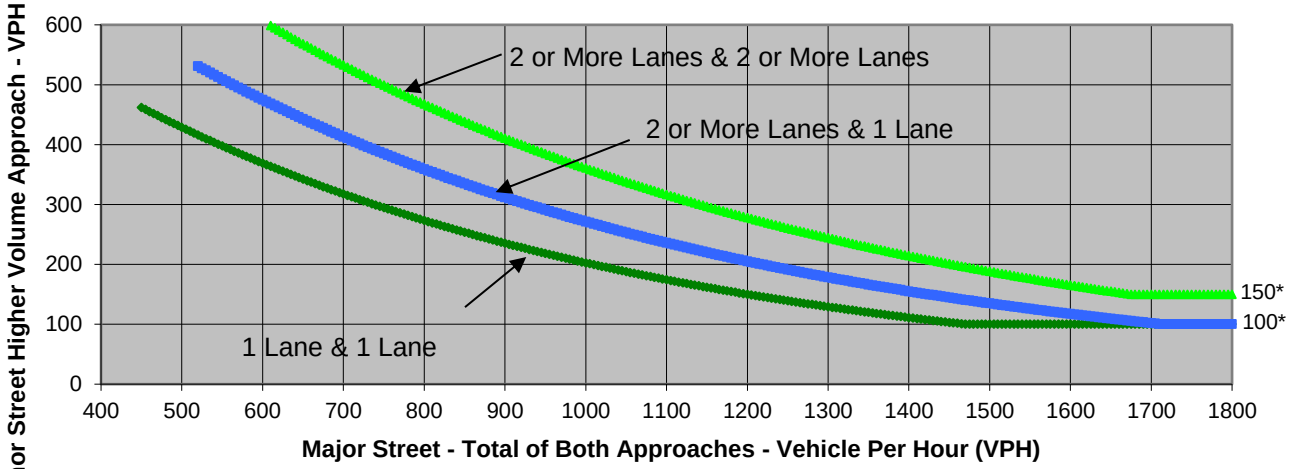
Major Street	Willow Pass Road	Project	Alves Ranch
Minor Street	Avila	Scenario	Near Term Plus Project
		Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left		10		10
Through	633	1,319	0	0
Right	10		0	20
Total	643	1,329	0	30

Major Street Direction

x	North/South
	East/West



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

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	Willow Pass Road	Avila	
Number of Approach Lanes	**2**	**1**	**NO**
Traffic Volume (VPH) *	**1,972**	**30**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Major Street	Willow Pass Road	Project	Alves Ranch
Minor Street	Avila	Scenario	Near Term Plus Project
		Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	0	0	10
Through	1,333	839	0	0
Right	0	0	246	90
Total	1,333	839	246	100

Major Street Direction

x	North/South
	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	4

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	25
Approach with Worst Case Delay	WB
Total Vehicles on Approach	30

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Near Term Plus Project	**0.2**	**246**	**2,518**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Not Met**	**Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

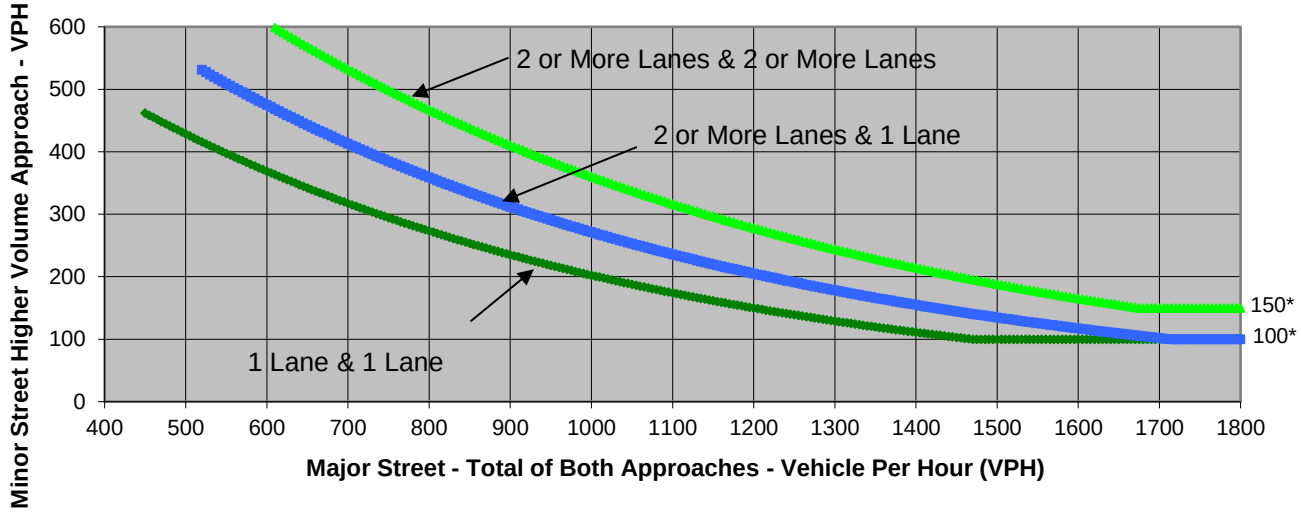
Major Street	West Leland Road	Project	Alves Ranch
Minor Street	Tomales Bay Drive	Scenario	Near Term Plus Project
		Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	16	75	0
Through	0	0	838	780
Right	25	44	40	28
Total	25	60	953	808

Major Street Direction

x	North/South
	East/West



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

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	West Leland Road	Tomales Bay Drive	
Number of Approach Lanes	**2**	**1**	**NO**
Traffic Volume (VPH) *	**85**	**953**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Project	Alves Ranch
Major Street	West Leland Road
Scenario	Cumulative No Project
Minor Street	Tomales Bay Drive
Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	16	75	0
Through	0	0	838	780
Right	25	44	40	28
Total	25	60	953	808

Major Street Direction

x	North/South
	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	4

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	15.1
Approach with Worst Case Delay	SB
Total Vehicles on Approach	60

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Cumulative No Project	**0.3**	**953**	**1,846**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Not Met**	**Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

Major Street	Bailey Road
Minor Street	Myrtle Drive

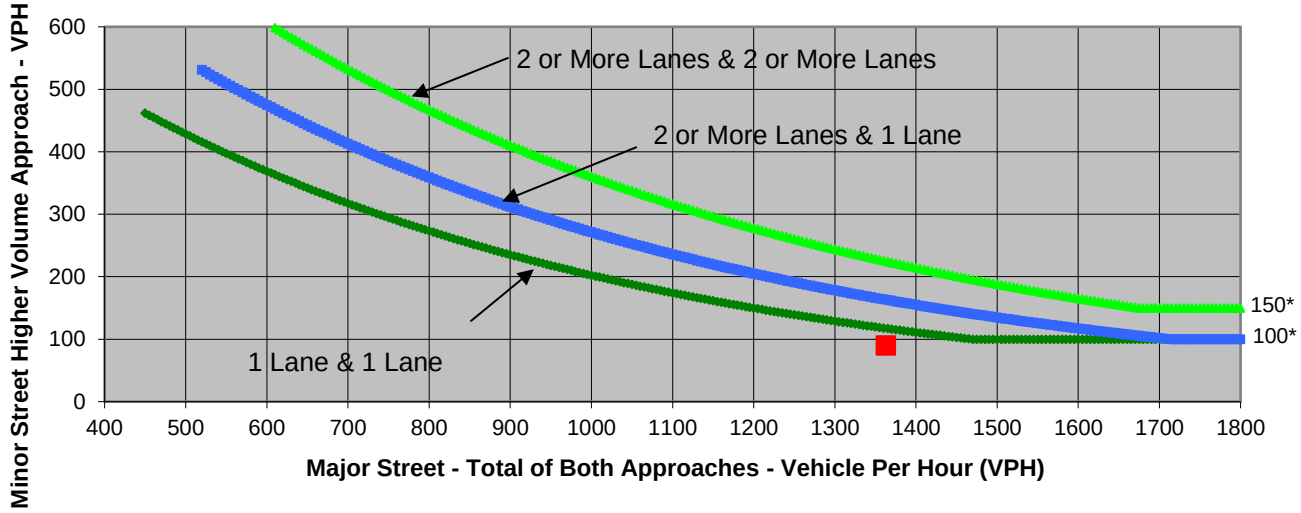
Project	Alves Ranch
Scenario	Near Term Plus Project
Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left		30		20
Through	941	332	0	0
Right	60		0	70
Total	1,001	362	0	90

Major Street Direction

x	North/South
	East/West



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

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	Bailey Road	Myrtle Drive	
Number of Approach Lanes	**1**	**1**	**NO**
Traffic Volume (VPH) *	**1,363**	**90**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Major Street	Bailey Road
Minor Street	Myrtle Drive

Project	Alves Ranch
Scenario	Near Term Plus Project
Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	0	0	20
Through	1,333	839	0	0
Right	0	0	246	90
Total	1,333	839	246	110

Major Street Direction

x	North/South
	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	4

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	31.3
Approach with Worst Case Delay	WB
Total Vehicles on Approach	90

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Near Term Plus Project	**0.8**	**246**	**2,528**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Not Met**	**Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

