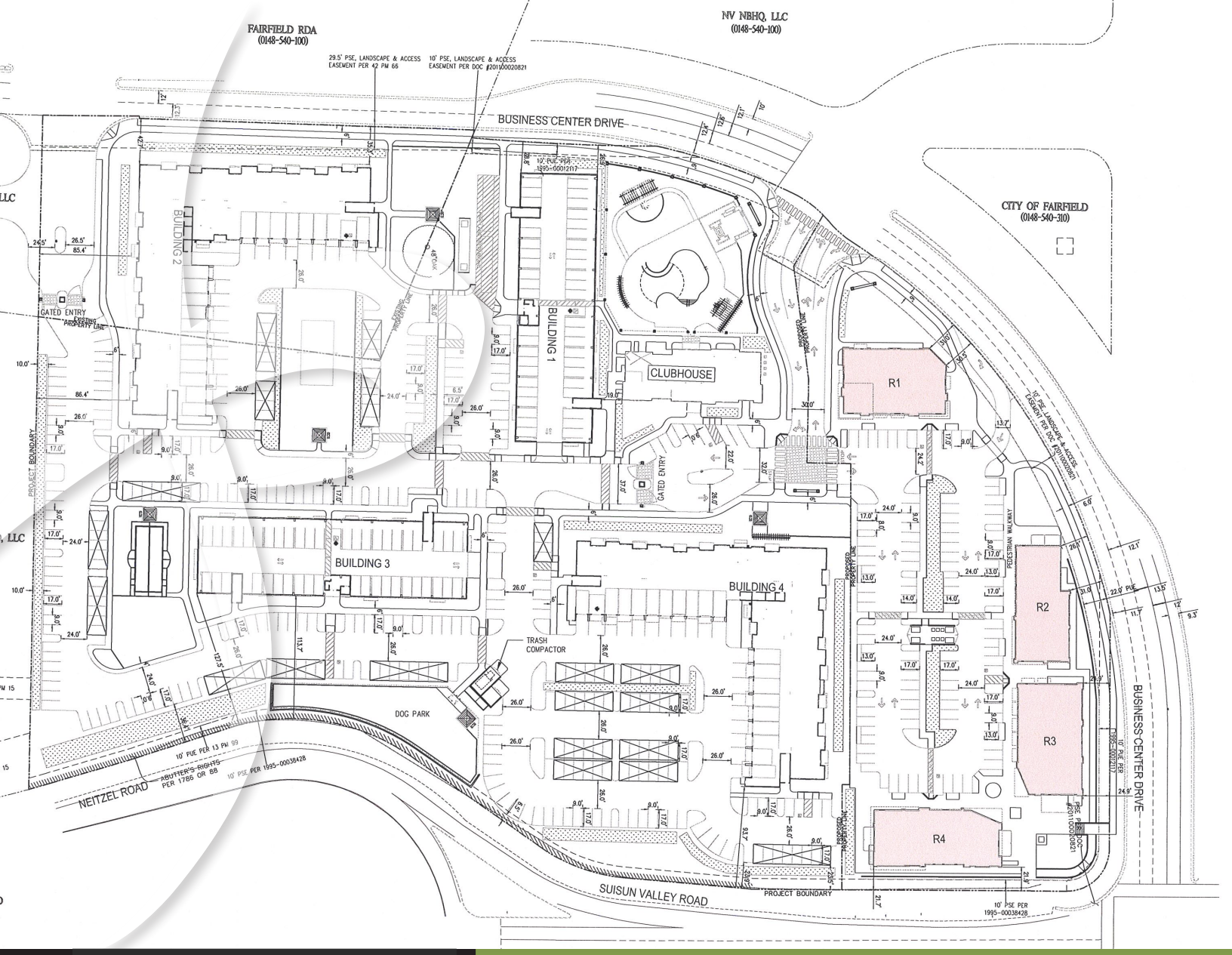
APPENDIX 4.9

Transportation Impact Study



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August 15, 2019

Final
Transportation Impact Analysis Report

Green Valley Mixed-Use Development

Prepared for:
The Spanos Corporation

Final

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1.0 EXECUTIVE SUMMARY

This report presents the results of the transportation impact analysis (TIA) prepared for the proposed Green Valley II mixed-use project located at the southwest corner of Business Center Drive and Suisun Valley Road in western Fairfield, California. The project site is currently undeveloped; adjacent uses include office, residential and medical facilities. Two project alternatives are being considered:

- Alternative 1: Construction of 270 apartment units and approximately 22,600 square feet of locally-serving retail. Access to the project site would be from three driveways, including two full access driveways and one right-in only driveway. Separate areas of parking would be provided for the residential and retail portions of the project; access to the residential portions of the project would be restricted through the use of automatic gates.
- Alternative 2: Construction of 365 apartment units and a new fire station. Access to the project site would be from two driveways (both driveways would be full access). The driveways accessing the residential portions of the project would be restricted through the use of automatic gates. The fire station would take access to the public roadway system from the southern driveway. A variant of this alternative is also qualitatively evaluated, as further described below.

1.1 PROJECT TRIP GENERATION

At full buildout, the proposed project is estimated to generate the following vehicle trips:

Alternative 1 (up to 270 apartment units and approximately 22,600 square feet of retail):

- 209 weekday morning (AM) peak hour trips (56 inbound and 153 outbound)
- 290 weekday afternoon (PM) peak hour trips (159 inbound and 131 outbound)
- 4,120 daily trips

Alternative 2 (up to 365 apartment units and a new fire station):

- 268 weekday morning (AM) peak hour trips (64 inbound and 204 outbound)
- 197 weekday afternoon (PM) peak hour trips (123 inbound and 74 outbound)
- 2,820 daily trips

The project trips were distributed and assigned to the transportation network and added to the Existing, Existing plus Approved Projects, and Cumulative (Year 2035) baseline traffic volumes to determine the "with Project" conditions. More detailed information is presented in **Chapter 4**.

1.2 INTERSECTION LEVEL OF SERVICE ANALYSIS

The impacts of the proposed project to the surrounding transportation system were evaluated using the Synchro software analysis package and methodologies from the *2010 Highway Capacity Manual*. The City of Fairfield *General Plan* and the City's *Guidelines for Transportation Impact Reports* outline the afternoon peak hour intersection Level of Service (LOS) standards for City intersections and provide significance criteria information for the evaluation of intersection operations impacts.

Intersection operations at 16 key intersections were evaluated during the weekday morning (AM) and afternoon (PM) peak hours. The PM peak hour intersection LOS analysis is the basis for the CEQA transportation analysis for the proposed project; the AM peak hour intersection LOS analysis is provided for informational purposes only. Significant impacts were identified at the following study intersections:

Alternative 1 (up to 270 apartment units and approximately 22,600 square feet of retail):

- Intersection 10: Business Center Drive/Suisun Valley Road (significantly impacted under Cumulative conditions)
- Intersection 11: I-80 westbound ramps-Neitzel Road/Suisun Valley Road (significantly impacted under Existing plus Approved Projects and Cumulative conditions)
- Intersection 12: I-80 eastbound ramps/Pittman Road (significantly impacted under Cumulative conditions)
- Intersection 16: Lopes Road/Bridgeport Avenue (significantly impacted under Existing, Existing plus Approved Projects and Cumulative conditions)

Alternative 2 (up to 365 apartment units and a new fire station):

- Intersection 10: Business Center Drive/Suisun Valley Road (significantly impacted under Cumulative conditions)
- Intersection 11: I-80 westbound ramps-Neitzel Road/Suisun Valley Road (significantly impacted under Existing plus Approved Projects, and Cumulative conditions)
- Intersection 12: I-80 eastbound ramps/Pittman Road (significantly impacted under Cumulative conditions)

Mitigation measures were proposed to alleviate the impacts. The mitigation measures reduce the impacts at Intersections 10 and 11 to be ***less-than-significant with mitigation***. The mitigation measures for Intersections 12 and 16 would require additional funding or coordination with other agencies such as Caltrans, the Solano Transportation Authority, or the Union Pacific Railroad, and therefore the impacts at these locations are ***significant and unavoidable***. This analysis is presented in **Chapters 5-7** for each of the analysis scenarios.

1.3 OTHER TRANSPORTATION ANALYSIS

The TIA also analyzed multimodal (pedestrian, bicycle, public transit and emergency access) impacts. Bicycle, emergency vehicle and transit impacts were found to be less-than-significant. One pedestrian impact was identified and mitigation measures were proposed, which would reduce the impact to a level that is ***less-than-significant with mitigation***. This analysis is presented in **Chapters 5-7** for each of the analysis scenarios.

A freeway operations analysis was performed for freeway segments in the vicinity of the project site. The analysis was performed using the 2010 Highway Capacity Manual methodologies. Freeway operations impacts were found to be ***less-than-significant***. This analysis is presented in **Chapter 8**.

A preliminary, informational assessment of the vehicle miles of travel (VMT) generated by the proposed project was prepared for information and disclosure purposes only. Based on this analysis, the project could contribute to an increase in VMT on a per-capita basis. This analysis is presented in **Chapter 9**.

A detailed site plan review was conducted and recommendations were developed to improve site access and internal circulation for vehicles, pedestrians, bicycles and transit vehicles. Details are provided in **Chapter 10**.

1.4 MODIFIED ALTERNATIVE 2 ANALYSIS

The TIA also includes qualitative discussion regarding impacts under a Modified Alternative 2 scenario, which includes construction of up to 281 apartment units and a fire station. This analysis tiers off the analysis presented in **Chapters 5-8** and is presented in **Chapter 11**.

2.0 INTRODUCTION

This report presents the results of the transportation impact analysis (TIA) conducted by Fehr & Peers for the proposed Green Valley Mixed-Use project (the project) located at the southwest corner of Suisun Valley Road/Business Center Drive in western Fairfield, California. This chapter provides a detailed project description and describes the study area, analysis methodologies, analysis scenarios, and CEQA significance impact criteria.

2.1 TRANSPORTATION IMPACT ANALYSIS (TIA) PURPOSE

The purpose of this TIA is to identify potentially significant adverse impacts of the proposed project on the surrounding transportation system and to recommend mitigation measures, if needed. This TIA was conducted in accordance with the City of Fairfield*'s Guidelines for Transportation Impact Reports*. This TIA follows the standards set in the most recent *General Plan* Circulation Element for the City of Fairfield, as well as other local plans and policies.

2.2 PROJECT DESCRIPTION

Two project alternatives are under consideration for construction on the undeveloped 13.31-acre parcel located at the southwest corner of Suisun Valley Road/Business Center Drive. The proposed alternatives are described below.

2.2.1 ALTERNATIVE 1 – APARTMENTS AND RETAIL

The first development alternative includes the construction of up to 270 apartment units and approximately 22,600 square feet of retail uses. The retail component is expected to be locally-serving and is proposed in four buildings at the northern end of the site.

The conceptual site plan for Alternative 1 is shown on **Figure 1.** Three driveways would serve the site:

- South Driveway: This driveway would serve a gated, apartment-only access point from an existing curb cut on Business Center Drive aligned with a driveway for the NorthBay Healthcare campus. The driveway is located approximately 670 feet south of the Business Center Drive/Westamerica Drive intersection and is proposed to provide full, unsignalized access.

- Center Driveway: This driveway is proposed to serve as the primary access point to the site, and would form the fourth leg of the existing Business Center Drive/Westamerica Drive signalized intersection. The driveway would serve both the residential and retail portions of the project.
- North Driveway: This driveway is proposed to be right-in only, serving the retail uses on-site, approximately 125 feet downstream of the Westamerica Drive/Business Center Drive intersection.

2.2.2 ALTERNATIVE 2 – APARTMENTS AND FIRE STATION

The second development alternative includes the construction of up to 365 apartment units. Approximately 1.5 acres on the southeast corner of the site would be dedicated for a future fire station to be constructed by others.

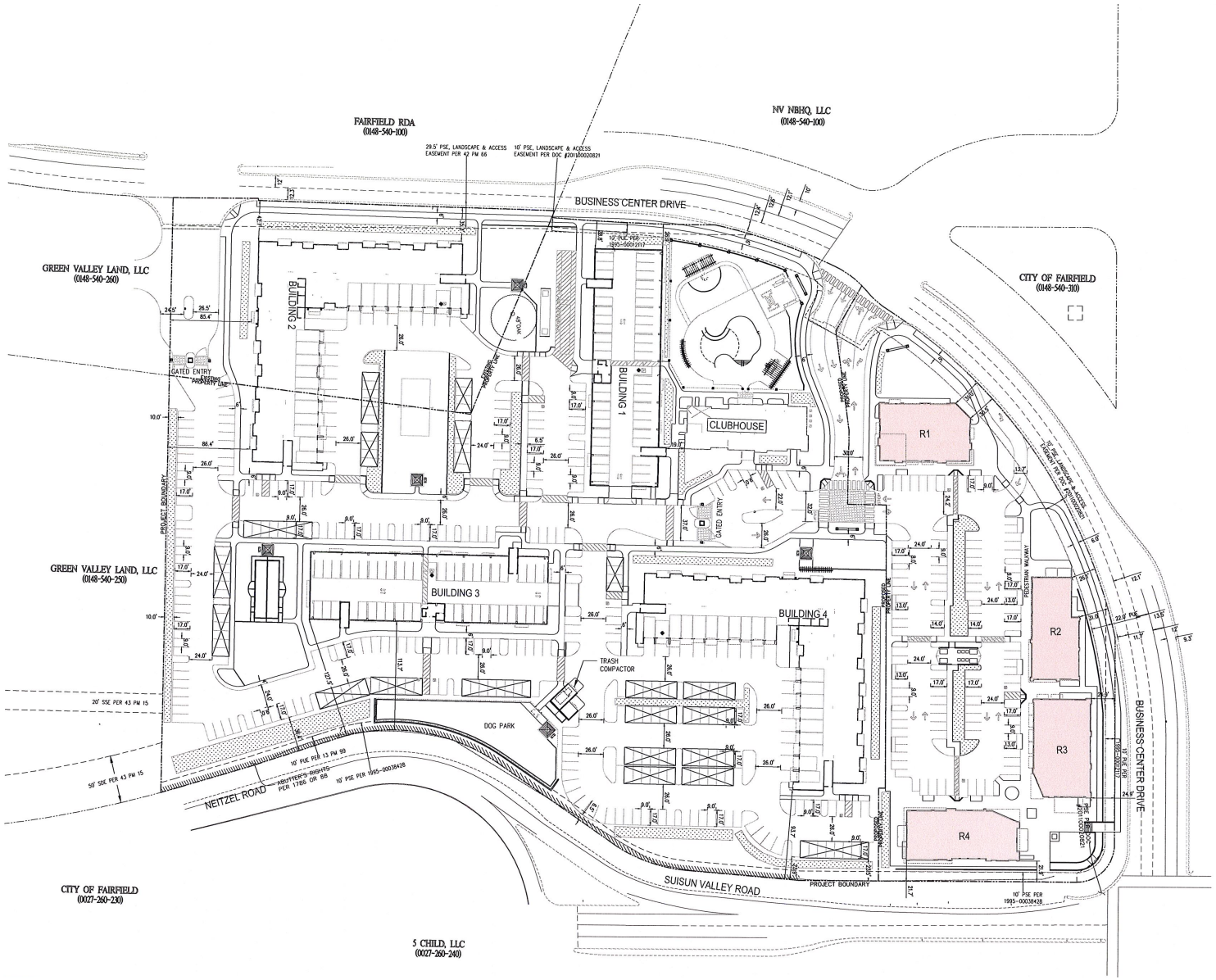
The conceptual site plan for Alternative 2 is shown on **Figure 2.** Two driveways would serve the site:

- South Driveway: This driveway would serve the fire station and a gated, apartment-only access point from an existing curb cut on Business Center Drive aligned with a driveway for the NorthBay Healthcare campus. The driveway is located approximately 670 feet south of the Business Center Drive/Westamerica Drive intersection and is proposed to provide full, unsignalized access.
- Center Driveway: This driveway is proposed to serve as the primary access point to the site, and would form the fourth leg of the existing Business Center Drive/Westamerica Drive signalized intersection. The driveway would serve both the residential and retail portions of the project.