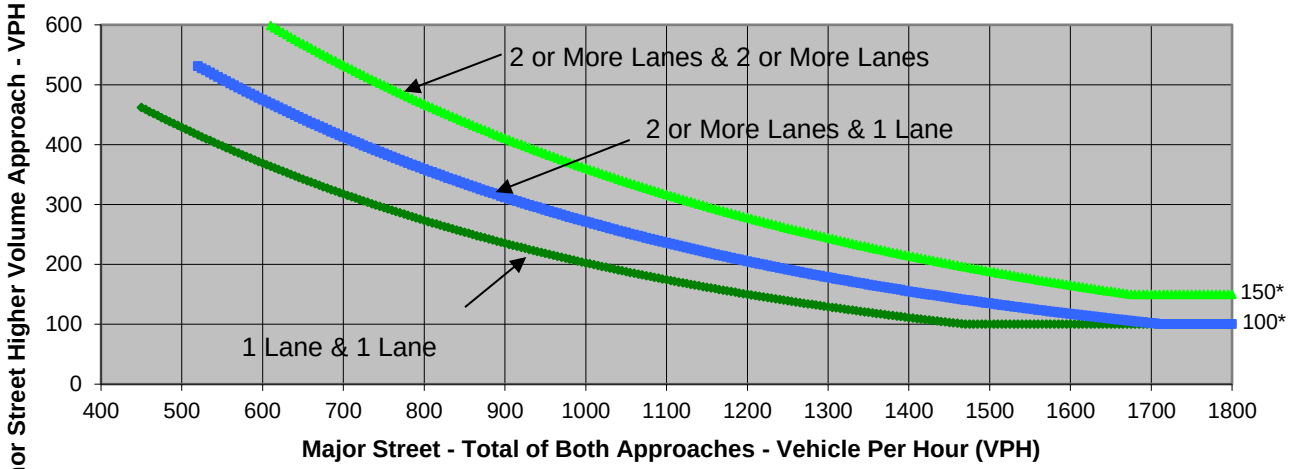
Major Street	Willow Pass Road	Project	Alves Ranch
Minor Street	Avila	Scenario	Near Term Plus Project
		Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left		20		10
Through	1,710	456	0	0
Right	0		0	20
Total	1,710	476	0	30

Major Street Direction

x	North/South
	East/West



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

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	Willow Pass Road	Avila	
Number of Approach Lanes	**2**	**1**	**NO**
Traffic Volume (VPH) *	**2,186**	**30**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Project	Alves Ranch
Scenario	Near Term Plus Project
Peak Hour	PM
Major Street	Willow Pass Road
Minor Street	Avila

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	0	0	10
Through	1,333	839	0	0
Right	0	0	246	90
Total	1,333	839	246	100

Major Street Direction

x	North/South
	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	4

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	54.5
Approach with Worst Case Delay	WB
Total Vehicles on Approach	30

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Near Term Plus Project	**0.5**	**246**	**2,518**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Not Met**	**Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

Major Street	West leland
Minor Street	Tomales Bay Drive

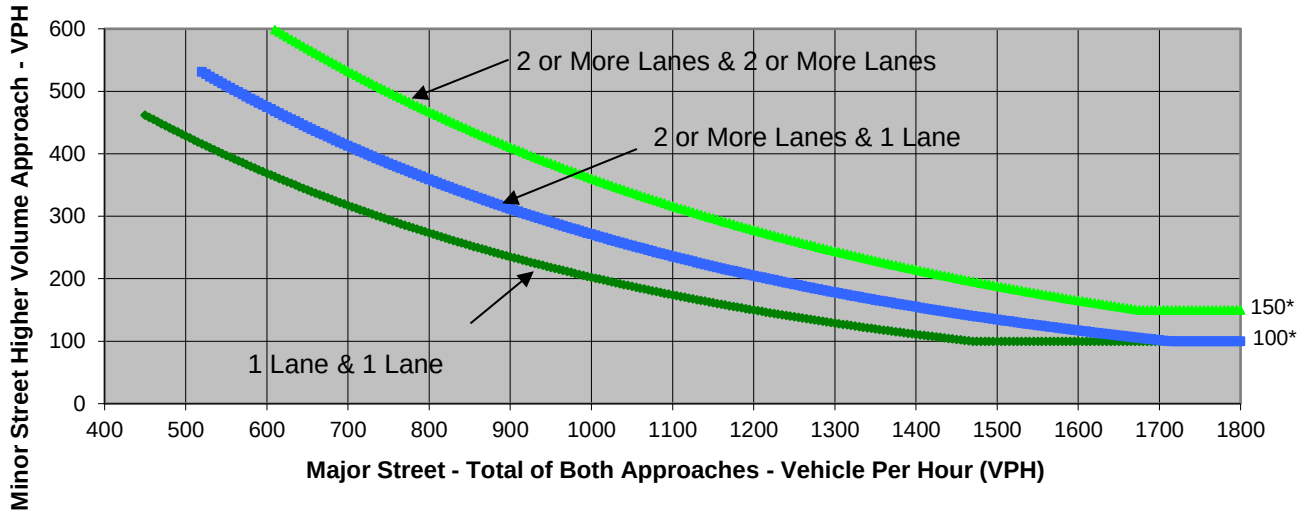
Project	Alves Ranch
Scenario	Cumulative No Project
Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	0	0	0
Through	0	0	1,000	1,800
Right	30	0	40	0
Total	30	0	1,040	1,800

Major Street Direction

	North/South
x	East/West



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

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	West leland	Tomales Bay Drive	
Number of Approach Lanes	**2**	**1**	**NO**
Traffic Volume (VPH) *	**2,840**	**30**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Major Street	West leland	Project	Alves Ranch
Minor Street	Tomales Bay Drive	Scenario	Cumulative No Project
		Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	0	0	0
Through	0	0	1,000	1,800
Right	30	0	40	0
Total	30	0	1,040	1,800

Major Street Direction

	North/South
x	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	13.9
Approach with Worst Case Delay	NB
Total Vehicles on Approach	30

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Cumulative No Project	**0.1**	**30**	**2,870**
Limiting Value	**4**	**100**	**650**
Condition Satisfied?	**Not Met**	**Not Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

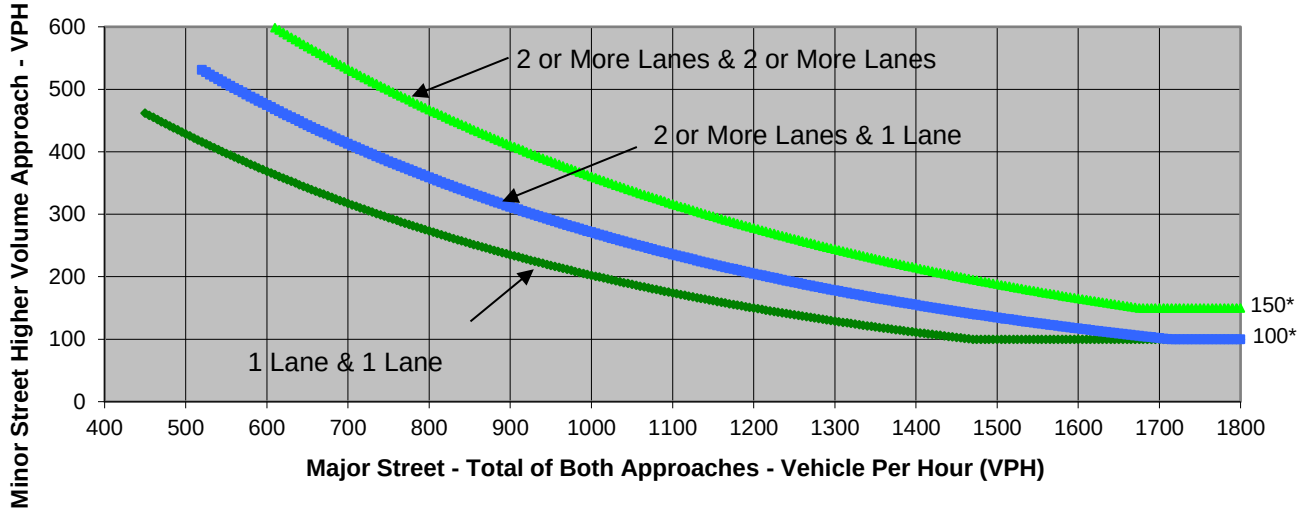
Major Street	Bailey Road	Project	Alves Ranch
Minor Street	Myrtle Drive	Scenario	Cumulative
		Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left				50
Through	590	1,190	0	0
Right	90	250	0	80
Total	680	1,440	0	130

Major Street Direction

x	North/South
	East/West



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

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	Bailey Road	Myrtle Drive	
Number of Approach Lanes	**1**	**1**	**YES**
Traffic Volume (VPH) *	**2,120**	**130**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Major Street	Bailey Road	Project	Alves Ranch
Minor Street	State Route 4 Westbound Offramp	Scenario	Cumulative No Project
		Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	0	0	50
Through	1,333	839	0	0
Right	0	0	246	90
Total	1,333	839	246	140

Major Street Direction

x	North/South
	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	4

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	815
Approach with Worst Case Delay	WB
Total Vehicles on Approach	130

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Cumulative No Project	**29.4**	**246**	**2,558**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Met**	**Met**	**Met**
Warrant Met	**YES**		

FEHR PEERS

Major Street	West leland
Minor Street	Tomales Bay Drive

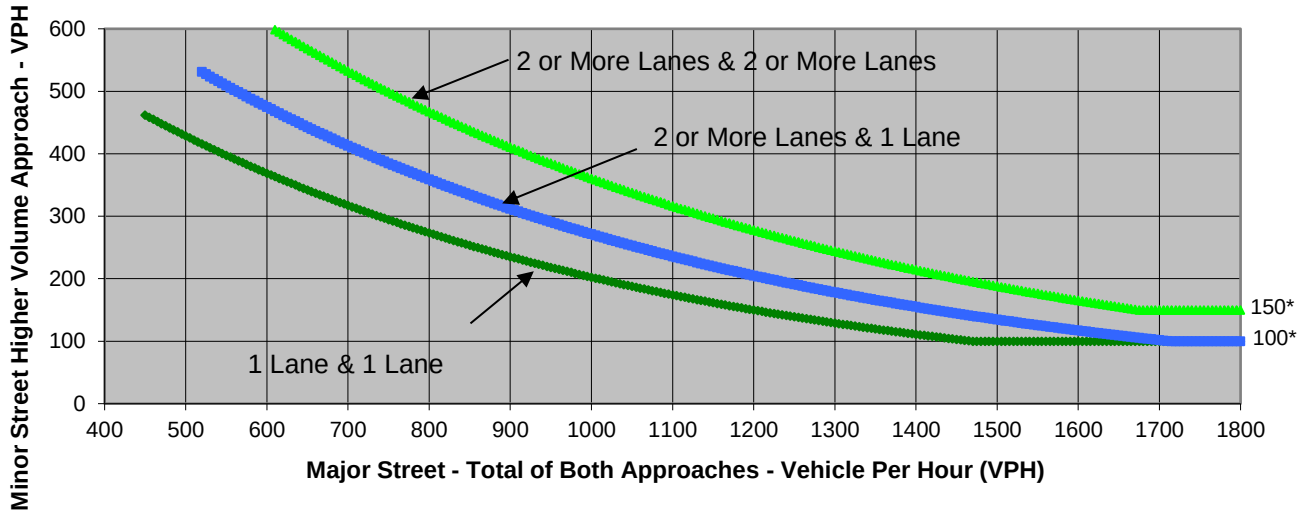
Project	Alves Ranch
Scenario	Cumulative No Project
Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	0	0	0
Through	0	0	1,720	1,360
Right	20	0	50	0
Total	20	0	1,770	1,360

Major Street Direction

	North/South
x	East/West



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

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	West leland	Tomales Bay Drive	
Number of Approach Lanes	**2**	**1**	**NO**
Traffic Volume (VPH) *	**3,130**	**20**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Major Street	West leland	Project	Alves Ranch
Minor Street	Tomales Bay Drive	Scenario	Cumulative No Project
		Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	0	0	0
Through	0	0	1,720	1,360
Right	20	0	50	0
Total	20	0	1,770	1,360

Major Street Direction

	North/South
x	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	18.5
Approach with Worst Case Delay	NB
Total Vehicles on Approach	20

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Cumulative No Project	**0.1**	**20**	**3,150**
Limiting Value	**4**	**100**	**650**
Condition Satisfied?	**Not Met**	**Not Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

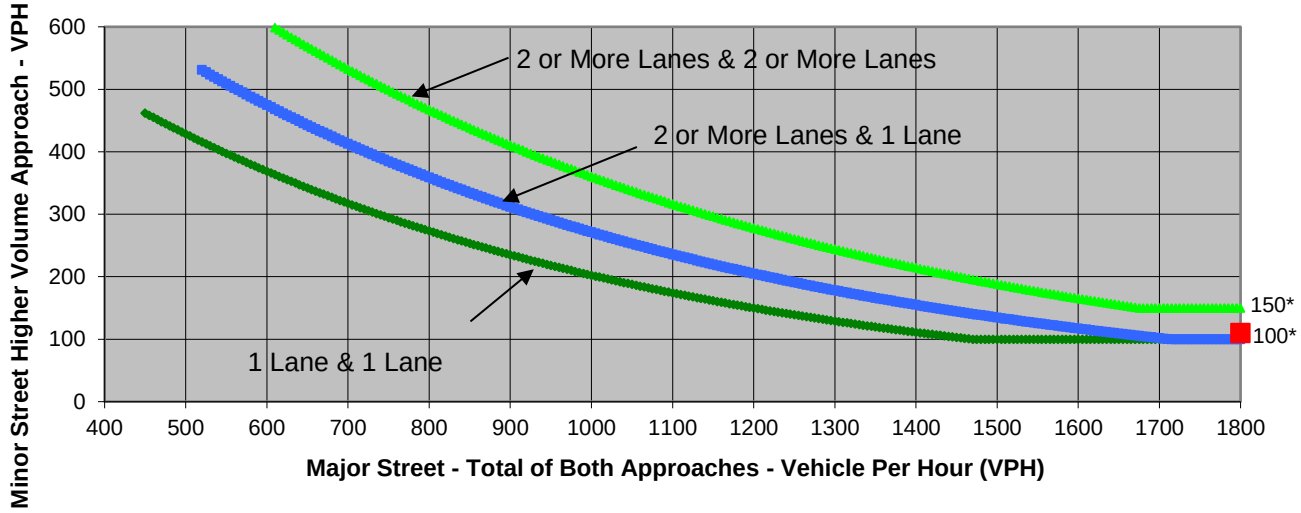
Major Street	Bailey Road	Project	Alves Ranch
Minor Street	Myrtle Drive	Scenario	Cumulative
		Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left				30
Through	1,120	600	0	0
Right	50	30	0	80
Total	1,170	630	0	110

Major Street Direction

x	North/South
	East/West



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

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	Bailey Road	Myrtle Drive	
Number of Approach Lanes	**1**	**1**	**YES**
Traffic Volume (VPH) *	**1,800**	**110**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Major Street	Bailey Road	Project	Alves Ranch
Minor Street	State Route 4 Westbound Offramp	Scenario	Cumulative No Project
		Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	0	0	30
Through	1,333	839	0	0
Right	0	0	246	90
Total	1,333	839	246	120

Major Street Direction

x	North/South
	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	4

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	100
Approach with Worst Case Delay	WB
Total Vehicles on Approach	110

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Cumulative No Project	**3.1**	**246**	**2,538**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Not Met**	**Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

Major Street	W Leland
Minor Street	Tomales Bay Drive

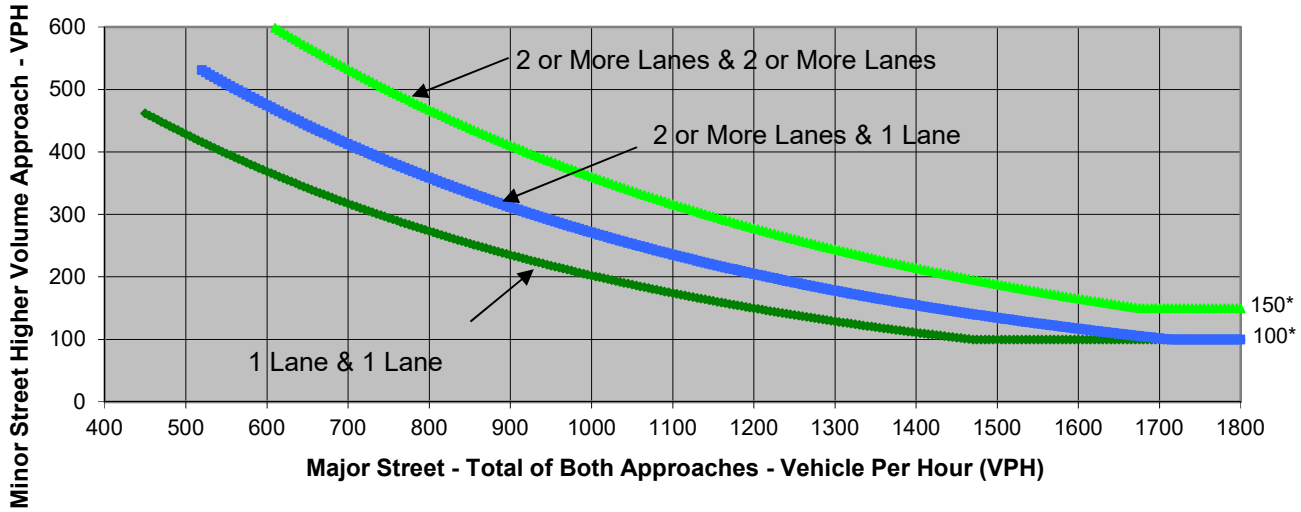
Project	Alves Ranch
Scenario	Cumulative Plus Project
Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left		25	22	
Through			1,088	1,879
Right	33	65	40	8
Total	33	90	1,150	1,887

Major Street Direction

	North/South
x	East/West



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

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	W Leland	Tomales Bay Drive	
Number of Approach Lanes	**2**	**1**	**NO**
Traffic Volume (VPH) *	**3,037**	**90**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Major Street	W Leland
Minor Street	Tomales Bay Drive