Alternative 2 does not include the right-in only driveway along Business Center Drive downstream of the Westamerica Drive/Business Center Drive intersection that is proposed for Alternative 1.

2.2.3 PROJECT TRANSPORTATION CHARACTERISTICS

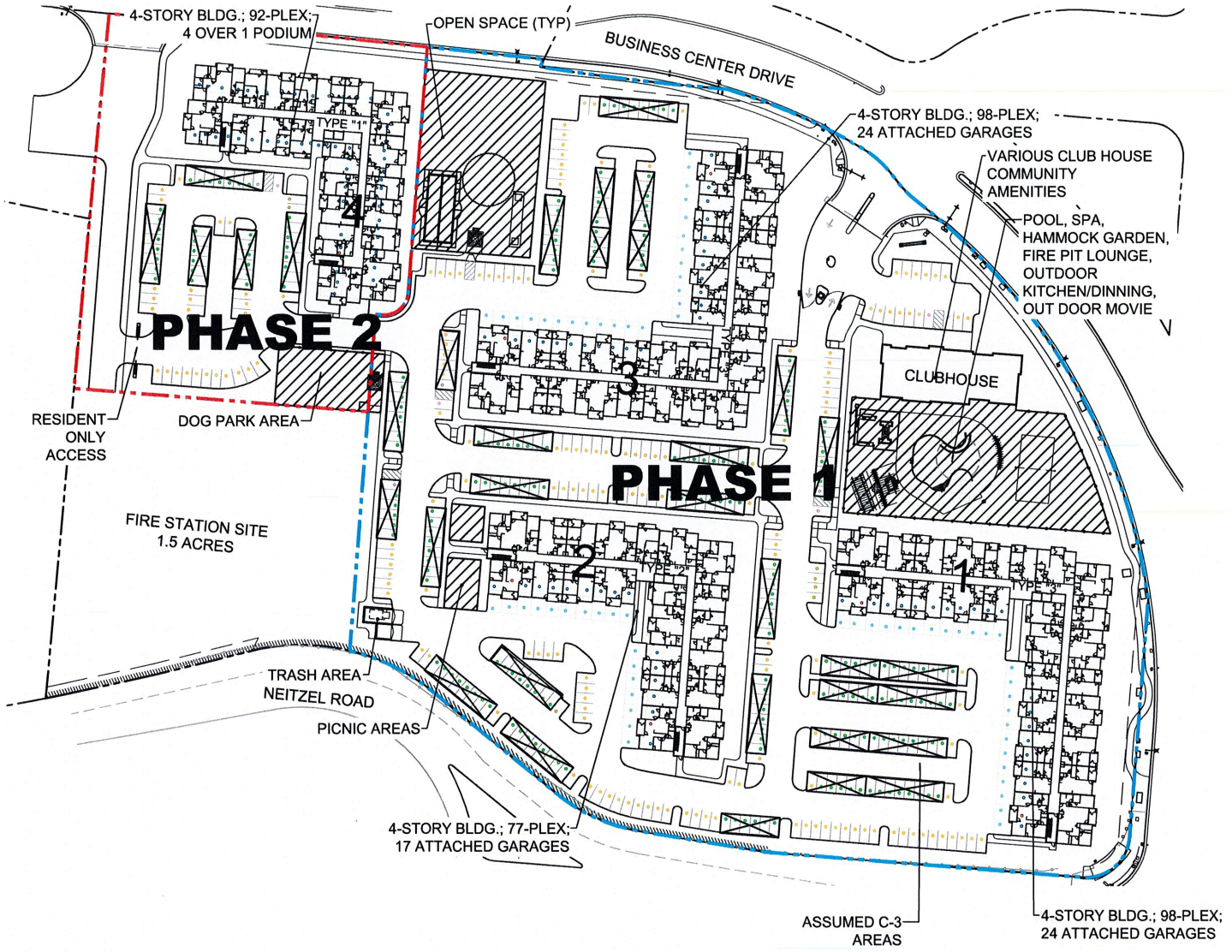
Both proposed alternatives include an internal pedestrian circulation network that connects the various uses on-site. The proposed circulation system also includes the construction of a sidewalk system along Business Center Drive from the South Driveway to the intersection of Business Center Drive/Suisun Valley Road. Residential parking on-site is proposed to be separated from the retail or fire station parking, with the residential parking provided in covered carports, private garages, driveways, and surface parking. Access to the bulk of the residential parking supply would be access restricted, although a few guest parking spaces would be provided exterior to the gates for the leasing center. Parking for the retail portion of the site (under Alternative 1) would be provided in a surface parking lot.



Site Plan Source: Kephart Architecture, Phillippi Engineering, SGPA, Omni-Means Ltd., Feb. 26, 2018.

Figure 1

Project Alternative 1 (Apartments and Retail) Site Plan



Site Plan Source: GHD, December 10, 2018

Figure 2

Project Alternative 2 (Apartments and Fire Station) Site Plan

2.3 PROJECT STUDY AREA

The study area is generally located along the Business Center Drive, Suisun Valley Road/Pittman Road, and Green Valley Road/Lopes Road corridors, as shown on **Figure 3**. The study intersections, listed in **Table 1** and shown on **Figure 3**, were selected in consultation with City of Fairfield staff based on community concerns regarding traffic congestion, the expected number of trips generated by the proposed project and travel routes to complementary land uses.

An analysis of freeway segments in the vicinity of the project site was also conducted. The study area considers the segments below. The freeway analysis study area shifts between the near term (Existing and Existing plus Approved Projects scenarios) and far term (Year 2035 Cumulative scenario) horizon scenarios due to the reconfiguration of I-80 and I-680 resulting from continued construction of the I-80/I-680/SR 12 interchange project.

Existing and Near-Term Scenario Freeway Analysis Segments:

- Westbound I-80 from east of the Suisun Valley Road off-ramp to west of the southbound I-680 connector off-ramp (five segments)
- Eastbound I-80 from west of the northbound I-680 connector/Green Valley Road on-ramp to east of the Suisun Valley Road on-ramp (six segments)
- Southbound I-680 south of I-80 and south of Gold Hill Road (two segments)
- Northbound I-680 south of Gold Hill Road and south of I-80 (two segments)

Far-Term Scenario Freeway Analysis Segments:

- Westbound I-80 from east of the Suisun Valley Road off-ramp to west of the Green Valley Road off-ramp (six segments)
- Eastbound I-80 from west of the northbound I-680 connector/Green Valley Road on-ramp to east of the Suisun Valley Road on-ramp (seven segments)
- Southbound I-680 south of I-80 and south of Gold Hill Road (two segments)
- Northbound I-680 south of Gold Hill Road and south of I-80 (two segments)

Project Site # Study Intersection

Figure 3

Project Study Area

TABLE 1: STUDY INTERSECTIONS

Intersection ID	Intersection Name	Jurisdiction(s)	Existing Traffic Control
1	Mangels Boulevard/Green Valley Road	City of Fairfield	Signalized
2	Business Center Drive/Green Valley Road	City of Fairfield	Signalized
3	Business Center Drive/Neitzel Road	City of Fairfield	All-Way Stop-Controlled
4	I-80 westbound ramps/Green Valley Road	City of Fairfield/ Caltrans	Signalized
5	I-80 eastbound ramps/Green Valley Road	City of Fairfield/ Caltrans	Signalized
6	Mangels Boulevard/Westamerica Drive	City of Fairfield	Signalized
7	Business Center Drive/Center Project Driveway-Westamerica Drive	City of Fairfield	Signalized
8	Business Center Drive/South Project Driveway-NorthBay Driveway	City of Fairfield	Side-Street Stop-Controlled
9	Westamerica Drive/Suisun Valley Road	City of Fairfield	Signalized
10	Business Center Drive/Suisun Valley Road	City of Fairfield	Signalized
11	I-80 westbound ramps-Neitzel Road/Suisun Valley Road	City of Fairfield/ Caltrans	All-Way Stop-Controlled
12	I-80 eastbound ramps/Pitman Road	City of Fairfield/ Caltrans	Signalized
13	Central Way/Pitman Road	City of Fairfield	Signalized
14	Central Way/Cordelia Road	City of Fairfield	Side-Street Stop-Controlled
15	Lopes Road/Cordelia Road	City of Fairfield	Three-Way Stop-Controlled
16	Lopes Road/Bridgeport Avenue	City of Fairfield	Side-Street Stop-Controlled

Source: Fehr & Peers, August 2019.

2.4 ANALYSIS SCENARIOS

Roadway system operations are evaluated during the weekday morning (AM) and evening (PM) peak hours when traffic volumes on the surrounding roadway network are expected to be the highest, and the project would generate the most vehicle traffic. With regards to intersection analysis, the PM peak hour analysis scenario forms the basis of the CEQA transportation analysis for the project, as discussed further in **Section 2.7**. The AM peak hour analysis is presented for informational purposes only. The analysis scenarios are shown in **Table 2**.

TABLE 2: ANALYSIS SCENARIOS

SCENARIO	DESCRIPTION
Existing	The analysis of existing conditions was based on traffic counts provided by the City of Fairfield reflecting data collected in Fall of 2017, supplemented by counts conducted in February 2018 for intersections where other data was not available. The existing conditions assessment also includes a description of key area roadways and an assessment of bicycle, pedestrian, public transit facilities and services near the site.
Existing with Project	This traffic scenario provides an assessment of operating conditions under Existing conditions with the addition of project-generated traffic and transportation network infrastructure proposed by the project. The impacts of the proposed project on existing baseline traffic operating conditions were identified.
Existing plus Approved Projects (EPAP)	Existing volumes and transportation system plus traffic generated by approved, proposed, and built but not yet occupied projects. Trip generation, distribution and assignment for these projects based on previously completed studies or manually completed based on data from the ITE *Trip Generation Manual, 10th Edition* and locations of complementary land uses.
Existing plus Approved Projects with Project	This traffic scenario provides an assessment of operating conditions under EPAP with the addition of project-generated traffic and transportation network infrastructure proposed by the project. The impacts of the proposed project on EPAP baseline operating conditions were identified.
Cumulative without Project	Year 2035 traffic forecasts without the proposed project were developed for Cumulative Conditions by applying traffic volume growth data derived from the City of Fairfield travel demand model and other data sources. The growth data were applied to Existing Conditions volumes to arrive at Year 2035 traffic volumes.
Cumulative with Project	This traffic scenario provides an assessment of operating conditions under Cumulative Conditions with the addition of project-generated traffic and transportation network infrastructure proposed by the project. The impacts of the proposed project on Year 2035 baseline traffic operating conditions were then identified.
Cumulative plus Business Center Drive Extension	Year 2035 traffic forecasts without the proposed project were developed for Cumulative Conditions by applying traffic volume growth data derived from the City of Fairfield travel demand model and other data sources. The model run in this scenario assumes that Package 5 of the I-80/I-680/SR 12 interchange project is completed, including the planned extension of Business Center Drive west to the junction of SR 12 and Red Top Road. The growth rates were applied to Existing Conditions volumes and traffic volume shifts that are expected to occur from the provision of new transportation facilities in the study area were considered. .
Cumulative plus Business Center Drive Extension with Project	This traffic scenario provides an assessment of operating conditions under Cumulative plus Business Center Drive Extension Conditions with the addition of project-generated traffic and transportation network infrastructure proposed by the project. The impacts of the proposed project on Cumulative plus Business Center Drive Extension baseline conditions were then identified.

Source: Fehr & Peers, August 2019.

2.5 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.

2.5.1 SIGNALIZED INTERSECTIONS

The method described in Chapter 18 of the Transportation Research Board's *2010 Highway Capacity Manual* (2010 HCM) was used to conduct the level of service calculations for the signalized study intersections. This method is used to estimate the control delay experienced by motorists at an intersection. Control delay includes the initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The average control delay for signalized intersections was calculated using the Synchro traffic analysis software and correlated to a LOS designation as shown in **Table 3**.

TABLE 3: SIGNALIZED INTERSECTION LEVEL OF SERVICE DEFINITIONS

Level of Service	Description	Average Control Delay per Vehicle (seconds)
A	Operations with very low delay occurring with favorable progression and/or short cycle lengths.	≤ 10.0
B	Operations with low delay occurring with good progression and/or short cycle lengths.	10.1 to 20.0
C	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	20.1 to 35.0
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, and high volume-to-capacity (V/C) ratios. Many vehicles stop and individual cycle failures are noticeable.	35.1 to 55.0
E	Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences.	55.1 to 80.0

TABLE 3: SIGNALIZED INTERSECTION LEVEL OF SERVICE DEFINITIONS

Level of Service	Description	Average Control Delay per Vehicle (seconds)
F	Operations with delays unacceptable to most drivers occurring due to over-saturation, poor progression, or very long cycle lengths.	> 80.0

Source: *Highway Capacity Manual*, Transportation Research Board, 2010.

2.5.2 UNSIGNALIZED INTERSECTIONS

The method described in Chapter 19 of the 2010 HCM was used to conduct the level of service calculations for the side-street stop-controlled intersections. The method described in Chapter 20 of the 2010 HCM was used to conduct the level of service calculations for the all-way stop-controlled intersections. The average control delay for unsignalized intersections was also calculated using the Synchro traffic analysis software. For side-street stop-controlled intersections, the worst movement (for multi-lane approaches) or worst approach (for single-lane approaches) delay was used to determine the LOS for the intersection, using the LOS designations shown in **Table 4**. For all-way stop-controlled intersections, the whole-intersection average delay was used to determine the LOS for the intersection.

TABLE 4: UNSIGNALIZED INTERSECTION LEVEL OF SERVICE DEFINITIONS

Level of Service	Description	Average Control Delay Per Vehicle (Seconds)
A	Little or no delay.	≤ 10.0
B	Short traffic delays.	10.1 to 15.0
C	Average traffic delays.	15.1 to 25.0
D	Long traffic delays.	25.1 to 35.0
E	Very long traffic delays.	35.1 to 50.0
F	Extreme traffic delays with intersection capacity exceeded.	> 50.0

Source: *Highway Capacity Manual*, Transportation Research Board, 2010.