Project	Alves Ranch
Scenario	Cumulative Plus Project
Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	25	22	0
Through	0	0	1,088	1,879
Right	33	65	40	8
Total	33	90	1,150	1,887

Major Street Direction

	North/South
x	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	4

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	101.6
Approach with Worst Case Delay	SB
Total Vehicles on Approach	90

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Cumulative Plus Project	**2.5**	**90**	**3,160**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Not Met**	**Not Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

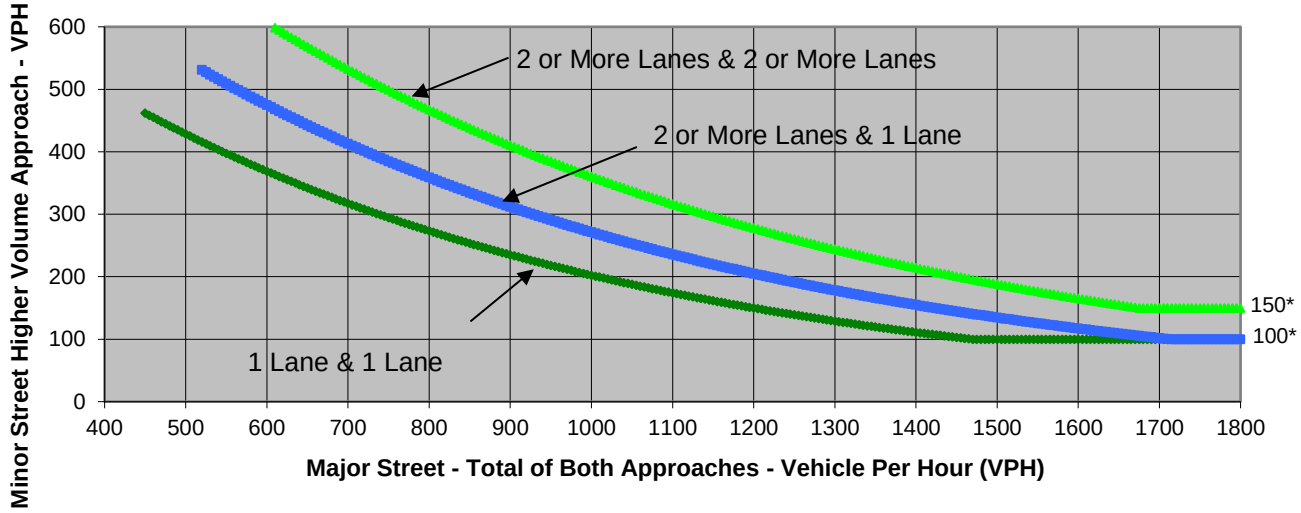
Major Street	Bailey Road	Project	Alves Ranch
Minor Street	Myrtle Drive	Scenario	Cumulative Plus Project
		Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	250	30	50
Through	596	1,208	0	0
Right	90	0	0	80
Total	686	1,458	30	130

Major Street Direction

x	North/South
	East/West



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

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	Bailey Road	Myrtle Drive	
Number of Approach Lanes	**1**	**1**	**YES**
Traffic Volume (VPH) *	**2,144**	**130**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Major Street	Bailey Road	Project	Alves Ranch
Minor Street	Myrtle Drive	Scenario	Cumulative Plus Project
		Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	0	0	50
Through	1,333	839	0	0
Right	0	0	246	90
Total	1,333	839	246	140

Major Street Direction

x	North/South
	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	4

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	860.2
Approach with Worst Case Delay	WB
Total Vehicles on Approach	130

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Cumulative Plus Project	**31.1**	**246**	**2,558**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Met**	**Met**	**Met**
Warrant Met	**YES**		

FEHR PEERS

Major Street	W Leland
Minor Street	Tomales Bay Drive

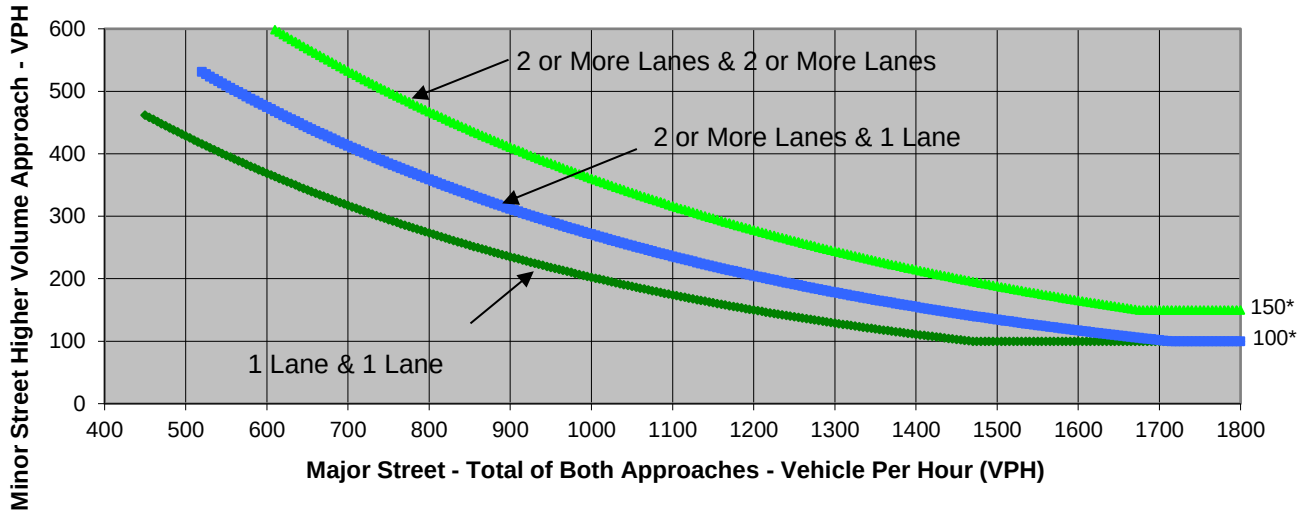
Project	Alves Ranch
Scenario	Cumulative Plus Project
Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left		16	73	
Through			1,925	1,544
Right	26	44	50	27
Total	26	60	2,048	1,571

Major Street Direction

	North/South
x	East/West



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

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	W Leland	Tomales Bay Drive	
Number of Approach Lanes	**2**	**1**	**NO**
Traffic Volume (VPH) *	**3,619**	**60**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Major Street	W Leland
Minor Street	Tomales Bay Drive

Project	Alves Ranch
Scenario	Cumulative Plus Project
Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	16	73	0
Through	0	0	1,925	1,544
Right	26	44	50	27
Total	26	60	2,048	1,571

Major Street Direction

	North/South
x	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	4

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	36.8
Approach with Worst Case Delay	SB
Total Vehicles on Approach	60

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Cumulative Plus Project	**0.6**	**60**	**3,705**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Not Met**	**Not Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

Major Street	Bailey Road
Minor Street	Myrtle Drive

Project	Alves Ranch
Scenario	Cumulative Plus Project
Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	0	0	80
Through	1,333	839	0	0
Right	0	0	246	90
Total	1,333	839	246	170

Major Street Direction

x	North/South
	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	4

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	110.7
Approach with Worst Case Delay	WB
Total Vehicles on Approach	110

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Cumulative Plus Project	**3.4**	**246**	**2,588**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Not Met**	**Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

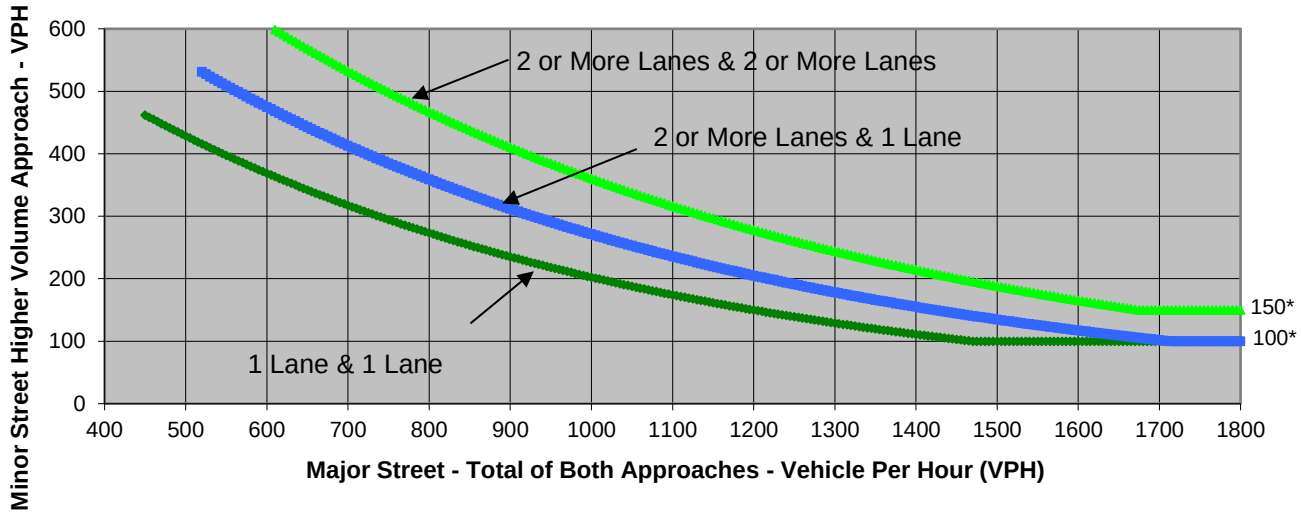
Major Street	Bailey Road	Project	Alves Ranch
Minor Street	Myrtle Drive	Scenario	Cumulative Plus Project
		Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left		30		80
Through	1,140	612	0	0
Right	50		0	30
Total	1,190	642	0	110

Major Street Direction

x	North/South
	East/West



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

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	Bailey Road	Myrtle Drive	
Number of Approach Lanes	**1**	**1**	**YES**
Traffic Volume (VPH) *	**1,832**	**110**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

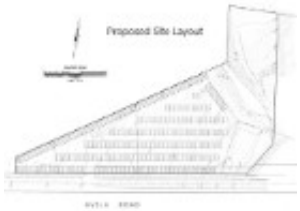
Appendix D: Vehicle Queue Summary

Int #	Intersection	Movement	Storage Length	Existing AM		Existing PM		Ex PP AM		Ex PP PM		NTNP AM		NTNP PM		NTPP AM		NTPP PM		CumNP AM		CumNP PM		CumPP AM		CumPP PM	
				Average Queue	95th Percentile	Average Queue	95th Percentile	Average Queue	95th Percentile	Average Queue	95th Percentile	Average Queue	95th Percentile	Average Queue	95th Percentile	Average Queue	95th Percentile	Average Queue	95th Percentile	Average Queue	95th Percentile	Average Queue	95th Percentile	Average Queue	95th Percentile	Average Queue	95th Percentile
			(ft)	(ft)	Queue (ft)	(ft)	Queue (ft)	(ft)	Queue (ft)	(ft)	Queue (ft)	(ft)	Queue (ft)	(ft)	Queue (ft)	(ft)	Queue (ft)	(ft)	Queue (ft)	(ft)	Queue (ft)	(ft)	Queue (ft)	(ft)	Queue (ft)	(ft)	Queue (ft)
1	Willow Pass Rd & Evora Rd/SR4 WB Ramp	EBL	225	25	50	50	100	25	50	50	100	25	50	50	100	25	50	50	125	25	75	75	150	25	75	75	175
		EBR	525	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	125	25	25	25	150	25	25
		WBT	1375	25	50	75	200	25	50	100	225	50	75	75	200	50	75	125	250	75	150	150	275	75	150	150	300
		WBR	525	25	25	25	75	25	25	25	75	25	25	25	75	25	25	25	125	25	25	100	225	25	25	100	225
		NBL	450	175	425	50	150	175	450	75	150	200	**525**	50	150	200	**525**	75	175	200	**475**	75	175	200	**475**	75	175
		NBT	675	25	75	100	150	25	75	100	150	25	75	100	150	25	75	125	175	50	100	175	275	50	125	175	300
		SBT	425	350	**725**	75	125	350	**725**	75	125	450	**800**	75	125	450	**800**	100	150	550	**1,100**	125	200	550	**1,125**	125	225
2	San Marco Blvd & SR 4 EB Ramps	EBL	775	50	75	75	150	50	75	100	175	50	75	75	150	50	75	125	200	125	200	125	225	125	200	125	250
		EBT	1800	50	75	75	150	50	75	100	175	50	75	75	150	50	75	125	200	125	200	125	225	125	200	125	250
		EBR	500	25	50	50	175	25	50	125	325	25	75	50	175	50	100	475	**850**	50	150	75	250	100	225	175	**525**
		NBT	775	275	575	50	125	400	625	100	150	525	**825**	50	125	625	**975**	175	225	600	**1,175**	75	100	650	**1,300**	100	125
		SBT	450	25	50	50	125	25	50	75	125	25	50	50	125	25	75	100	150	75	125	75	125	75	125	100	125
3	San Marco Blvd & W Leland Rd	EBL	250	200	**325**	125	200	200	**325**	125	200	625	**950**	125	200	675	**950**	350	**550**	325	**500**	175	**275**	325	**500**	175	**275**
		EBT	1200	25	50	50	50	25	50	50	50	100	150	50	50	125	150	75	100	275	350	600	725	300	350	600	750
		WBL	250	200	**350**	125	200	250	**400**	200	**375**	250	**375**	125	200	300	**450**	225	**400**	325	**500**	175	**325**	375	**575**	375	**475**
		WBT	1750	75	125	50	75	75	125	50	50	100	150	50	75	100	150	75	75	450	525	425	500	500	600	500	575
		WBR	250	925	**1,250**	25	100	1,225	**1,550**	25	25	1,350	**1,575**	25	100	1,625	**1,875**	25	25	1,000	**1,250**	25	50	1,100	**1,375**	175	**275**
		NBL	275	50	100	25	50	50	100	25	50	50	100	25	50	50	100	50	75	125	175	75	125	125	175	75	125
		NBT	1300	275	425	100	125	300	450	100	125	350	500	100	125	400	525	150	175	475	625	175	225	525	675	200	250
		SBL	250	100	150	125	250	125	200	175	**375**	125	175	125	250	150	225	250	**525**	150	225	325	**425**	200	250	425	**600**
		SBT	775	75	125	75	150	75	125	75	150	125	200	75	150	125	200	150	250	250	350	200	275	250	350	200	275
4	Tomales Bay Dr & W Leland Rd																										
5	Alves Ranch Rd & W Leland Rd	EBL	400	25	50	25	25	100	175	125	325	25	50	25	25	100	200	200	325	25	50	25	25	100	275	325	400
		EBT	1325	50	225	50	50	100	225	125	50	125	375	50	50	175	400	75	75	200	575	350	500	275	475	450	575
		EBR	400	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	50	25	25	25	50	25	25
		WBL	400	25	75	100	175	25	75	100	150	25	100	100	175	50	100	100	150	50	100	125	250	50	125	125	250
		WBT	1000	100	650	25	75	400	900	150	225	150	800	25	75	475	**1,050**	225	325	275	**1,300**	75	150	700	**1,225**	375	625
		NBL	225	75	175	50	100	100	200	50	75	75	200	50	100	100	225	50	100	100	225	75	175	150	**350**	75	175
		NBT	400					25	25	25	50					25	25	25	50					25	25	25	50
		NBR	400	25	25	25	25	25	50	25	25	25	25	25	25	25	50	25	25	25	25	25	25	25	50	25	25
		SBL	200					75	150	175	**250**					75	150	175	**250**					75	125	250	**350**
		SBT	200					25	25	25	50					25	25	25	50					25	25	25	50
6	Woodhill Dr & W Leland Rd	EBT	1000	50	150	75	100	75	175	100	150	75	200	75	100	100	225	125	175	200	300	625	800	225	350	375	425
		WBL	200	25	50	50	100	25	50	50	100	25	50	50	100	25	50	50	100	25	50	50	75	25	50	50	75
		WBT	975	75	175	25	150	100	200	75	225	100	300	25	150	150	325	225	300	225	350	200	275	250	400	250	350
		NBL	725	100	150	50	75	100	150	50	100	100	150	50	75	100	150	50	100	100	150	150	225	125	175	175	250
		NBR	125	25	50	25	50	25	50	25	50	25	50	25	50	25	50	25	50	25	50	25	50	25	50	25	50
7	Southwood Dr & W Leland Rd	EBT	975	150	250	125	200	200	300	200	275	250	400	125	200	300	475	250	375	400	600	925	**1,100**	450	675	1,225	**1,325**
		WBL	100	25	50	50	**125**	25	50	75	**150**	25	50	50	**125**	25	50	75	**175**	50	50	150	**250**	50	50	150	**200**
		WBT	100	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	50	**125**	25	25	50	**125**	25	25
		NBL	250	150	250	50	100	150	**275**	75	125	150	**275**	50	100	175	**300**	75	150	225	**400**	150	**300**	225	**400**	200	**350**
8	W Leland Rd & BART Exit	EBL	100																	25	25	75	100	25	25	75	75
		EBT	100	25	25	25	25	25	25	25	50	25	50	25	25	25	75	25	50	25	50	50	75	50	50	75	75
		WBT	500	100	50	25	100	125	50	150	125	200	150	25	100	250	175	225	225	425	**625**	625	**625**	475	**675**	750	**725**
		SBL	400	50	100	150	175	50	100	150	175	75	100	150	175	75	100	150	200	25	50	200	275	25	50	200	275
9	W Leland Rd & BART Entrance	EBL	300	100	200	50	100	100	200	75	125	100	225	50	100	75	225	75	125	50	75	50	100	50	75	50	100
		EBT	500	25	225	125	250	25	275	250	300	25	275	125	250	25	300	300	325	75	275	725	**925**	100	300	900	**1,125**
		WBT	375	75	175	75	100	100	175	150	125	125	200	75	100	125	225	225	150	75	**850**	100	175	100	**850**	150	200
		SBL	425																	50	75	425	**550**	50	75	425	**550**
10	Oak Hills Dr & W Leland Rd	EBL	375																	25	75	50	50	25	75	50	50
		EBT	375	50	275	150	300	50	325	275	350	75	350	150	300	75	**400**	325	**400**	275	**650**	1,550	**1,675**	375	**725**	700	**1,850**
		WBL	125	75	125	125	**175**	75	125	125	**175**	75	125	125	**175**	75	125	125	**200**	100	**200**	200	**375**	100	**200**	200	**375**
		WBT	625	75	200	50	100	75	200	50	125	100	250	50	100	125	275	50	175	775	**1,175**	750	**850**	825	**1,225**	875	**1,075**
		NBL	400	50	100	25	75	50	100	25	75	50	100	25	75	50	125	25	75								
		NBT	25																	100	**225**	125	**250**	100	**250**	150	**275**
		SBL	25																	25	25	125	**175**	25	25	125	**175**
		SBT	25																	25	25	50	**100**	25	25	50	**100**
11	Bailey Rd & SR4 WB On-Ramp/Canal Rd	WBT	1400	325	400	125	175	350	400	125	175	350	425	125	175	350	425	125	200	675	800	150	225	675	800	150	225
		NBL	375	250	275	75	125	250	250	75	125	275	250	75	125	275	250	75	150	300	**450**	100	175	300	**450**	100	175
		NBT	375	150	225	200	375	150	225	200	375	175	250	200	375	200	250	250	**425**	175	300	400	**750**	175	300	400	**750**
		SBL	225	100	150	50	100	100	150	50	100	100	150	50	100	100	150	50	125	100	150	75	125	100	150	75	125
		SBT	400	250	350	125	250	250	350	125	275	275	400	125	250	275	400	175	300	550	**700**	200	350	550	**700**	200	350
12	Bailey Rd & SR4 WB Off-Ramp																										
13	Bailey Rd & BART Entrance/SR4 EB Ramps	EBT	750	50	75	175	225	50	75	175	225	75	75	175	225	75	75	200	225	125	125	150	200	125	125	150	200
		EBR	750	25	75	275	350	25	75	300	350	50	100	275	350	50	100	300	375	175	225	525	**875**	175	225	525	**875**
		WBR	1225	50	50	125	175	50	50	125	175	50	50	125	175	50	50	125	175	50	75	225	300	50	75	225	300
		NBT	850	150	375	200	300	175	375	225	325	175	425	200	300	200	425	250	350	325	650	425	525	325	650	450	525
		NBR	175	25	100	125	**225**	25	100	150	**275**	25	125	125	**225**	50	125	175	**300**	50	150	175	**300**	50	175	225	**325**
		SBL	275	100	125	150	200	100	125	150	200	100	125	150	200	100	125	150	225	125	125	150	250	125	125	150	250
		SBT	350	125	225	150	250	150	225	175	300	125	225	150	250	125	250	225	350	100	150	475	**575**	100	150	500	**625**
14	Bailey Rd & W Leland Rd	EBL	250	175	**275**	100	225	225	**350**	150	**300**	250	**400**	100	225	300	**525**	200	**425**	725	**1,000**	1,175	**1,450**	825	**1,100**	1,325	**1,600**
		EBT	625	50	125	125	225	100	175	150	275	150	225	125	225	200	300	250	375	450	575	1,350	**1,575**	500	625	1,450	**1,675**
		WBL	200	275	**425**	25	75	300	**450**	25	75	325	**500**	25	75	325	**500**	25	75	350	**550**	75	125	350	**550**	75	125
		WBT	1550	425	550	75	125	475	575	100	175	500	650	75	125	525	700	150	200	1,050	1,250	400	500	1,100	1,300	450	550
		WBR	200	325	**650**	25	100	375	**650**	25	100	425	**750**	25	100	450	**775**	25	100	575	**875**	200	**350**	575	**900**	225	**375**
		NBL	325	75	150	125	300	100	150	150	325	100	175	125	300	125	175	225	**450**	225	325	325	**525**	225	325	350	**575**
		NBT	950	100	150	175	375	100	150	200	375	100	150	175	375	100	150	250	400	300	375	350	450	300	375	350	450
		SBL	200	100	125	150	**300**	100	150	175	**325**	100	150	150	**300**	100	150	200	**325**	150	200	300	**350**	150	200	300	**350**
		SBT	850	375	600	100	250	400	600	125	250	450	675	100	250	450	700	150	250	925	**1,250**	650	**875**	950	**1,250**	650	**875**
15	Chestnut Dr & W Leland Rd	EBL	125	25	25	25	25	25	25	25	25	25	50	25	25	25	50	25	50	50	100	25	50	50	100	25	50
		EBT	1550	50	100	200	300	75	100	200	325	75	125	200	300	75	125	225	375	150	225	1,125	**1,600**	150	225	1,325	**1,675**
		WBL	125	25	25	25	25	25	25	25	25	25	50	25	25	25	50	25	50	25	50	25	50	25	50	25	50
		WBT	2225	525	900	75	125	550	925	100	150	600	1,000	75	125	625	1,025	100	175	1,375	1,500	275	425	1,400	1,525	300	450
		NBT	100	75	100	25	50	75	**125**	25	50	75	**125**	25	50	75	**125**	25	50	125	**200**	50	75	125	**200**	50	75
		NBR	125	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
		SBT	400	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
16	Bailey Rd & Myrtle Dr																										