2.5.3 NON-STANDARD UNSIGNALIZED INTERSECTIONS

The intersection of Lopes Road/Cordelia Road is a three-way stop-controlled intersection, which is a special case of a side-street stop-controlled intersection. The methods provided in Chapter 19 and Chapter 20 of the 2010 HCM are not applicable to this type of intersection control. Therefore, an approximation method

was developed to estimate delay at this intersection. This approximation method uses the available 2010 HCM calculation methodologies and is based on existing volume patterns, existing congestion patterns, projected future volumes patterns, and the estimated number and pattern of project trips at the intersection trips. The basis for the approximation method is as follows:

- Existing Conditions count volumes[1] at this location reveal that the eastbound approach to the intersection serves a very low volume relative to the other approaches at the intersection – about one to two percent of the total entering volume at the intersection (see **Figure 6**, which is located later in this report in **Section 3.2**)
- Field observations of existing AM peak hour and PM peak hour congestion indicate that the queues for the single-lane westbound approach are by far the longest in length and time spent in queue, and therefore the westbound approach delay results should govern when reporting the worst movement/approach delay
- As noted in **Chapter 6** (Existing plus Approved Projects Conditions), there are no approved, near-term pending, or built but not yet occupied projects along Cordelia Road west of the intersection
- As noted in **Chapter 4** (Project Traffic Estimates), the project is not anticipated to add trips to the eastbound approach to the intersection, but would add trips to all other approaches at the intersection.

Based on this information, the following approximation method was developed to estimate delay at the Lopes Road/Cordelia Road intersection:

- Step 1: Redistribute eastbound Cordelia Road approach volumes to the westbound Cordelia Road approach and employ a similar approach for the northbound left turn movement and southbound right turn movement. The westbound through movement volumes are added to the westbound left turn movement, which is the worst case scenario. The effect of this redistribution is that the total entering volume at the intersection remains identical to the pre-adjustment scenario.
- Step 2: Remove the eastbound approach at the intersection, such that the intersection is comprised of three approaches.
- Step 3: Analyze the intersection as a side-street stop-controlled intersection, with the northbound approach set as a free movement (as it exists in the field under Existing Conditions).
- Step 4: Report the worst approach/movement delay as if the intersection is a side-street stop-controlled intersection, and use the thresholds in **Table 4** to determine LOS.

[1] Existing Conditions count volumes are presented on **Figure 6**, which are located later in this report in **Section 3.2**.

- Step 5: Confirm results are reasonable given field observations (for Existing Conditions) or projected increases in traffic volumes (for other scenarios).

This method was found to replicate the high levels of existing congestion for the westbound approach to the Lopes Road/Cordelia Road intersection, and thus it was determined that the approximation approach was reasonable given the basis described above. It should be noted that the determination of CEQA intersection operations impacts at side-street stop-controlled intersections is based on three criteria involving intersection delay and intersection volumes (discussed further in **Section 2.7.1.3**). The approximation approach described above is related to only one criterion, and all three criteria must be met for a projects impact to be deemed significant. Since the eastbound approach volumes are shifted to the westbound approach, the net effect of this approximation approach is that the analysis would be conservative – it would overestimate the potential project impact at the intersection by concentrating the eastbound approach volume and westbound approach volume onto a single-lane, stop-controlled approach.

2.5.4 FREEWAY SEGMENTS

The methods described in Chapters 10-13 of the 2010 HCM were used to conduct the level of service calculations for freeway segments. The service level for a freeway section is based on vehicle density expressed as passenger cars per mile per lane (pcpmpl). **Table 5** presents a summary of the relationship between density and level of service for freeway sections and ramp junctions.

TABLE 5: FREEWAY SEGMENT LEVEL OF SERVICE DEFINITIONS

Level of Service	Description	Basic Mainline Segment Density Criteria[1]	Ramp Junctions & Weave Segments Density Criteria[1]
A	Free-flow speeds prevail. Vehicles are almost completely unimpeded in their ability to maneuver within the traffic stream.	≤ 11.0	≤ 10.0
B	Free-flow speeds are maintained. The ability to maneuver with the traffic stream is only slightly restricted.	> 11.0 to 18.0	> 10.0 to 20.0
C	Flow with speeds at or near free-flow speeds. Freedom to maneuver within the traffic stream is noticeably restricted, and lane changes require more care and vigilance on the part of the driver.	> 18.0 to 26.0	> 20.0 to 28.0
D	Speeds decline slightly with increasing flows. Freedom to maneuver with the traffic stream is more noticeably limited, and the driver experiences reduced physical and psychological comfort.	> 26.0 to 35.0	> 28.0 to 35.0

TABLE 5: FREEWAY SEGMENT LEVEL OF SERVICE DEFINITIONS

Level of Service	Description	Basic Mainline Segment Density Criteria[1]	Ramp Junctions & Weave Segments Density Criteria[1]
E	Operation at capacity. There are virtually no usable gaps within the traffic stream, leaving little room to maneuver. Any disruption can be expected to produce a breakdown with queuing.	> 35.0 to 45.0	> 35.0
F	Represents a breakdown in flow.	> 45.0	v/c > 1.0

Notes:
1. Density in passenger cars per mile per lane (pcpmpl)
Source: 2010 Highway Capacity Manual.

2.6 VEHICLE-MILES OF TRAVEL

In response to Senate Bill 743 (SB 743), the Office of Planning and Research (OPR) is updating California Environmental Quality Act (CEQA) guidelines to include new transportation-related evaluation metrics. Draft guidelines were developed in August 2014, with final guidelines published in November 2017 incorporating public comments from the August 2014 and January 2016 guidelines. The formal rulemaking process was completed in early January 2019 with updated technical procedures published in December 2018; full compliance with the guidelines is required by July 1, 2020. In response to the final guidelines, a preliminary assessment of vehicle miles of travel (VMT) generated by the proposed project was prepared for informational purposes only.

2.7 CEQA TRANSPORTATION IMPACT CRITERIA

The section describes the LOS standards and impact criteria applied to the roadway facility types analyzed for CEQA purposes. Overall, the determination of significance for project impacts is based on applicable guidelines defined by the City of Fairfield, including policies in the City's General Plan. The detailed standards and impact criteria presented below focuses on elements pertaining to transportation system operations.

2.7.1 INTERSECTIONS

The City of Fairfield General Plan and the City's *Guidelines for Transportation Impact Reports* note the following PM peak hour LOS standards for intersections in the City of Fairfield:

- Arterial streets – LOS D standard
- Collector streets – LOS C standard
- Local streets – LOS B standard
- Highest functional classification at an intersection controls the classification of the intersection (e.g., at the intersection of an arterial and a collector, the intersection would be classified as arterial)

The *Guidelines for Transportation Impact Reports* notes that several exceptions to the PM peak hour LOS standard are available if maintaining the LOS standard at an intersection results in a safety impact, conflicts with General Plan goals, or is not cost-effective. This study does not assume that any of the study intersections are included in this exception. Based on the above standards and additional guidance form the *Guidelines for Transportation Impact Reports*, the following CEQA impact criteria were developed to evaluate transportation impacts of the proposed project.

In addition to PM peak hour intersection operations analysis, the AM peak hour was also analyzed for informational purposes. An AM peak hour operating standard is not included in the General Plan policies, and thus CEQA impact conclusions are not drawn for the AM peak hour.

2.7.1.1 Signalized Intersections

The proposed project would have significant impacts to signalized intersection operations if:

- For intersections operating acceptably prior to the implementation of the project: the project would create a significant impact if it would cause the intersection to degrade below its PM peak hour LOS standard:
    - Arterial streets – LOS D standard
    - Collector streets – LOS C standard
    - Local streets – LOS B standard
    - Highest functional classification at an intersection controls the classification of the intersection (e.g., at the intersection of an arterial and a collector, the intersection would be classified as arterial)
- For intersections operating unacceptably prior to the implementation of the project: the project would create a significant impact if it would result in an increase of greater than 5.0 seconds in the average delay at the intersection (critical movements for arterial intersections)

2.7.1.2 All-Way Stop-Controlled Intersections

The proposed project would have significant impacts to signalized intersection operations if:

- For intersections operating acceptably prior to the implementation of the project: the project would create a significant impact if both the following criteria are met:
    - It would cause the intersection to degrade below its PM peak hour LOS standard:
        - Arterial streets – LOS D standard
        - Collector streets – LOS C standard
        - Local streets – LOS B standard
        - Highest functional classification at an intersection controls the classification of the intersection (e.g., at the intersection of an arterial and a collector, the intersection would be classified as arterial)
    - The intersection meets California MUTCD Signal Warrant 3A or Warrant 3B (commonly known as the "Peak Hour Signal Warrant")
- For intersections operating unacceptably prior to the implementation of the project: the project would create a significant impact if both the following criteria are met:
    - The project would result in an increase of greater than 5.0 seconds in the average delay at the intersection
    - The intersection meets California MUTCD Signal Warrant 3A or Warrant 3B (commonly known as the "Peak Hour Signal Warrant")

2.7.1.3 Side-Street Stop-Controlled Intersections

The City's *Guidelines for Transportation Impact Reports* notes that small increases in volume at side-street stop-controlled intersections may result in large increases in reported delay. It is therefore difficult to established fixed significance thresholds based on PM peak hour LOS for these locations. Therefore, the City's *Guidelines for Transportation Impact Reports* suggests the following intersection impact criteria:

- An intersection may be considered to operate acceptably (and thus the impact is less-than-significant) if the aggregate delay for the worst movement or approach is less than:
    - 4.0 vehicle-hours for a movement on a single lane approach with low volume
    - 5.0 vehicle-hours for a movement on a multilane approach with low volume
- Mitigations are required (and thus the impact is significant) if all of the following criteria are met:
    - The worst movement/approach operates at LOS F during the PM peak hour

- The intersection meets California MUTCD Signal Warrant 3A or Warrant 3B (commonly known as the "Peak Hour Signal Warrant")
- A minimum of 10 vehicles are added to the worst movement/approach

2.7.2 PEDESTRIAN SYSTEM

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

- The project disrupts existing pedestrian facilities;
- The project interferes with or precludes planned pedestrian facilities; or
- The project creates inconsistencies with adopted pedestrian system plans, guidelines, policies, or standards.

2.7.3 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.

2.7.4 PUBLIC TRANSIT SYSTEM

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

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

2.7.5 EMERGENCY ACCESS

Ease of access and travel time are critical for first responders traveling in emergency access vehicles. Obstructions in the roadway, detours, and congestion delay are among the factors that can affect

emergency response time. Using the *General Plan* as a guide, significant impacts would occur if a project or an element of a project:

- Conflicts with an existing or planned emergency response facility or route; or
- Provides inadequate access to accommodate emergency vehicles

2.7.6 FREEWAY SEGMENTS

The Solano Transportation Authority (STA) is the Congestion Management Agency (CMA) for Solano County. The I-80 and I-680 freeways are defined as roadways to be monitored as part of the Congestion Management Program (CMP). The STA CMP notes the LOS benchmark for the CMP roadway system is LOS E (i.e. a density below 45 pcpmpl for basic type segments or a volume-to-capacity ratio of 1.0 or less for all other segment types). Based on the CMP definitions of acceptable LOS, and CEQA freeway impact significance thresholds used for other projects in Solano County, the project would create a significant impact related to public transit service if either of the following criteria are met:

- For segments operating acceptably (LOS E or better) prior to the implementation of the project: the project would create a significant impact if it would cause the freeway segment to degrade to LOS F.
- For segments operating unacceptably (LOS F) prior to the implementation of the project: the project would create a significant impact if the project would add peak hour trips in excess of 1.0 percent of the general purpose lane capacity (about 2,000 vehicles per hour per lane per the 2010 HCM and Caltrans District 4 traffic operations analysis policy) on the segment.

2.8 REPORT ORGANIZATION

The remainder of the report is divided into the following chapters:

- ***Chapter 3: Existing Conditions*** describes the existing transportation system in the project vicinity, including the surrounding roadway network, peak period intersection turning movement volumes, existing bicycle, pedestrian, and transit facilities, and intersection operations.
- ***Chapter 4: Project Traffic Estimates*** presents the project trip generation, distribution, and assignment.
- ***Chapter 5: Existing with Project Conditions*** addresses the existing condition with the project, and discusses vehicular impacts.
- ***Chapter 6: Existing plus Approved Projects (EPAP) Conditions*** addresses the Existing plus Approved Project condition, both without and with the project, and discusses vehicular impacts.
- ***Chapter 7: Cumulative (Year 2035) Conditions*** addresses the future conditions, both without and with the project, and discusses vehicular impacts. Cumulative analysis performed both without and with the proposed Business Center Drive extension to SR 12/Red Top Road.
- ***Chapter 8: Freeway Analysis*** addresses freeway segment operations both without and with the project, and discusses vehicular impacts.
- ***Chapter 9: Informational Project Vehicle-Miles Traveled Analysis*** presents the results of the VMT assessment conducted for informational purposes only.
- ***Chapter 10: Site Plan Evaluation and Recommendations*** discusses site access and circulation based on the current site plan for all modes of travel. Recommendations are provided.
- ***Chapter 11: Modified Alternative 2 Scenario*** presents the results of an assessment of impacts for a modified project Alternative 2 scenario with a reduced unit count from that assumed in Chapters 4-8.

3.0 EXISTING CONDITIONS

A comprehensive multi-modal data collection effort was undertaken to identify existing transportation conditions in the vicinity of the proposed project. The assessment of Existing Conditions relevant to this study includes an inventory of the street system, traffic volumes on these facilities, and operating conditions at key intersections. Existing public transit service, and bicycle and pedestrian facilities in the study area are also described. Existing freeway operations are described in **Chapter 8**.

3.1 EXISTING TRANSPORTATION FACILITIES

3.1.1 EXISTING STREET SYSTEM

Direct vehicular access to the project site is provided from Business Center Drive. Local access to the site is provided via Suisun Valley Road, Pittman Road, Neitzel Road, Mangels Boulevard, Green Valley Road, Lopes Road and Cordelia Road. Regional access to the project site is provided via Interstate 80, Interstate 680 and State Route 12. These facilities are described below and are illustrated on **Figure 3** (presented earlier in **Section 2.3**).

Business Center Drive is an east-west, four-lane divided arterial roadway that currently extends from the Green Valley Technical Plaza driveway in the west to Suisun Creek in the east; east of Suisun Creek, Business Center Drive transitions onto Suisun Parkway, which terminates at the I-80/Suisun Parkway-Chadbourne Road interchange. The posted speed limit near the project site is 40 miles per hour, and parking is prohibited along the roadway. The average daily traffic (ADT) in the vicinity of the project site is about 11,300 vehicles per day. A connection for the western end of Business Center Drive and the western end of Mangels Boulevard is currently under construction and anticipated to be open to traffic in winter 2019. The I-80/I-680/SR 12 interchange improvement project includes a further extension of Business Center Drive to a new SR 12/ Red Top Road interchange; this extension is expected to be completed in the Year 2035 time horizon.