Int #	Intersection	Movement	Storage Length	Existing AM		Existing PM		Ex PP AM		Ex PP PM		NTNP AM		NTNP PM		NTPP AM		NTPP PM		CumNP AM		CumNP PM		CumPP AM		CumPP PM	
				Average Queue	95th Percentile	Average Queue	95th Percentile	Average Queue	95th Percentile	Average Queue	95th Percentile	Average Queue	95th Percentile	Average Queue	95th Percentile	Average Queue	95th Percentile	Average Queue	95th Percentile	Average Queue	95th Percentile	Average Queue	95th Percentile	Average Queue	95th Percentile	Average Queue	95th Percentile
			(ft)	(ft)	Queue (ft)	(ft)	Queue (ft)	(ft)	Queue (ft)	(ft)	Queue (ft)	(ft)	Queue (ft)	(ft)	Queue (ft)	(ft)	Queue (ft)	(ft)	Queue (ft)	(ft)	Queue (ft)	(ft)	Queue (ft)	(ft)	Queue (ft)	(ft)	Queue (ft)
17	Bailey Rd & Concord Blvd	EBL	500	125	225	350	**700**	125	225	375	**725**	150	250	350	**700**	150	250	475	**800**	275	425	700	**975**	275	450	700	**975**
		EBT	1150	150	225	325	450	150	225	325	450	175	250	325	450	175	250	375	500	375	450	850	1,050	375	450	850	1,050
		WBL	175	125	**200**	25	75	125	**200**	25	75	150	**225**	25	75	150	**225**	50	75	225	**300**	75	125	225	**300**	75	125
		WBT	3250	550	825	200	275	550	825	200	275	625	975	200	275	650	975	225	300	1,050	1,200	425	525	1,050	1,200	425	525
		NBT	1150	175	275	350	675	175	275	375	700	200	325	350	675	225	325	575	975	975	**1,200**	1,250	**1,575**	975	**1,225**	1,275	**1,600**
		SBT	1925	375	625	175	300	400	675	200	300	525	875	175	300	550	925	250	375	775	1,000	675	950	800	1,050	700	975
18	Willow Pass Rd & Avila Rd	EBL	25																	125	**175**	150	**200**	125	**175**	150	**200**
		EBT	25																	125	**175**	350	**425**	125	**175**	350	**425**
		EBR	25																	125	**225**	25	**75**	125	**225**	25	**75**
		WBL	25																	175	**275**	150	**200**	175	**275**	150	**200**
		WBT	25																	300	**350**	225	**300**	300	**350**	225	**300**
		WBR	25																	25	**75**	25	**50**	75	**150**	25	**50**
		NBL	25																	125	**200**	75	**100**	125	**200**	75	**100**
		NBT	25																	400	**525**	1,025	**1,150**	400	**525**	1,025	**1,150**
		NBR	25																	25	25	50	**100**	25	25	50	**100**
		SBL	25																	75	**100**	100	**125**	75	**100**	100	**125**
		SBT	25																	650	**825**	475	**550**	650	**825**	475	**550**
20	SR4 WB On-Ramp/SR4 WB Loop On-Ramp & Willow Pass																										

Appendix E: Near-term Project Information

Pipeline List Consolidated

	Pipeline List	Pipeline Type	Application Year	App No.	Pipeline Image	Project Name	Applicant/Developer
1	☑	Cell Tower / Antenna Modification	AP-18	1370		AT&T Minor Modification	Jessica O'Brien
2	☑	Cell Tower / Antenna Modification	AP-18	1359		Pittsburg CRAN	Verizon Wireless Roger Roach
3	☑	Commercial / Institutional	AP-16	1202		1611 Railroad Extension of Approval	Sam Lucido
4	☑	Commercial / Institutional	AP-17	1274		2108 Railroad Commercial Shell	DCI/Randy Baugh
5	☑	Commercial / Institutional	AP-18	1362		501 California Ave. Service Station	Ross Hillesheim
6	☑	Commercial / Institutional	AP-18	1329		America's Tire	Don Thrailkill
7	☑	Commercial / Institutional	AP-18	1319		Avila Storage Yard	Dave Rege
8	☑	Commercial / Institutional	AP-18	1363		Bobcat of Contra Costa	Tony Amaral
9	☑	Commercial / Institutional	AP-17	1291		Commercial Scaffolding Inc.	Commercial Scaffolding Inc.
10	☑	Commercial / Institutional	AP-15-	1094		Delta Gateway Shopping Center - Pad 12	Discovery Builders, Inc.
11	☑	Commercial / Institutional	AP-17	1250		Durham School Services Bus Storage Yard	Durham School Services, LP - Tyler Zuppo/ Architect - Gary Laski
12	☑	Commercial / Institutional	AP-18	1361		Family Harvest Farm	Jack Cortis, Harvest Family Farms

Street Number	Street Name	APN	Units Proposed OR Building SF	Site Size (AC or SF)	Status	Approval Date	Planner Assigned
95	Bliss	088-171-033			Pending		Celina Palmer
555	Clark	088-250-024		4.175 AC	Approved		Celina Palmer
1611	Railroad	086-175-013; 086-175-012; 086-175-014	7,920 SF	0.35 AC	Approved	11/22/16	Jordan Davis
2108	Railroad	087-030-087	3000	SF	Approved		Jordan Davis
501	California	073-140-016	5,200 SF	1AC	Pending		Hector Rojas
2220	Railroad	087-042-019	--	0.77 ac.	Pending		Jordan Davis
--	Avila	097-140-014	390 storage units	5.0 ac.	Incomplete		Cathy Munneke
2035	East Leland	088-152-029			Incomplete		Celina Palmer
1451	Loveridge	073-230-015	--	1.14 ac.	Incomplete		Celina Palmer
	Century Blvd.	074-460-032	10,623 SF	1.68 AC	Built	04/26/16	Hector Rojas
2121	Piedmont	088-240-006	5050 (existing)	2.889 AC	Approved	09/12/17	Hector Rojas
		086-010-023-9	3600	16 AC	Incomplete		Celina Palmer

	Pipeline List	Pipeline Type	Application Year	App No.	Pipeline Image	Project Name	Applicant/Developer
13	☑	Commercial / Institutional	AP-18	1326		Fernandes Towing	Mike Fernandes
14	☑	Commercial / Institutional	AP-16	1160		Fort Knox Self Storage	Dale Meyer Associates
15	☑	Commercial / Institutional	AP-18	1356		Halloween Outlet Sign	Jennifer Challberg
16	☑	Commercial / Institutional	AP-16	1166		Hamilton Memorial Church Phase 2	Todd Jersey Architects
17	☑	Commercial / Institutional	AP-17	1257		KFC Remodel	Flora Ramirez
18	☑	Commercial / Institutional	AP-16	1189		LMK PETRO Mini-Mart, Gas Station and Car Wash	LMK PETRO
19	☑	Commercial / Institutional	AP-18	1339		Making Waves Academy	Making Waves Foundation
20	☑	Commercial / Institutional	AP-17	1303		Nazari Rezoning for Contractor Yard	Mike Nazari
21	☑	Commercial / Institutional	AP-17	1217		Nazari Use Permit Amendment	Mike Nazari
22	☑	Commercial / Institutional	AP-17	1301		Nunley's Karate Do	Allen Nunley
23	☑	Commercial / Institutional	AP-17	1281		Pittsburg Civic Center Offices	Garaventa Properties
24	☑	Commercial / Institutional	AP-17	1235		Pittsburg Disposal Relocation/Mt. Diablo Resource Recovery Park Services	Robert Hammons
25	☑	Commercial / Institutional	AP-17	1288		Public Storage (1275 California)	Public Storage

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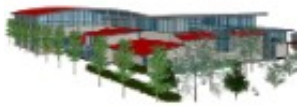
650	West 10th	085-270-016; 085-270-045; 085-270-046; 085-270-029; 085-270-032	4,000 s.f.	2.07 ac.	Incomplete		Jordan Davis
3865	Railroad	088-072-065	21,150 SF	240,581 SF	Under Construction	07/26/16	Jordan Davis
2220	Railroad	087042019			Approved		Celina Palmer
360	Central	086-151-002	existing:11,116 SF; addition: 8,454 SF; total: 19,570 SF	106,878 SF	Approved	09/27/16	Celina Palmer
2155	Railroad	088-183-011	2664 SF	.690 AC	Approved		Celina Palmer
1625	Buchanan	088-030-021	5,372 s.f.	5.0 ac.	Pending		Cathy Munneke
420	E. 3rd	073-050-001	399,612 SF	20.55	Pending		Hector Rojas
1700	N. Parkside	096-093-002, -003, -004	--	1.08 ac.	Pending		Cathy Munneke
1700	N. Parkside	096-093-002, -003, -004	--	1.08 ac.	Approved	12/12/17	Hector Rojas
760	Railroad	085164018			Approved	02/13/18	Jordan Davis
--	Center	086-100-041	102,538 s.f.	5.23 ac.	On Hold		Hector Rojas
555	California	073-270-089	20,008 s.f.	1.42 ac.	Pending		Cathy Munneke
1275	California	073-190-031	39,750 s.f.	4.4 ac.	Approved		Jordan Davis

	Pipeline List	Pipeline Type	Application Year	App No.	Pipeline Image	Project Name	Applicant/Developer
26	☑	Commercial / Institutional	AP-18	1315		Public Storage (525 California)	Public Storage
27	☑	Commercial / Institutional	AP-15-	1081		Ramar Foods Solar Carports	Primo J. Quesada
28	☑	Commercial / Institutional	AP-16	1195		Ruby Lounge	Kyle Ahmadi
29	☑	Commercial / Institutional	AP-15-	1096		Solomon Temple Baptist Church Addition	Wendell Seifert
30	☑	Commercial / Institutional	AP-16	1190		SONIC Drive-In Restaurant	NORCAL CAJUN FOODS II
31	☑	Commercial / Institutional	AP-18	1355		Suzanne LaVere, LMFT	Suzanne Lavere
32	☑	Commercial / Institutional	AP-16	1183		Ulrido Car Wash LLC	Douglas A. Ulrich
33	☑	Commercial / Institutional	AP-18	1347		Woods Grove Apartments - Common Building Revision	Charlie Pick
34	☑	Commercial / Institutional	AP-17	1292		YC Auto	Heng CHen

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525	California	073-270-088	150,000 s.f.	2.0 ac.	Pending		Jordan Davis
1101	Railroad	086-132-028; 086-132-022	5 carports totaling 16,445 SF		Built	09/21/15	Celina Palmer
3829	Railroad	088-072-055	--	2,000 s.f.	Incomplete		Jordan Davis
655	California	073-140-008	32,000 s.f.	87,120 s.f.	Incomplete		Jordan Davis
1600	North Park	088-151-041		37,538 SF	Built	03/28/17	Hector Rojas
146	Redondo	088-101-021			Pending		Celina Palmer
3590	Railroad	087-114-013	3,640 going down to 2,580	13750	Closed/Completed	12/09/16	Celina Palmer
850	Leland	088-230-001	3,050 SF	5.752 AC	Approved		Celina Palmer
2695	E. Leland	088-152-001	6,800 SF		Approved	01/23/18	Celina Palmer

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35	☑	Event	AP-18	1309		2018 Flower King for 2/13-2/14; 5/10-5/13; and 12/24-12/25	Michael Kellett
36	☑	Event	AP-18	1306		2018 Sylvia Lopez Hernandez Flores Flower Stand	Sylvia Lopez
37	☑	Event	AP-18	1316		Christine Froehlich Temporary Flower Stand	Christine Froehlich
38	☑	Event	AP-18	1317		Erika Gordon Flower Fundraiser	Erika Gordon
39	☑	Industrial	AP-17	1270		Diablo Energy Storage, LLC	Diablo Energy Storage, Kevin Johnson
40	☑	Industrial	AP-18	1351		Dow AFTF Synergy Project	David O'Sullivan
41	☑	Industrial	AP-13-	969		Dow Modernization Project	Jason Ruhl, DOW Chemical
42	☑	Industrial	AP-18	1321		Golden State Utility/EGD Security	Electric Guard Dog LLC, Carol Bausinger

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2253	Loveridge	088-630-011			Approved		Celina Palmer
	8th	085160XXX			Incomplete		Celina Palmer
2224	Railroad	087-042-020			Approved		Celina Palmer
1001/1005	Railroad	085-204-006			Approved		Celina Palmer
701	Willow Pass	085-280-010	186,000 s.f. (max)	11.85 ac.	Approved		Joan Lamphier
901	Loveridge	073-220-049	3,600 SF	246.2 AC	Approved		Celina Palmer
901	Loveridge	073-220-046	248 s.f.	6.0 ac.	On Hold		Jordan Davis
1501	Loveridge	073-230-033	--	1.8 ac.	Incomplete		Jordan Davis