Suisun Valley Road is a two-to-six-lane arterial roadway that extends from the Wooden Valley area of Napa County in the north to the I-80/Suisun Valley Road-Pittman Road interchange in the south. Suisun Valley Road transitions onto Pittman Road at the interchange. The interchange is expected to be modified as part of the I-80/I-680/SR 12 interchange improvement project; a direct westbound I-80 on ramp would be provided as part of the removal of the Neitzel Road connection to Green Valley Road. Near the project site, the posted speed limit is 40 miles per hour, and parking is prohibited on both sides of the roadway. The ADT in the vicinity of the project site is about 12,700 vehicles per day.

Pittman Road is a two-to-four-lane arterial roadway that extends from the I-80/Suisun Valley Road-Pittman Road interchange in the north to Cordelia Road in the south. The posted speed limit near the interchange is 35 miles per hour and parking is prohibited on both sides of the roadway. The ADT in the vicinity of the project site is about 12,200 vehicles per day.

Neitzel Road is a two-lane, one-way arterial roadway that extends from the I-80/Suisun Valley Road-Pittman Road interchange in the east to Business Center Drive in the east. The roadway serves as the connection between westbound I-80 and Green Valley Road as the I-80 Green Valley Road interchange does not include a direct off-ramp to Green Valley Road. Likewise, since a direct on-ramp to westbound I-80 is not provided at the I-80/Suisun Valley Road-Pittman Road interchange, Neitzel Road conveys traffic to the westbound I-80 on-ramp at Green Valley Road. Neitzel Road is anticipated to be abandoned and removed as part of the I-80/I-680/SR 12 interchange improvement project. The ADT along Neitzel Road is about 5,100 vehicles per day. The posted speed limit near the interchange is 50 miles per hour, and parking is prohibited on both sides of the roadway.

Mangels Boulevard is an east-west, four-lane divided arterial extending from Antiquity Drive in the west, to Westamerica Drive in the east. West of Vintage Valley Drive, the width of the roadway is reduced to two lanes in each direction with a wide median. The speed limit along Mangels Boulevard is posted at 40 miles per hour and no parking is allowed on this facility. A direct connection between westbound Business Center Drive and westbound Mangels Boulevard is afforded via a one-way only roadway; a connection between eastbound Mangels Boulevard and eastbound Business Center Drive may be made via southbound Westamerica Drive. The ADT in the vicinity of the project site is about 6,000 vehicles per day.

Green Valley Road is a north-south, four-lane divided arterial extending from the I-80/Green Valley Road interchange in the south to the Green Valley Country Club area in the north. Green Valley Road transitions onto Lopes Road south of the interchange, which continues towards Red Top Road and Benicia. The I-80/ Green Valley Road interchange would be modified as part of the I-80/I-680/SR interchange improvement project; the primary change along Green Valley Road would be the construction of a direct westbound I-80 off-ramp to Green Valley Road. Green Valley Road has a speed limit of 45 miles per hour, and street parking is prohibited on this facility. Class II bike lanes are provided along both sides of Green Valley Road between the I-80 Green Valley Road interchange and Eastridge Drive. The ADT in the vicinity of Business Center Drive is about 23,000 vehicles per day.

Lopes Road is a north-south, two-to-four-lane arterial extending from the I-80/Green Valley Road interchange in the north to the City of Benicia in the south. The roadway connects the project area (via Green Valley Road and Business Center Drive) to areas of industrial and residential along the west side of I-

680. The posted speed limit in the project study area is 40 miles per hour. The ADT in the vicinity of Cordelia Road is about 12,000 vehicles per day.

Cordelia Road is an east-west, two-lane arterial extending from an industrial area west of Lopes Road to Suisun City in the east. The roadway connects the Cordelia neighborhood with I-680 (via Lopes Road and Central Way) and I-80 (via Pitman Road). The posted speed limit in the project study area is 35 miles per hour. The ADT in the vicinity of Lopes Road is about 8,700 vehicles per day.

Interstate 80 (I-80) is an east-west, 12-lane freeway extending from San Francisco to the California-Nevada state line via Vallejo, Fairfield, and Sacramento. The facility connects the project site to the San Francisco Bay Area, to the center of Fairfield, and to the Sacramento metropolitan area. Connections to the project site are made through interchanges at Green Valley Road and Suisun Valley Road-Pittman Road. I-80 is co-signed with State Route 12 near the project site.

Interstate 680 (I-680) is a north-south, four-lane freeway extending from Fairfield to San Jose via Benicia, Walnut Creek and Fremont. The facility connects the project site to the outer East San Francisco Bay region with further connections to Silicon Valley. Connections to the project site are made through interchanges at Cordelia Road and Suisun Valley Road-Pittman Road via I-80.

State Route 12 (SR 12) is an east-west, four-lane expressway extending from Sebastopol to San Andreas via Santa Rosa, Napa, Fairfield and Lodi. The facility connects the project site to Sonoma, Napa and San Joaquin Counties. SR 12 is co-signed with I-80 near the project site.

3.1.2 EXISTING PUBLIC TRANSIT SERVICES AND CONNECTIVITY

This section summarizes local and regional public transit connectivity in the study area. Public transit systems that serve the study area and surrounding areas are introduced below and described in more detail in **Table 6**.

- **Fairfield and Suisun Transit (FAST):** Fairfield and Suisun Transit provides local and regional bus service throughout the City of Fairfield with regional connections to eastern Solano County, Davis, Sacramento, Walnut Creek BART, Pleasant Hill BART and El Cerrito del Norte BART. A total of three FAST routes directly serve the study area.
- **Solano County Transit (SolTrans)**: Solano County Transit provides regional bus service between the Cities of Fairfield and Vallejo, with connections to the Vallejo Ferry Terminal. One SolTrans route directly serves the study area.

Public transit services within the project study area and that traverse through study intersections are detailed in **Table 6** and displayed on **Figure 4**. The project site is located approximately one mile east of

the Cordelia Library transit mini-hub (which is served by all routes in **Table 6**) and about 0.30 miles south of a street-side stop at Suisun Valley Road/Kaiser Drive (which is served by FAST routes 7 and 7T).

TABLE 6: EXISTING PUBLIC TRANSIT SERVICES

Route	From	To	Weekdays			Weekends	
			Operating Hours[1]	Headway (Minutes)[2]		Operating Hours[1]	Headway (Minutes)[2]
				Peak	Midday		
Fairfield and Suisun Transit (FAST) – Local Bus Service							
FAST 7	Fairfield Transit Center	Cordelia Library mini-hub	6:00 AM to 7:20 PM	30	30	9:00 AM to 5:50 PM[3]	60
FAST 7T	Suisun Senior Center	Green Valley Middle School	5:30 AM to 8:30 AM 3:00 PM to 4:10 PM	3 AM Runs 2 PM Runs	No Service	No Service	No Service
FAST 8	Cordelia Library mini-hub	Cordelia Library mini-hub	6:30 AM to 7:20 PM	60	60	9:30 AM to 5:20 PM[3]	60
Solano County Transit (SolTrans) – Regional Bus Service							
SolTrans 85	Vallejo Transit Center	Solano Town Center Mall	5:00 AM to 11:00 PM	60	60	6:00 AM to 10:00 PM[3]	120

Notes:
1. Operating hours rounded to the nearest 10 minutes
2. Headways are defined as the time between transit vehicles on the same route in the same direction (e.g., time between two FAST Route 7 buses stopping at the Cordelia Library mini-hub).
3. No Sunday service.
Sources: Fairfield and Suisun Transit, March 2018 and Solano County Transit, January 2019.

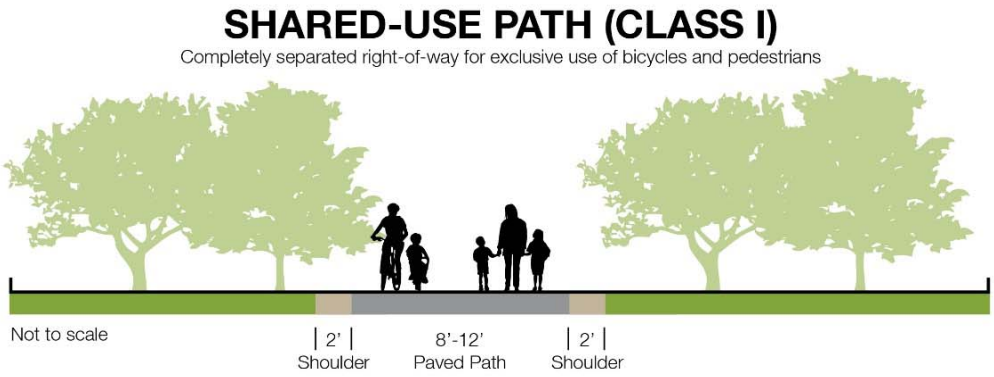
Figure 4

Existing Public Transit Routes

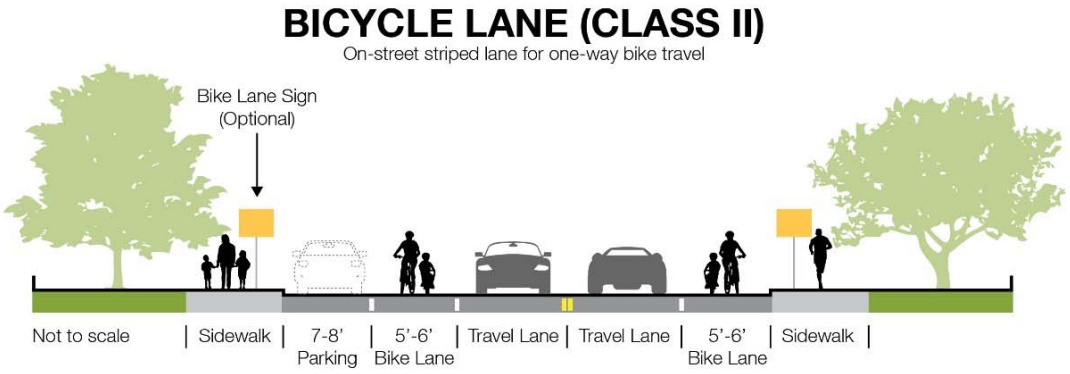
3.1.3 EXISTING BICYCLE FACILITIES

Bikeway planning and design in California typically relies on guidelines and design standards established by California Department of Transportation (Caltrans) in the Highway Design Manual (Chapter 1000: Bikeway Planning and Design). Caltrans provides for four distinct types of bikeway facilities, as described below and shown in the accompanying figures.

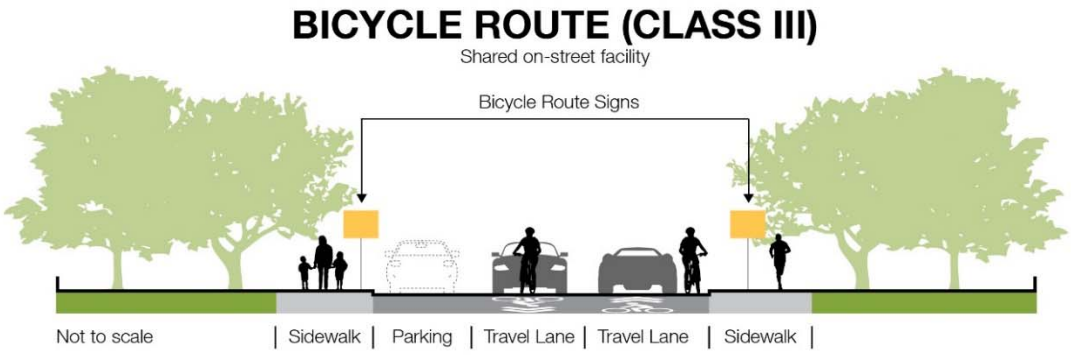
- *Class I Bikeways (Shared-Use Path)* provide a completely separate right-of-way and are designated for the exclusive use of bicycles and pedestrians, with vehicle and pedestrian cross-flow minimized. In general, bike paths serve corridors where on-street facilities are not feasible or where sufficient right-of-way exists to allow them to be constructed.



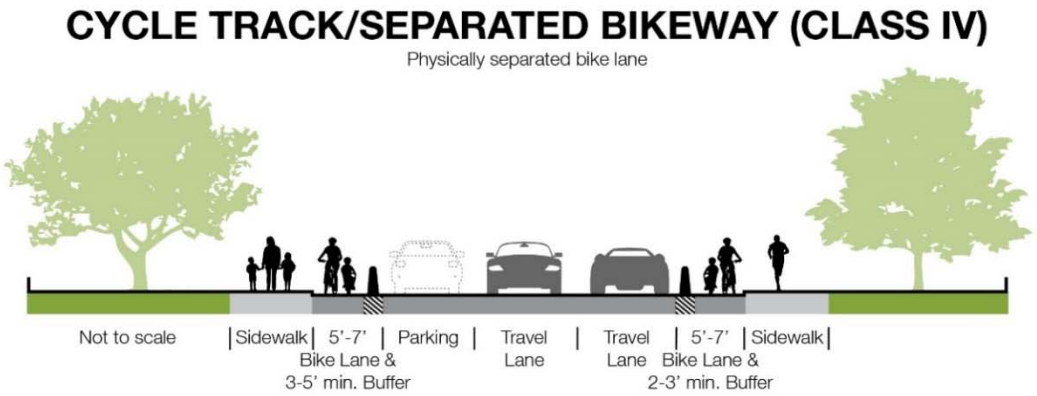
- *Class II Bikeways (Bicycle Lanes)* are dedicated lanes for bicyclists generally adjacent to the outer vehicle travel lanes. These lanes have special lane markings, pavement legends, and signage. Bicycle lanes are typically five (5) feet wide. Adjacent vehicle parking and vehicle/pedestrian cross-flow are permitted.



- *Class III Bikeways (Bicycle Route)* are designated by signs or pavement markings for shared use with pedestrians or motor vehicles, but have no separated bike right-of-way or lane striping. Bike routes serve either to: a) provide a connection to other bicycle facilities where dedicated facilities are infeasible, or b) designate preferred routes through high-demand corridors.



- *Class IV Bikeways (cycle tracks or "separated" bikeways)* provide a right-of-way designated exclusively for bicycle travel within a roadway and are protected from other vehicle traffic by physical barriers, including, but not limited to, grade separation, flexible posts, inflexible vertical barriers such as raised curbs, or parked cars.



Existing bicycle facilities in the study area are displayed on **Figure 5**. An existing Class I shared-use path, the Fairfield Linear Park Trail, is located approximately 1.2 miles east of the project site. Class II bicycle lanes are provided along Mangels Boulevard from Westamerica Drive to Vintage Valley Drive. The City of Fairfield General Plan Circulation Element notes that Class II bicycle lanes are proposed to be installed along Suisun Valley Road.

Project Site

Existing	*Proposed*	
		Class 1 Bike Path
		Class 2 Bike Lane
		Class 3 Bike Route

Figure 5

Existing Bicycle Facilities

3.1.4 EXISTING PEDESTRIAN FACILITIES

Pedestrian facilities consist of sidewalks, crosswalks, and pedestrian signals at signalized intersections. The pedestrian environment was evaluated along the connecting roadways that directly serve the project site and adjacent roadways that connect to transit stops and/or nearby destinations in the greater study area.

Pedestrian connectivity in the vicinity of the project site is provided by a network of sidewalks and crosswalks that serve the Business Center Drive, Mangels Boulevard, Westamerica Drive and Suisun Valley Road corridors. Major gaps in the sidewalk network exist along the following corridors:

- Business Center Drive between Westamerica Drive and Suisun Valley Road (both sides of the roadway)
- Business Center Drive between the proposed South (project) Driveway and the Partnership Healthcare project site (both sides of the roadway)
- Westamerica Drive between Mangels Boulevard and Business Center Drive (sidewalk not provided on east side of roadway)
- Suisun Valley Road south of Business Center Drive, including through the I-80/Suisun Valley Road interchange (both sides of the roadway)

In the immediate vicinity of the project, full sets of crosswalks are provided at Westamerica Drive/Mangels Boulevard and Suisun Valley Road/Business Center Drive. Pedestrian signals are provided at these crossings. Crosswalks are not currently provided at Westamerica Drive/Business Center Drive.

3.2 EXISTING INTERSECTION VOLUMES AND LANE CONFIGURATIONS

The operations of the study intersections are evaluated for the highest one-hour volume during the weekday morning (7:00 to 9:00 AM) and weekday afternoon (4:00 to 6:00 PM) periods. Existing peak hour intersection counts were conducted at the study intersections in late October 2017[2] and February 2018 on clear days with area schools in-session. These counts formed the basis of the Existing Conditions intersection operations analysis (discussed further in **Section 3.3**). A summary of count data for this study can be found in **Appendix A**.

[2] October 2017 data was provided by City staff from the City's intersection traffic count database.

Existing lane configurations and types of intersection control devices were confirmed through field observations. **Figure 6** presents the existing weekday AM and PM peak hour turning movement volumes, lane configurations, and traffic control devices used in the Existing Conditions analysis. **Figures 7A and 7B** presents existing weekday AM and PM peak hour bicycle and pedestrian volumes at the study intersections.

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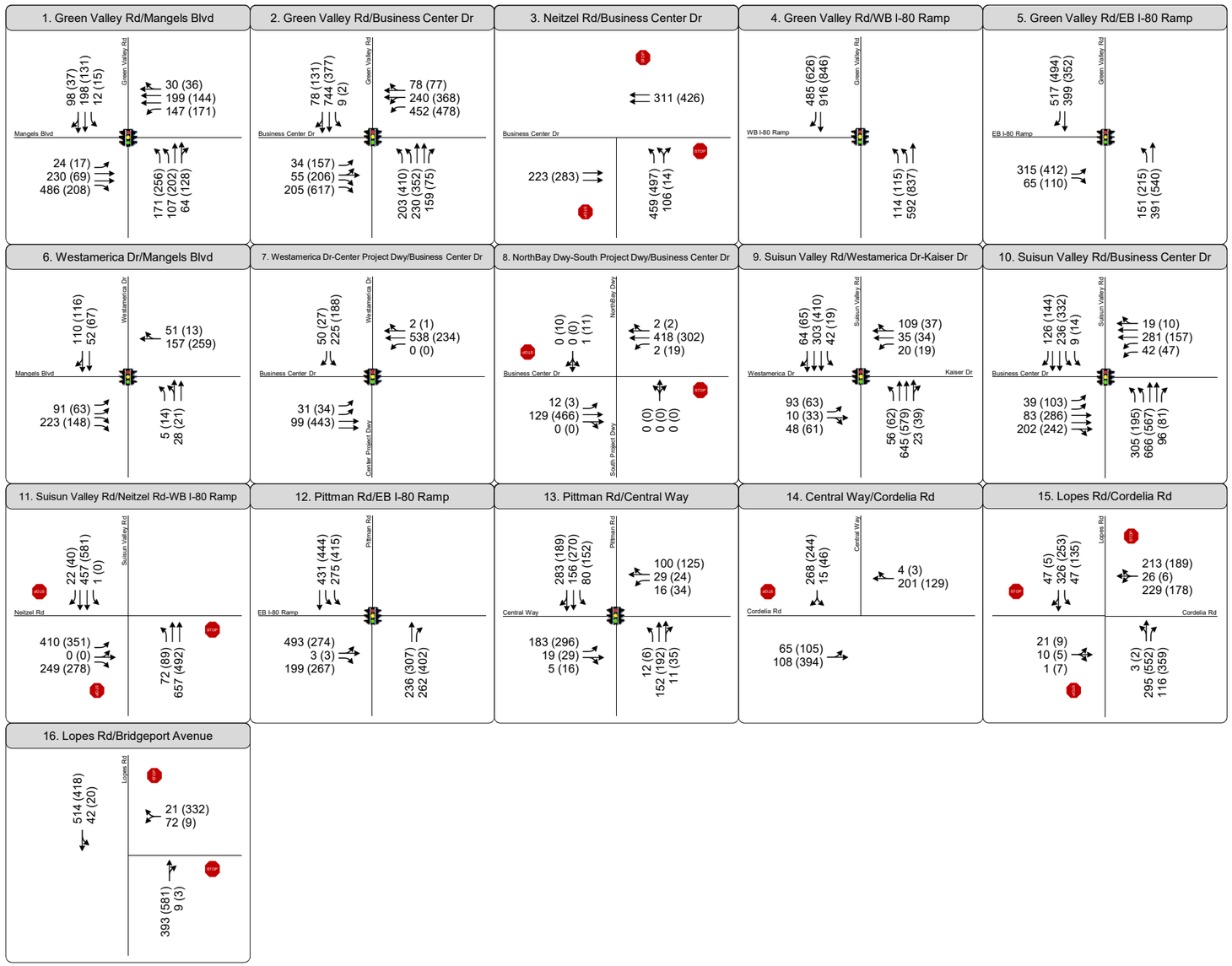
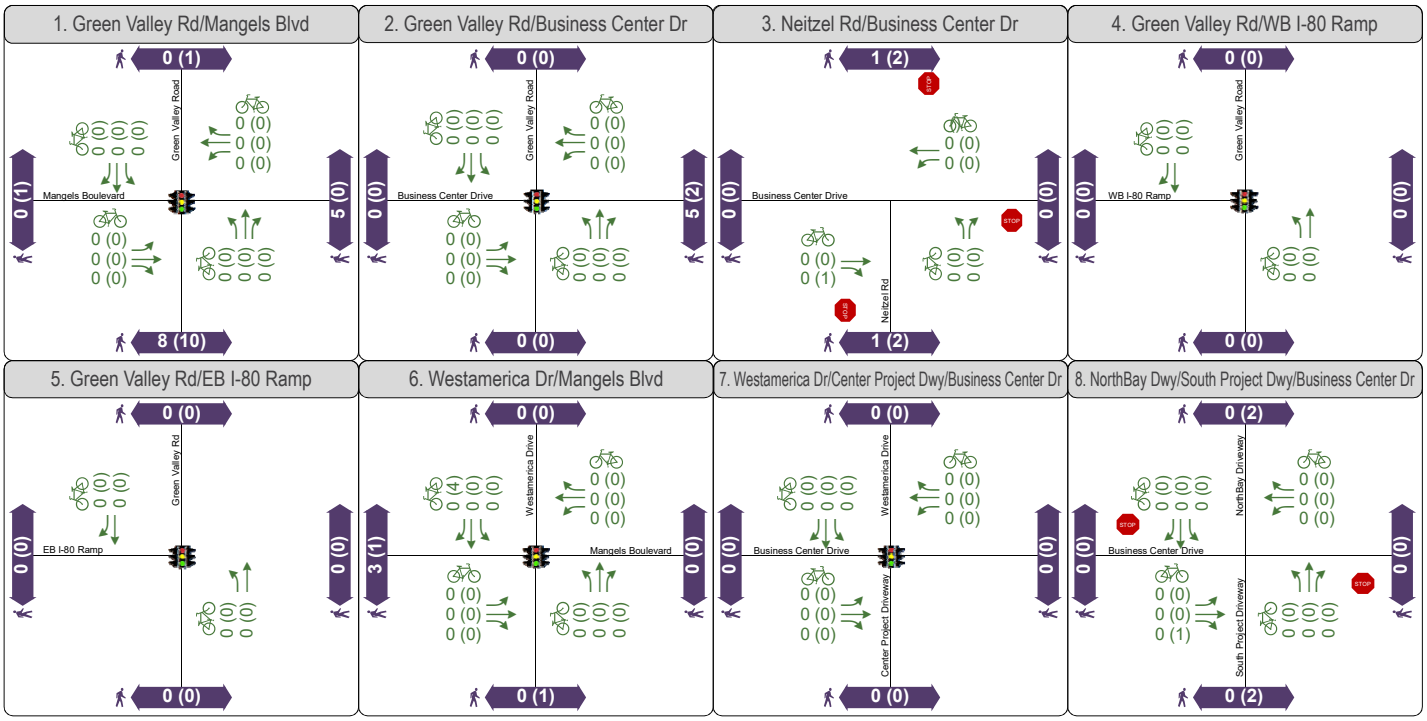


LEGEND

# Study Intersection	AM (PM) Peak Hour Traffic Volume
	Lane Configuration
	Stop Sign
	Signalized

Figure 6
Existing Conditions 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

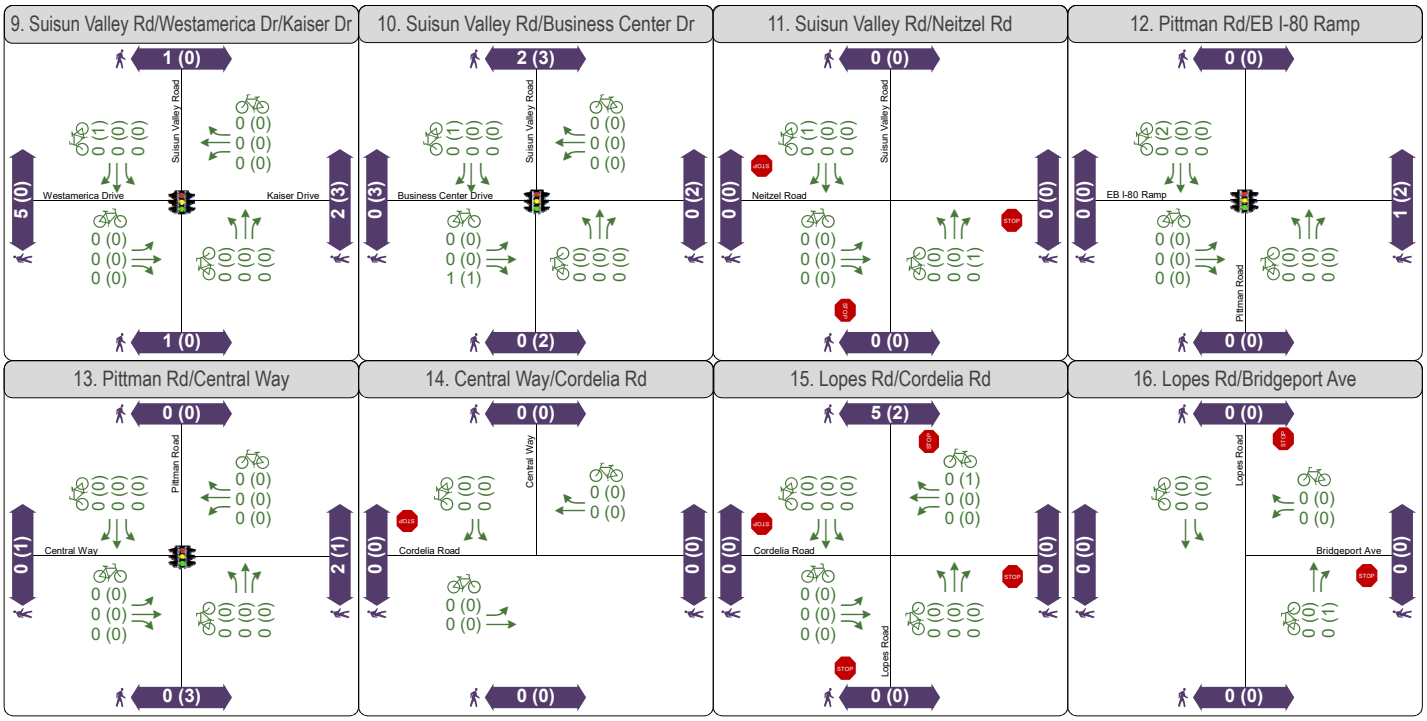
STOP Stop Sign

Project Site

Study Intersection

Figure 7a

Existing Conditions
Peak Hour Bicycle and Pedestrian Volumes



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 7b

Existing Conditions
Peak Hour Bicycle and Pedestrian Volumes

3.3 EXISTING INTERSECTION LEVELS OF SERVICE

Existing intersection lane configurations and peak hour turning movement volumes were used to calculate the levels of service for the study intersections during the weekday AM and PM peak hours for Existing Conditions. The results of the LOS analysis using the Synchro software program for signalized study intersections under Existing Conditions are presented in **Table 7** and the corresponding LOS calculation sheets are included in **Appendix B**.

The results of the LOS calculations indicate that the majority of the study intersections operate acceptably with respect to their PM peak hour LOS standard. The following intersections do not meet their respective PM peak hour LOS standards under Existing Conditions:

- Intersection 15: Lopes Road/Cordelia Road
- Intersection 16: Lopes Road/Bridgeport Avenue

TABLE 7: EXISTING INTERSECTION LEVELS OF SERVICE

	Intersection	Control Type[1]	Count Date	Peak Hour[2]	Delay[3]	LOS[4]	LOS Standard
1	Mangels Boulevard/ Green Valley Road	Signalized	10/2017	AM PM	21.5 21.2	C C	** D
2	Business Center Drive/ Green Valley Road	Signalized	10/2017	AM PM	34.4 48.0	C D	** D
3	Business Center Drive/ Neitzel Road	AWSC	2/2018	AM PM	15.6 14.1	C B	** D
4	I-80 westbound ramps/ Green Valley Road	Signalized	10/2017	AM PM	5.1 4.6	A A	** D
5	I-80 eastbound ramps/ Green Valley Road	Signalized	10/2017	AM PM	13.8 15.8	B B	** D
6	Mangels Boulevard/ Westamerica Drive	Signalized	10/2017	AM PM	13.8 13.9	B B	** D
7	Business Center Drive/Center Project Driveway-Westamerica Drive	Signalized	10/2017	AM PM	10.2 7.9	B A	** D
8	Business Center Drive/South Project Driveway-NorthBay Driveway	SSSC	2/2018	AM PM	0.2 (15.8) 0.6 (13.7)	A (C) A (B)	** D

TABLE 7: EXISTING INTERSECTION LEVELS OF SERVICE

	Intersection	Control Type[1]	Count Date	Peak Hour[2]	Delay[3]	LOS[4]	LOS Standard
9	Westamerica Drive/ Suisun Valley Road	Signalized	10/2017	AM PM	14.0 10.9	B B	** D
10	Business Center Drive/ Suisun Valley Road	Signalized	2/2018	AM PM	22.3 20.7	C C	** D
11	I-80 westbound ramps-Neitzel Road/Suisun Valley Road	AWSC	2/2018	AM PM	90.7 21.1	F C	** D
12	I-80 eastbound ramps/ Pittman Road	Signalized	2/2018	AM PM	16.8 12.9	B B	** D
13	Central Way/ Pittman Road	Signalized	2/2018	AM PM	14.2 16.7	B B	** D
14	Central Way/ Cordelia Road	SSSC	2/2018	AM PM	5.9 (12.1) 6.4 (17.7)	A (B) A (C)	** D
15	Lopes Road/ Cordelia Road	SSSC[5]	10/2017	AM PM	>120 (>120) **>120 (>120)**	F (F) **F (F)**	** D
16	Lopes Road/ Bridgeport Avenue	SSSC	10/2017	AM PM	>120 (>120) **111.7 (>120)**	F (F) **F (F)**	** D

Notes:
1. AWSC = All-Way Stop-Controlled, SSSC = Side-Street Stop-Controlled
2. AM = Weekday morning peak hour, PM = Weekday evening peak hour
3. Whole intersection average delay reported for signalized intersections and all-way stop-controlled intersections. Side-street stop-controlled delay presented as Whole Intersection Average Delay (Worst Movement Delay). Delay calculated per *HCM 2010* methodologies.
4. LOS designation per *HCM 2010*.
5. Analyzed as side-street stop-controlled after applying approximation process described in Section 2.5.3.
** General Plan LOS standard applies to PM peak hour operations only.
Bold indicates unacceptable operations.
Source: Fehr & Peers, August 2019.