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43	☑	Industrial	AP-17	1299		JC's Auto Body	Christopher Alvarez
44	☑	Industrial	AP-18	1313		K2 Pure Chlorine Rail Transportation Curtailment	David Kahn, K2 Pure Solutions
45	☑	Industrial	AP-18	1353		Los Medanos Industrial Park	Discovery Builders, Inc.
46	☑	Industrial	AP-12-	864		Marine Express Site Improvements	Randy Esch
47	☑	Industrial	AP-18	1325		Mt. Diablo Resource Recovery Park Expansion	Vincent Colvis, Contra Costa Waste Service, Inc
48	☑	Industrial	AP-18	1350		Number One Concrete	Jose Gonzalez
49	☑	Industrial	AP-18	1371		Stoneman Lab - Commercial Cannabis	Pat O'Keefe
50	☑	Multi-Family Residential	AP-18	1375		2156 Railroad Avenue MultiFamily	Hudson Bay Partners
51	☑	Multi-Family Residential	AP-18	1328		Alturas Multiplexes by Discovery Builders	Discovery Builders, Inc.
52	☑	Multi-Family Residential	AP-17	1276		Alturus Triplexes	Baric Services
53	☑	Multi-Family Residential	AP-17	1260		Beacon Villas	Justin Tin
54	☑	Multi-Family Residential	AP-17	1304		Black Diamond Terraces	Enrique Palacios, Pittsburg Unified School District

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999	Harbor	073-060-001			Approved		Celina Palmer
950	Loveridge	073-220-029; 073-220-030	--	14.9 ac.	Pending		Hector Rojas
	Garcia	088-053-004; 088-053-050; 088-053-060; 088-053-070; 088-053-090; 088-053-140	109,900.00	7.5 ac.	Incomplete		Jordan Davis
395	Third	073-020-004	168 SF	2.86 AC	Approved	08/12/14	Kristin Pollot
1300	Loveridge	073-200-013; 073-200-014; 073-200-015; 073-200-024	86,855 s.f. addition	36 ac.	Incomplete		Hector Rojas
1101	Loveridge	073230031			Incomplete		Cathy Munneke
557	Clark	088-250-050					
2156	Railroad	087-030-067	108-120	2.2 Ac	Pending		Jordan Davis
158,118,110.00	Alturas	087101008; 087101003; 087101002	3 per site		Pending		Cathy Munneke
6, 14, 45, 70 & 78	Alturas	087-114-003; -004; -011; -012; & -014	Five 3 unit buildings	9,660 s.f.	Approved		Celina Palmer
505	W. 10th	082-260-009; 082-260-012; 082-260-044; 085-243-001; 085-243-002; 085-260-178	57	2.0	Approved	03/13/18	Jordan Davis
1025	Black Diamond	085-203-004	77 units	2.25 ac.	Incomplete		Jordan Davis

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55	☑	Multi-Family Residential	AP-15-	1072		Burlessas Building Rehabilitation	John Caprio
56	☑	Multi-Family Residential	AP-18	1360		Diamond Hillside Apartments Freestanding Sign	Ric Sior
57	☑	Multi-Family Residential	AP-17	1228		Edgewater Apartments	Discovery
58	☑	Multi-Family Residential	AP-17	1294		Galloway Multiplex	Gwen Bertolami
59	☑	Multi-Family Residential	AP-17	1295		Galloway Multiplex	Gwen Bertolami
60	☑	Multi-Family Residential	AP-17	1296		Galloway Multiplex	Gwen Bertolami
61	☑	Multi-Family Residential	AP-11-	742		Los Medanos Apartments (Veteran's Square)	Domus Development

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14	East Fourth	085-104-009; 085-104-004	8 units	10,791 SF	Approved	03/10/16	Hector Rojas
2241	Leland	088-152-035		11 AC	Approved		Celina Palmer
	Carion Court	073-190-033	62 units	4.418 AC	Approved	03/19/18	Jordan Davis
345	W. 10th	085-211-004	4 units	6,260 s.f.	Approved	08/14/18	Hector Rojas
172	W. 10th	085-226-014	4 units	6,260 s.f.	Approved	08/14/18	Hector Rojas
463	W. 10th	085-241-003	4 units	6,994 s.f.	Approved	08/14/18	Hector Rojas
901	Los Medanos	085-182-001; 085-196-001	30 units	0.49 AC	Approved	11/12/13	Hector Rojas

	Pipeline List	Pipeline Type	Application Year	App No.	Pipeline Image	Project Name	Applicant/Developer
62	☑	Multi-Family Residential	AP-13-	932		San Marco Village M - Esperanza	Discovery Builders, Inc.
63	☑	Multi-Family Residential	AP-17	1225		Sante Fe Triplex	Dan DiAnda
64	☑	Multi-Family Residential	AP-14-	1000		Stoneman Apartments	Owen Poole
65	☑	Multi-Family Residential	AP-18	1374		Veteran's Square Housing	Satellite Affordable Housing Associates
66	☑	Other Projects	AP-16	1167		BART Multimodal Transfer Facility	City of Pittsburg
67	☑	Other Projects	AP-10-	717		Faria/Southwest Hills Annexation & Master Plan	Discovery Builders, Inc.
68	☑	Other Projects				James Donlon Blvd. Extension & SE Hills Annexation	
69	☑	Other Projects	AP-17	1280		Pittsburg Moves - Active Transportation and Safe Routes Plan	City of Pittsburg
70	☑	Single Family Residential	AP-18	1358		2186 Crestview Variance	Henry Ortiz
71	☑	Single Family Residential	AP-08-	516		Alves Ranch - Single Family Portion	Alves Ranch, LLC

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	W Leland Rd, East of San Marco Blvd	097-550-018	318 units	13.3 AC	Approved	04/25/17	Jordan Davis
465	Sante Fe	086-143-004	3 units		Under Construction	04/25/17	Jordan Davis
1201	Stoneman	088-230-022	230 units	10.49 AC	Under Construction	08/25/15	Hector Rojas
901	Los Medanos	085-182-001; 085-196-001	30	0.49	Pending		Hector Rojas
2099	Railroad	086-221-028			Under Construction	07/26/16	Jordan Davis
--	SW Hills Planning Area	097-180-006; 097-200-002; 097-200-003	Potential 1500 units (max)	607 ac.	Pending		Hector Rojas
					On Hold		Kristin Pollot
--	citywide	city-wide	n/a	citywide	Pending		Hector Rojas
2186	Crestview	087-042-016			Incomplete		Jordan Davis
	North of West Leland Road at Alves Ranch Road	097-700-002	167 units	40.42 AC	Approved	02/10/09	Kristin Pollot

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72	☑	Single Family Residential	AP-18	1348		Alves Ranch 2018	William Lyon Homes
73	☑	Single Family Residential	AP-16	1170		Bancroft Gardens II	Leticia Martinez/ Discovery Builders
74	☑	Single Family Residential	AP-05-	268		Lawlor Estates	Discovery Builders, Inc.
75	☑	Single Family Residential	AP-17	1229		Liberty Residential Subdivision	Discovery Builders, Inc.
76	☑	Single Family Residential	AP-10-	684		Montreux Residential Subdivision	Louis Parsons, Altec Homes/Seecon Financial
77	☑	Single Family Residential	AP-16	1174		San Marco - Single Family (Village D) - Positano	West Coast Home Builders, Inc.
78	☑	Single Family Residential	AP-11-	779		San Marco - Single Family Villages E, F, J, K, L & N	Discovery Builders, Inc.

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		097-700-002; 097-700-001; 097-700-005	346 units	57.81	Pending		Jordan Davis
-	Birchwood	095-460-001	28 Homes ranging from 2,046 SF-3,006 SF	5.79 AC	On Hold		Hector Rojas
	South side of West Leland Road, between Lawlor Ct. & Delta Vista Ln.	094-160-052	50 units	10.8	Built with 3 lots remaining	12/12/06	Kristin Pollot
300	Central	086-160-009, -011, -012, and 086-151-001	57 units	4.98 ac.	Approved	06/18/18	Hector Rojas
	Kirker Pass	089-010-010; 089-020-015; 089-050-056	351 units	165 AC	Approved	11/16/15 (CITY) 11/9/16 (LAFCO)	Kristin Pollot
N/A	Santa Teresa	Various	233 units	31.51 AC	Under Construction	12/08/16	Hector Rojas
	Southwest of West Leland Road and San Marco Blvd.	097-550-025	706 units	300.3	Under Construction		Hector Rojas

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79	☑	Single Family Residential	AP-11-	779		San Marco - Toscana	Discovery Builders, Inc.
80	☑	Single Family Residential	DR-02-	48		Sky Ranch II	Discovery Builders, Inc.
81	☑	Single Family Residential	AP-12-	843		Tuscany Meadows Residential Subdivision	Discovery Builders, Inc.
82	☑	Single Family Residential	AP-15-	1092		Waterstone (500 School St./Formerly 'Belle Harbor')	Jaime Rabara, Discovery Builders

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	northeast corner or San Marco Blvd. and West Leland Road	097-550-044	252 units	30.2 AC	Under Construction	12/11/12	Hector Rojas
	South of Buchanan Rd, west of Somersville Rd	089-050-074	415 units	163 AC	Approved	06/04/07	Kristin Pollot
	Buchanan Rd at Somersville Rd	089-150-016	917 units	135.6 AC	Approved	08/03/15 3/21/16	Hector Rojas
500	School St.	073-121-001	82 units	7 AC	Under Construction	PC - 5/10/16; CC 6/20/16	Jordan Davis