4.0 PROJECT TRAFFIC ESTIMATES

The amount of traffic expected to be generated on the study roadway system by the proposed project is estimated using a three-step process: (1) project trip generation, (2) trip distribution, and (3) trip assignment. The first step estimates the amount of project-generated traffic that would be added to the roadway network. The second step estimates the direction of travel to and from the project site. During the third step, the new trips are assigned to specific street segments and intersection turning movements. This process is described in more detail in the following sections.

4.1 PROJECT TRIP GENERATION

The following subsection presents the trip generation estimate for the proposed project, as well as the data sources and assumptions behind the calculation.

4.1.1 DATA SOURCES

4.1.1.1 Nationally Published Trip Generation Data

As noted in the City's *Guidelines for Transportation Impact Reports*, the typical starting point in the trip generation calculation process relies on data from the ITE *Trip Generation Manual, 10th Edition*. The *Trip Generation Manual* includes trip generation data for a variety of land use types. In estimating the trips generated by the proposed project, the apartment portion of the project was analyzed using Land Use Code 220 (Low-Rise Multifamily Housing) and the retail portion of the site was analyzed using Land Use Code 820 (Shopping Center).

Trips for the proposed fire station were estimating using trip generation data collected at fire stations in Contra Costa County, aerial measurements of existing fire stations in Fairfield, and using ITE Land Use Code 575 (Fire and Rescue Station). The largest fire station in the City of Fairfield is about 16,800 square feet. ITE Land Use Code 575 suggests that a fire station of this size generates about eight PM peak hour trips. Therefore, it was assumed that the fire station proposed in Alternative 2 would generate 10 AM peak hour trips and 10 PM peak hour trips (five inbound trips and five outbound trips). This assumption would be sufficient to cover a fire station with a size in excess of 20,000 square feet. This level of trip generation is consistent with observations of fire station trip generation in Contra Costa County.

The *Trip Generation Manual* notes that the data included in the *Manual* reflect freestanding sites where nearly all trips generated by the site are automobile trips. As the proposed project is a mixed-use site, solely

relying on the estimates from data in the *Trip Generation Manual* could overestimate the number of trips generated by the project.

4.1.1.2 Trip Reductions

Fehr & Peers considered whether any trip generation reductions would be applicable. Potential trip reductions include:

- Internalized project trips (i.e. trips generated by the apartment portion of the site to the retail portion of the site)
- Trips between the project site and nearby compatible land uses that are accomplished by walking, bicycling or transit
- Retail pass-by and diverted trips
- Trips eliminated due to the implementation of Transportation Demand Management (TDM) strategies

The MXD+ trip generation methodology, developed in a cooperative effort between the US Environmental Protection Agency (EPA) and Fehr & Peers, was used to estimate the number of internalized project trips. The MXD+ methodology is based on travel survey data gathered from 239 mixed-use developments (MXDs) in six major metropolitan regions, and correlated with the characteristics of the sites and their surroundings. The peak hour trip internalization reduction estimated from the MXD+ methodology was about three percent for the AM peak hour and 10 percent for the PM peak hour. This difference in reduction percentages between the AM and PM peak hours is reasonable because retail uses generally have a larger potential for trip generation in the PM peak hour than in the AM peak hour. The resulting reductions in numbers of trips are presented in **Section 4.1.2.1**.

The MXD+ methodology also calculates an estimate of the reduction for trips made by walking, bicycling or transit. While some project trips are expected to be made by walking, bicycling or transit, reductions for these modes were not included in the trip generation calculation to reflect the project's suburban location and the lack of high-frequency transit service. Ultimately, not including a reduction for trips made by walking, bicycling and transit results in a more conservative trip generation calculation.

For Alternative 1 (Apartments and Retail), the retail portion of the site is expected be occupied by uses that serve the area surrounding the project site in lieu of uses that draw trips regionally. Locally-serving retail may serve trips that are already passing by the site (pass-by trips) or divert retail trips that are already occurring (diverted trips). These pass-by and diverted trips are not new trips as they are already occurring on the local and regional street system. Data from the ITE *Trip Generation Manual* suggests that retail

projects of similar size may have pass-by and diverted trip percentages exceeding 40 percent. Given the uncertainty of the tenants of for the retail space at this time, and the large amount of expected growth in the study area over time, a pass-by and diverted trip percentage has not been applied to the trip generation calculation. This assumption is conservative as it assumes that all retail trips are new trips.

For Alternative 2 (Apartments and Fire Station), no trip generation reductions were taken as the linkage between the residential uses and fire station is negligible.

Transportation Demand Management (TDM) strategies are designed to reduce vehicle travel demand, with an emphasis on reducing demand during the peak periods of travel. At a project level, TDM strategies have historically been used to reduce employee commute trips associated with non-residential uses. The number of feasible TDM strategies for residential projects is substantially less than those for employment uses. Typical residential project TDM strategies include providing secure bicycle parking on-site, enhancing nearby transit stops, improving bicycle and pedestrian connections, and modifying parking pricing strategies.

Research regarding the effectiveness of TDM strategies for residential projects is limited, and the effectiveness of strategies are heavily dependent on the location of the project, the provision of connecting bicycle, pedestrian and transit facilities, and the land use mix of the area surrounding the project. Because of the uncertainty of the feasibility of TDM strategies for the site, and the uncertainty of the effectiveness of TDM strategies, if implemented, no trip generation reductions have been taken for the implementation of TDM strategies.

4.1.2 TRIP GENERATION CALCULATIONS

Following the methods and assumptions described above, an estimate of the number of trips generated by the each of the proposed project alternatives was prepared, as presented below.

4.1.2.1 Alternative 1 (Apartments and Retail) Trip Generation

The trip generation calculation for Alternative 1 (270 apartments and 22,600 square feet of retail) is presented below in **Table 8**. Based on the trip generation estimates, the Alternative 1 project would generate 209 trips during the AM peak hour (56 inbound/153 outbound) and 290 trips during the PM peak hour (159 inbound/131 outbound). These trips will be assigned to the roadway network and summed with background traffic volumes to determine the potential impacts of the proposed project.

TABLE 8: PROJECT TRIP GENERATION – ALTERNATIVE 1 (APARTMENTS AND RETAIL)

Land Use	Quantity[1]	Daily	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Apartments[2]	270 du	2,000	45	149	194	90	53	143
Retail[3]	22.6 ksf	2,190	13	8	21	87	94	181
Subtotal before Reductions		***4,190***	***58***	***157***	***215***	***177***	***147***	***324***
Internal Capture Reduction		-70	-2	-4	-6	-18	-16	-34
Net New Project Trips		***4,120***	***56***	***153***	***209***	***159***	***131***	***290***
Net New Apartment Trips		***1,965***	***44***	***147***	***191***	***81***	***45***	***126***
Net New Retail Trips		***2,155***	***12***	***6***	***18***	***78***	***86***	***164***

Notes:

1. 1 du = 1 dwelling unit; 1 ksf = 1,000 square feet gross leasable area
2. Apartment trip generation based on ITE Trip Generation Manual, 10th Edition Land Use Code 220 (Low-Rise Multifamily Housing)
3. Retail trip generation based on ITE Trip Generation Manual, 10th Edition Land Use Code 820 (Shopping Center)

Source: Fehr & Peers, August 2019.

4.1.2.2 Alternative 2 (Apartments and Fire Station) Trip Generation

The trip generation calculation for Alternative 2 (365 apartments and fire station) is presented below in **Table 9**. Based on the trip generation estimates, the Alternative 2 project would generate 268 trips during the AM peak hour (64 inbound/204 outbound) and 197 trips during the PM peak hour (123 inbound/74 outbound). These trips will be assigned to the roadway network and summed with background traffic volumes to determine the potential impacts of the proposed project.

TABLE 9: PROJECT TRIP GENERATION – ALTERNATIVE 2 (APARTMENTS AND FIRE STATION)

Land Use	Quantity[1]	Daily	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Apartments[2]	365 du	2,720	59	199	258	118	69	187
Fire Station[3]	N/A	100	5	5	10	5	5	10
Net New Project Trips		***2,820***	***64***	***204***	***268***	***123***	***74***	***197***

Notes:

1. 1 du = 1 dwelling unit
2. Apartment trip generation based on ITE Trip Generation Manual, 10th Edition Land Use Code 220 (Low-Rise Multifamily Housing)
3. Fire Station trip generation based on assumptions described in **Section 4.1.1.1**.

Source: Fehr & Peers, August 2019.

4.1.2.3 Comparison of Project Trip Generation

The results of the trip generation analyses in **Table 8** and **Table 9** suggest that Alternative 2 (Apartments and Fire Station) results in a higher AM peak hour trip generation than Alternative 1 (Apartments and Retail). This is to be expected as Alternative 2 includes 365 dwelling units and Alternative 1 only includes 270 units; retail uses typically generate only a small number of AM peak hour trips. However, in the PM peak hour, Alternative 1 generates nearly 100 more trips than Alternative 2 due to the higher intensity of PM peak hour activity associated with retail uses. Therefore, it is expected that the relative level of impact in the AM peak hour would be higher with Alternative 2 versus Alternative 1; in the PM peak hour, it is expected that the relative level of impact would be higher in Alternative 1 versus Alternative 2.

4.2 PROJECT TRIP DISTRIBUTION & ASSIGNMENT

The following subsection outlines the trip distribution and trip assignment procedure.

4.2.1 TRIP DISTRIBUTION ASSUMPTIONS AND BACKGROUND

The geographic distribution of vehicle trips generated by the project is based on the locations of complementary land uses, the street system serving the project, and existing travel patterns in the area. Two mobile device data sources, also known as "Big Data," were consulted to refine the trip distribution for residential trips using I-80, I-680, Lopes Road, and other key study area roadways. The first data source reflects the movements of GPS-equipped vehicles. The second data source reflects the movements of smartphones and other internet-enabled devices that run applications that include location-based services (LBS). The GPS data is indicative of vehicle trips, and the LBS data is indicative of person trips; the LBS data

must be factored to convert person trips to vehicle trips. Data from both sources are anonymized and aggregated per federal law. The locational accuracy of the underlying data is typically within the standard GPS positional accuracy of about 15 feet.

GPS and LBS data was sourced for trips with an origin or destination in the residential community surrounding the project site on the north side of I-80, whose primary freeway access point is the I-80/Suisun Valley Road-Pittman Road interchange. This includes trips with an origin or destination from the single family residences along Bridle Ridge Drive, single family residences along Oakwood Drive, and the various multifamily/apartment residential units along Business Center Drive, Westamerica Drive, and Kaiser Drive. The data collection process specifically excluded non-residential uses in this area, including Solano Community College. The GPS and LBS data was obtained for Tuesdays, Wednesdays and Thursdays in months with school in session for the November 2017 through October 2018 time period.

The LBS data included observations of nearly 7,000 person trips with an origin or destination in the residential area surrounding the project site. The LBS data revealed that most trips us the I-80 and I-680 freeways and that about five percent of trips use Lopes Road towards Rodriguez High School. The GPS data included observations of about 1,000 vehicle trips. While this is not as a robust sample size as the LBS data, the GPS data confirmed that most trips use the I-80 and I-680 freeways, and that about three percent of trips use Lopes Road towards Rodriguez High School.

The LBS and GPS data are samples of mobile devices in the study area, and are not to be used verbatim in the setting of trip distribution patterns. As noted previously, other sources of trip distribution data were considered, including the City's travel demand model, the street system serving the project, locations of complementary land uses, and existing travel patterns.

Based on the data sources and community feedback, the final trip distribution assumptions for residential trips include seven percent of trips using the Lopes Road corridor, thus providing a conservative assumption for the number of potential project trips traveling through the most congested intersections along the Green Valley Road/Lopes Road corridor.

4.2.2 ESTIMATED TRIP DISTRIBUTION

The general directions of approach and departure assumed for the project trips are illustrated on **Figure 8** (for residential trips) and **Figure 9** (for retail trips). Fire station trips were distributed using the residential distribution due to the irregular nature of fire station trips and low volume. Using this trip distribution pattern, the traffic generated by the project was assigned to the street network.

4.2.3 TRIP ASSIGNMENT

The following figures present the assignment of project-generated trips to the study intersections during the weekday AM and PM peak hours. To reflect modified transportation patterns associated with the I-80/I-680/SR 12 interchange improvement project, two trip assignment patterns were developed that reflect the planned changes in access patterns at the I-80/Suisun Valley Road-Pittman Road, I-80/Green Valley Road, and I-80/I-680/SR 12 interchanges.

- **Figure 10A** – Alternative 1 (Apartments and Retail) Near-Term Project Trip Assignment
- **Figure 10B** – Alternative 1 (Apartments and Retail) Far-Term Project Trip Assignment
- **Figure 11A** – Alternative 2 (Apartments and Fire Station) Near-Term Project Trip Assignment
- **Figure 11B** – Alternative 2 (Apartments and Fire Station) Far-Term Project Trip Assignment

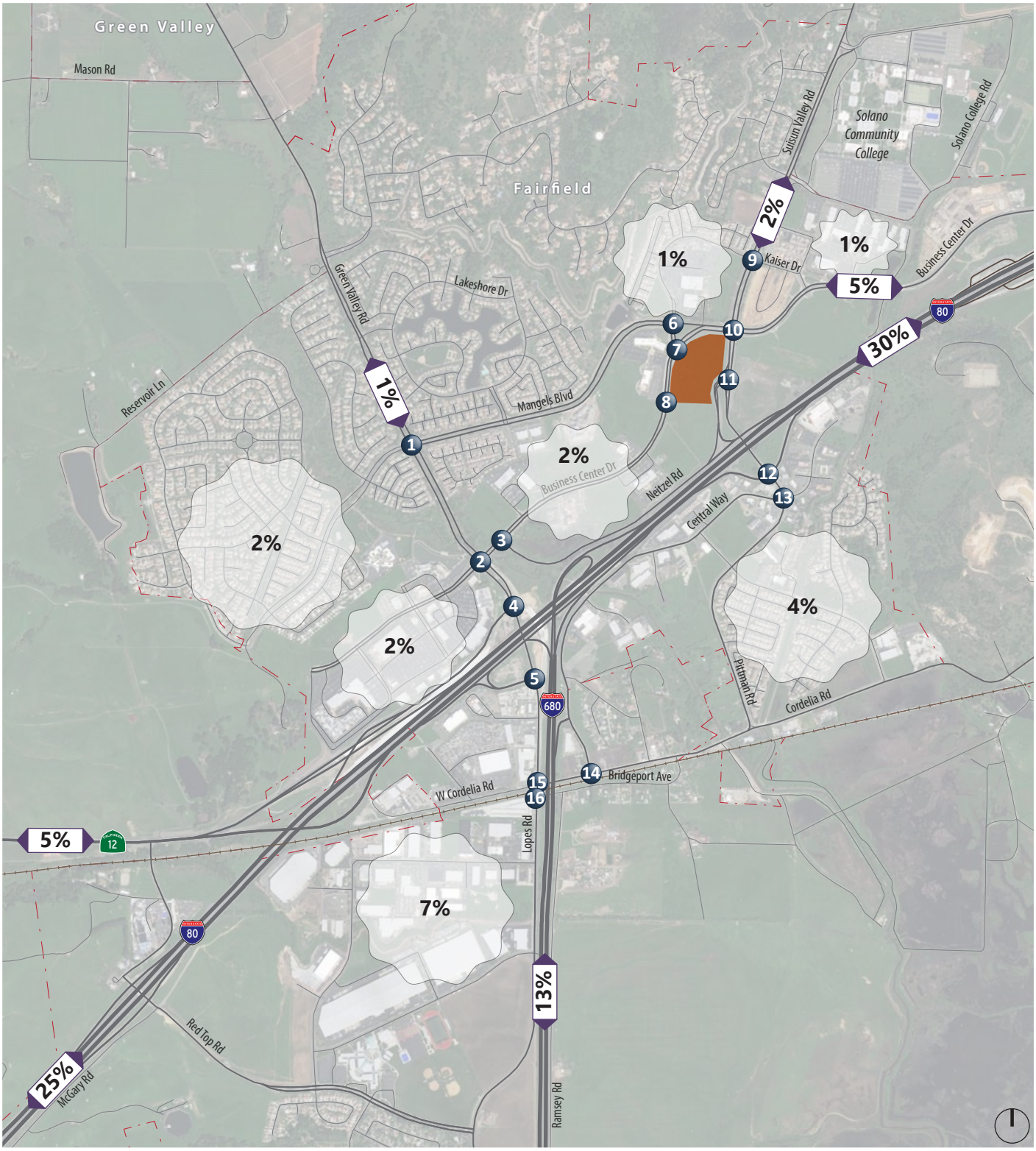


Figure 8

Project Trip Distribution — Residential

WC16-3375_7-8_TripDistro

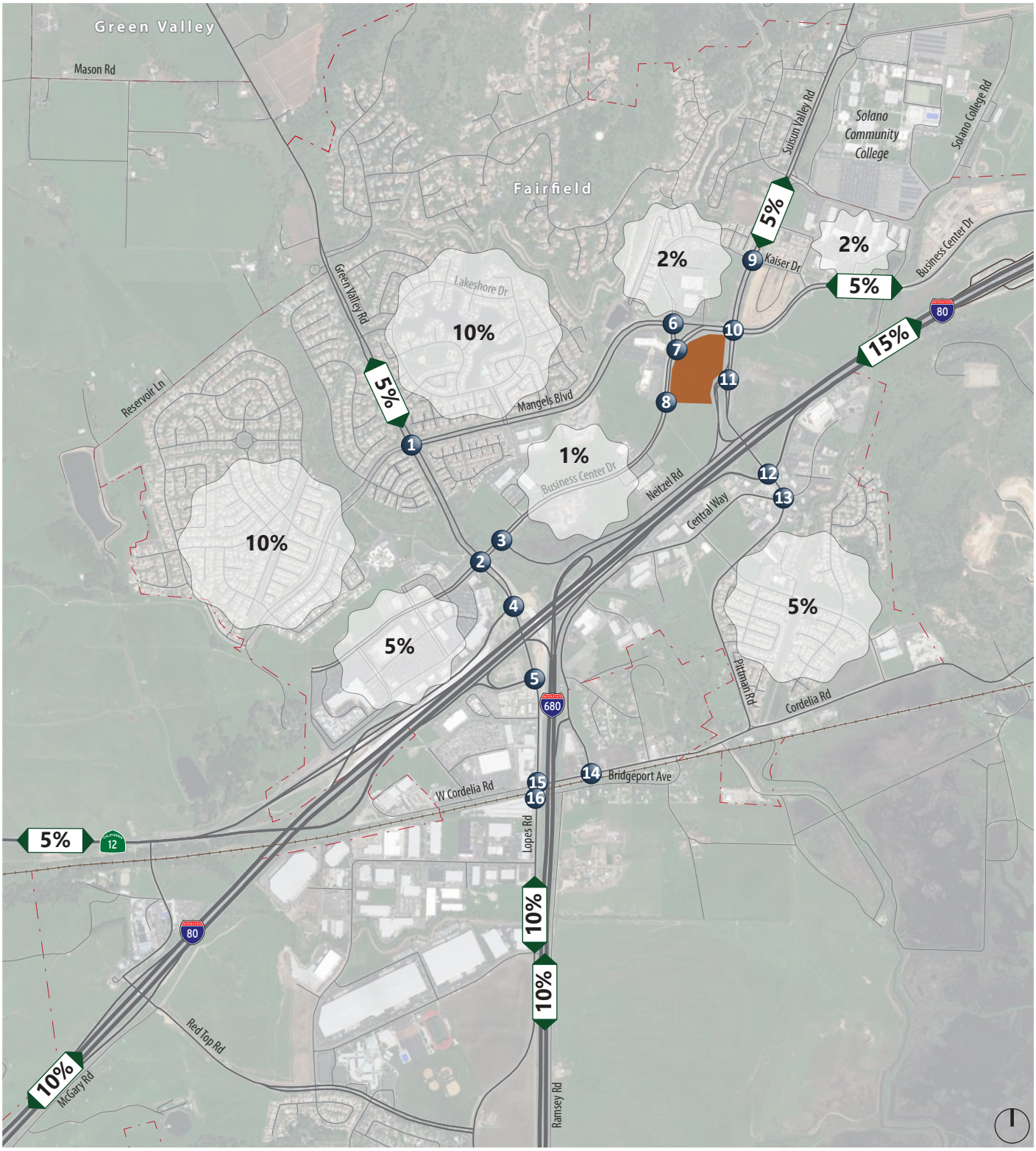


Figure 9

Project Trip Distribution — Commercial

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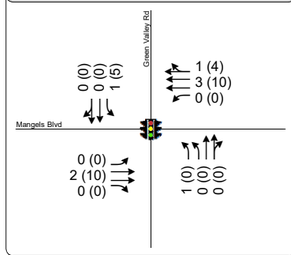
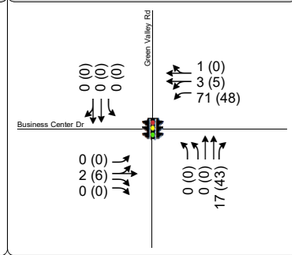
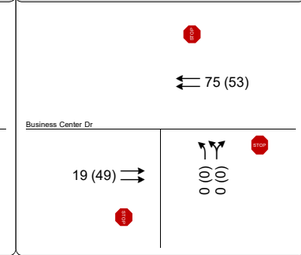
1. Green Valley Rd/Mangels Blvd



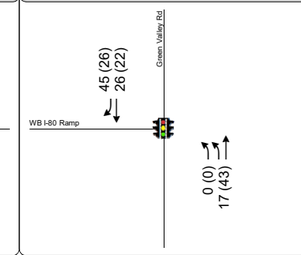
2. Green Valley Rd/Business Center Dr



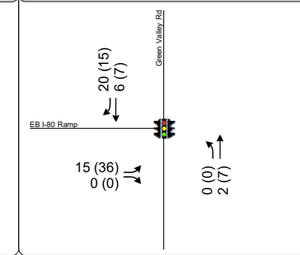
3. Neitzel Rd/Business Center Dr



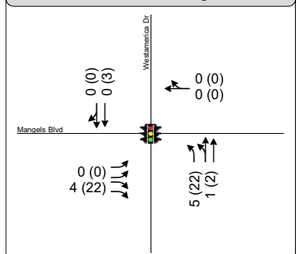
4. Green Valley Rd/WB I-80 Ramp



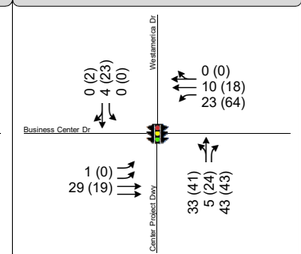
5. Green Valley Rd/EB I-80 Ramp



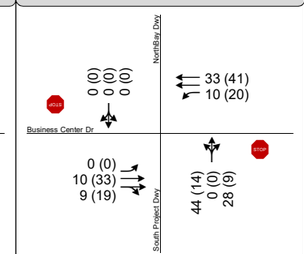
6. Westamerica Dr/Mangels Blvd



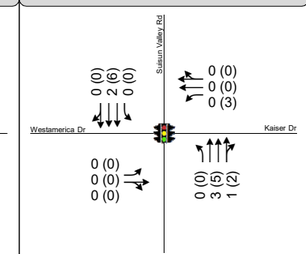
7. Westamerica Dr-Center Project Dwy/Business Center Dr



8. NorthBay Dwy-South Project Dwy/Business Center Dr



9. Suisun Valley Rd/Westamerica Dr-Kaiser Dr



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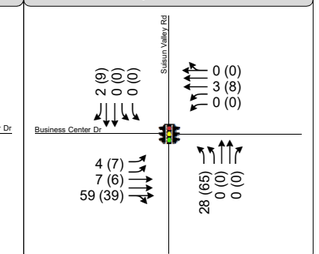
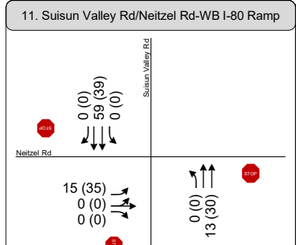
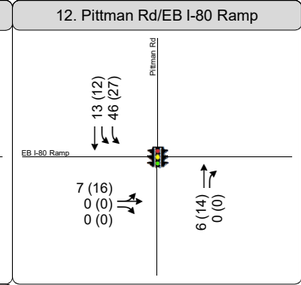


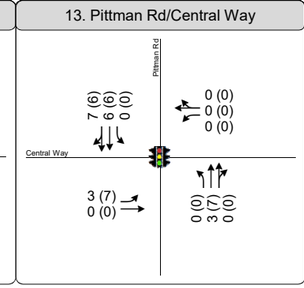
11. Suisun Valley Rd/Neitzel Rd-WB I-80 Ramp



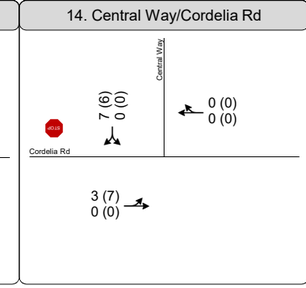
12. Pittman Rd/EB I-80 Ramp



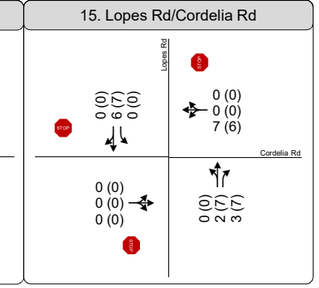
13. Pittman Rd/Central Way



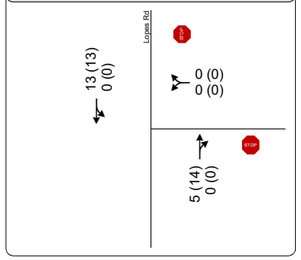
14. Central Way/Cordelia Rd



15. Lopes Rd/Cordelia Rd



16. Lopes Rd/Bridgeport Avenue



LEGEND

- # — Study Intersection
- AM (PM) — Peak Hour Traffic Volume
- Lane Configuration
- Stop Sign
- Signalized

Figure 10A
Alternative 1 (Apartments and Retail)
Near-Term Project Trip Assignment

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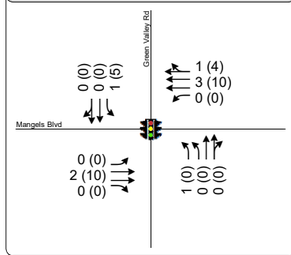
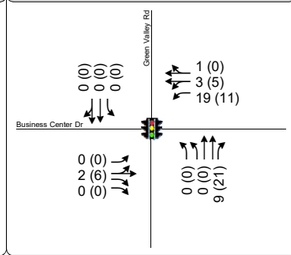
1. Green Valley Rd/Mangels Blvd



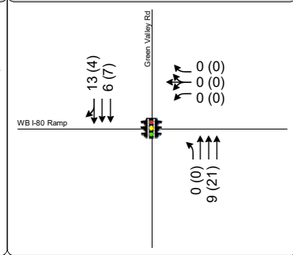
2. Green Valley Rd/Business Center Dr



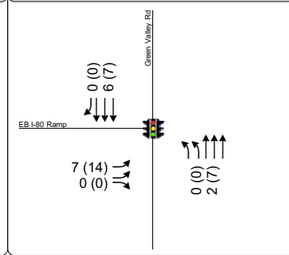
3. Neitzel Rd/Business Center Dr

Intersection removed by I-80/I-680/ SR 12 Interchange Project

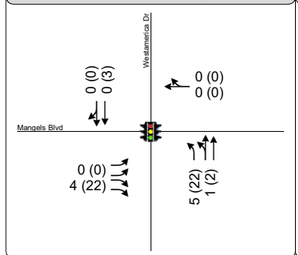
4. Green Valley Rd/WB I-80 Ramp



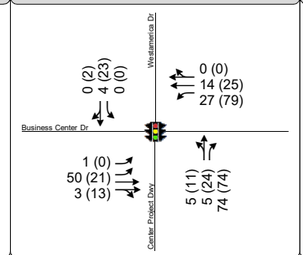
5. Green Valley Rd/EB I-80 Ramp



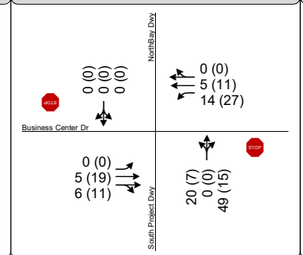
6. Westamerica Dr/Mangels Blvd



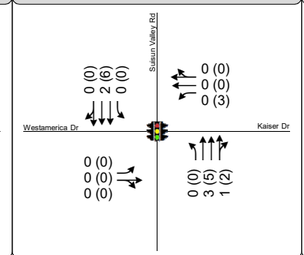
7. Westamerica Dr-Center Project Dwy/Business Center Dr



8. NorthBay Dwy-South Project Dwy/Business Center Dr



9. Suisun Valley Rd/Westamerica Dr-Kaiser Dr



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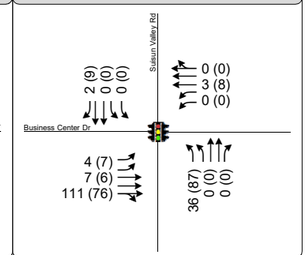
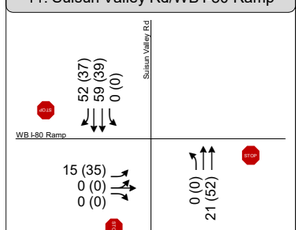
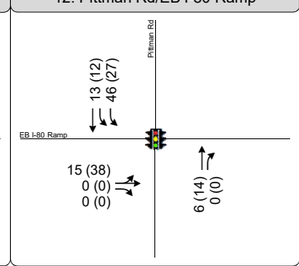


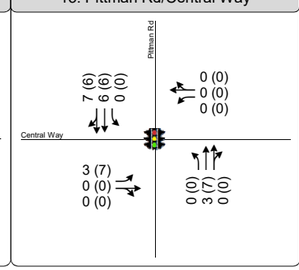
11. Suisun Valley Rd/WB I-80 Ramp



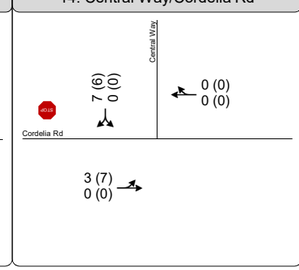
12. Pittman Rd/EB I-80 Ramp



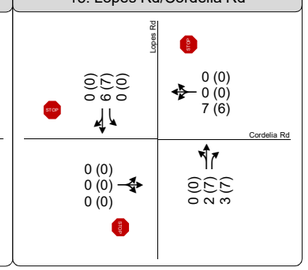
13. Pittman Rd/Central Way



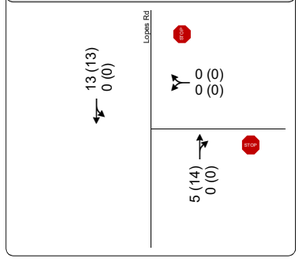
14. Central Way/Cordelia Rd



15. Lopes Rd/Cordelia Rd



16. Lopes Rd/Bridgeport Avenue



LEGEND

# Study Intersection	AM (PM) Peak Hour Traffic Volume
	Lane Configuration
	Stop Sign
	Signalized

Figure 10B
Alternative 1 (Apartments and Retail)
Far-Term Project Trip Assignment

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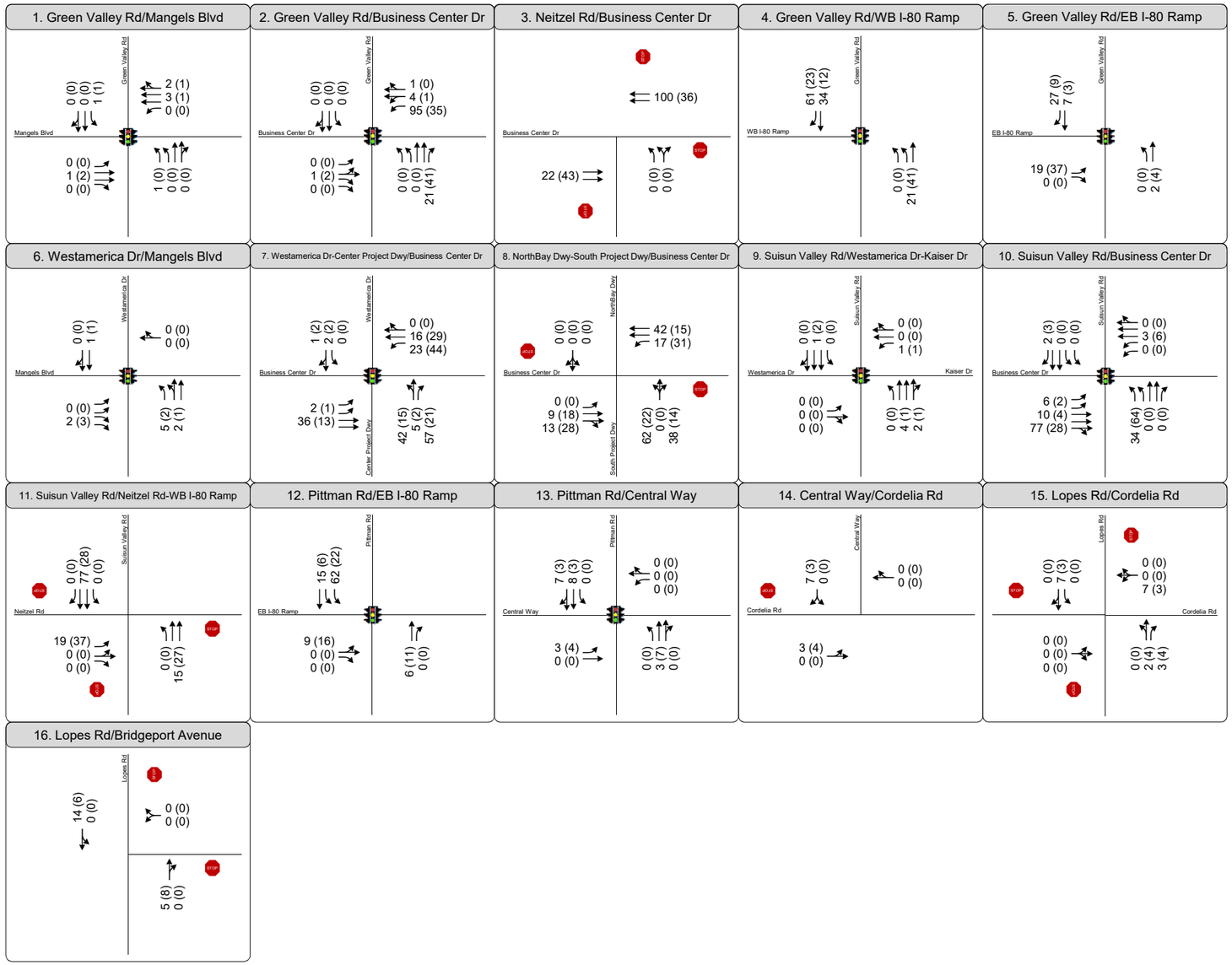

LEGEND

# Study Intersection	AM (PM) Peak Hour Traffic Volume
	Lane Configuration
	Stop Sign
	Signalized

Figure 11A
Alternative 2 (Apartments and Fire Station)
Near-Term Project Trip Assignment

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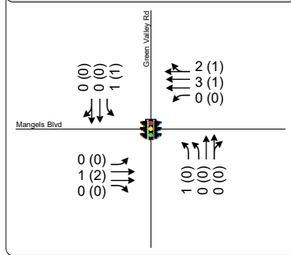
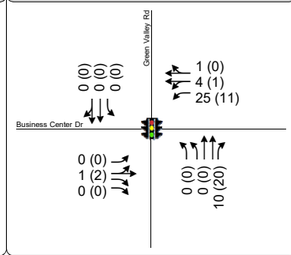
1. Green Valley Rd/Mangels Blvd



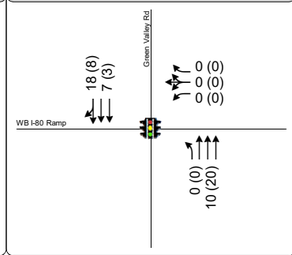
2. Green Valley Rd/Business Center Dr



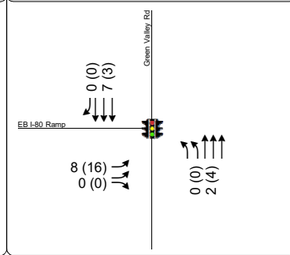
3. Neitzel Rd/Business Center Dr

Intersection removed by I-80/I-680/ SR 12 Interchange Project

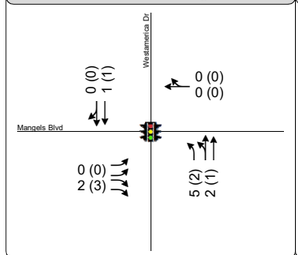
4. Green Valley Rd/WB I-80 Ramp



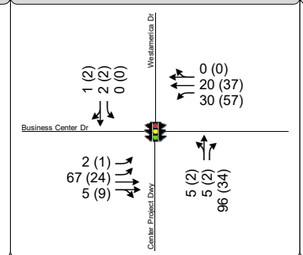
5. Green Valley Rd/EB I-80 Ramp



6. Westamerica Dr/Mangels Blvd



7. Westamerica Dr-Center Project Dwy/Business Center Dr



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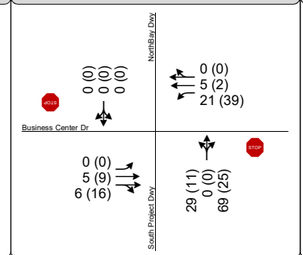

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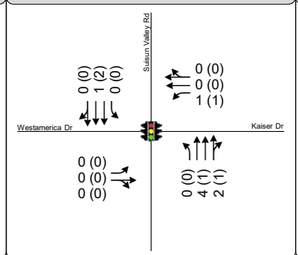

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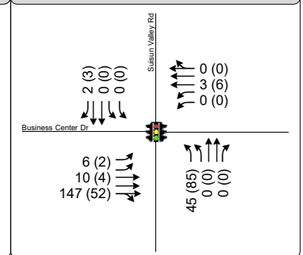

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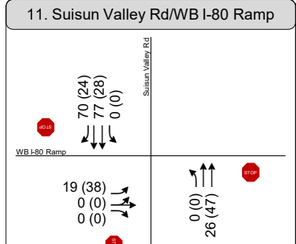
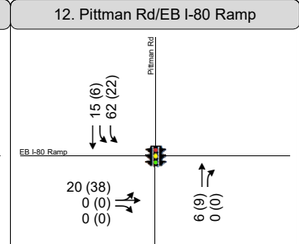
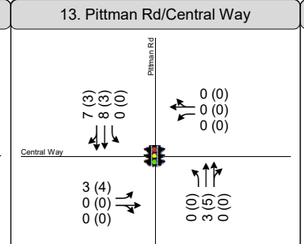


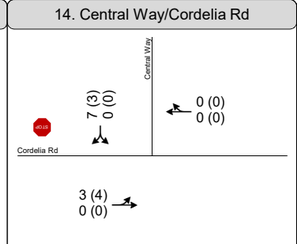
12. Pittman Rd/EB I-80 Ramp



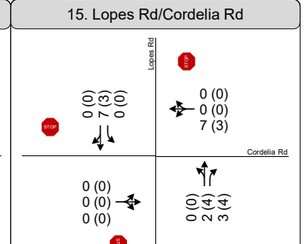
13. Pittman Rd/Central Way



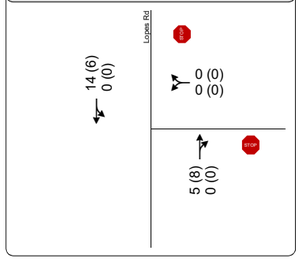
14. Central Way/Cordelia Rd



15. Lopes Rd/Cordelia Rd



16. Lopes Rd/Bridgeport Avenue



LEGEND

- # — Study Intersection
- AM (PM) — Peak Hour Traffic Volume
- Lane Configuration
- Stop Sign
- Signalized

Figure 11B
Alternative 2 (Apartments and Fire Station)
Far-Term Project Trip Assignment

5.0 EXISTING WITH PROJECT CONDITIONS

This chapter presents the results of the intersection operations analysis under Existing with Project conditions. Under Existing with Project conditions, project traffic estimated and assigned to the study intersections and roadway segments were added to existing traffic volumes. This scenario isolates the potential impacts of the project by excluding the effects of vehicle traffic that could be generated from other approved or pending projects. Existing with Project freeway operations are presented in **Chapter 8**.

5.1 EXISTING WITH PROJECT INTERSECTION LEVELS OF SERVICE

The following subsection outlines the intersection operations analysis for both project alternatives.

5.1.1 ALTERNATIVE 1 (APARTMENTS AND RETAIL) SCENARIO

Project-only traffic volumes (**Figure 10A**) were added to the existing peak hour volumes (**Figure 6**) to estimate Existing with Project peak hour intersection turning movement volumes, as shown on **Figure 12.**

Traffic signal timings, peak hour factors, heavy vehicle percentages, and pedestrian and bicycle activity at the study intersections were left unchanged from Existing Conditions. Intersection improvements considered in Existing with Project Conditions include those proposed to be constructed as part of the project, which includes roadway connections to the site from Business Center Drive, and signal modifications at the Business Center Drive/Westamerica Drive/Project Driveway intersection to accommodate the addition of a fourth leg.

Table 10 provides the results of the intersection LOS calculations for Existing with Project Conditions, while **Appendix B** contains the corresponding calculation sheets. The results for Existing conditions are shown for comparison purposes. The changes in delay and LOS between Existing and Existing with Project Conditions are used to identify significant impacts. Impact significance is discussed in **Section 5.3**. The PM peak hour time period forms the basis of the CEQA transportation impact analysis; the AM peak hour results are presented for informational purposes only.

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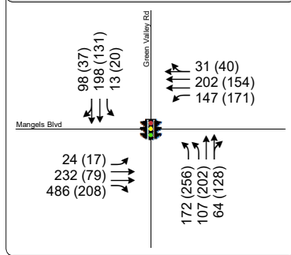
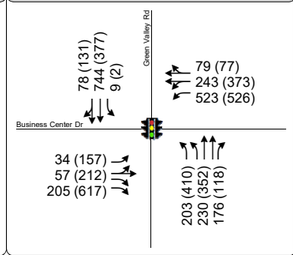


2. Green Valley Rd/Business Center Dr



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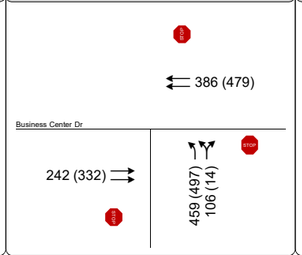

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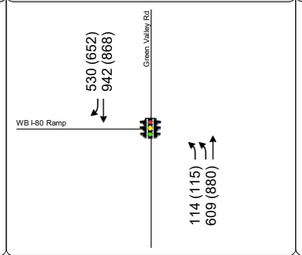
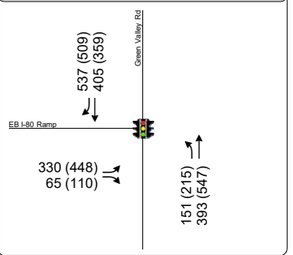
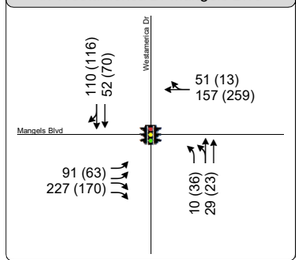


5. Green Valley Rd/EB I-80 Ramp



6. Westamerica Dr/Mangels Blvd



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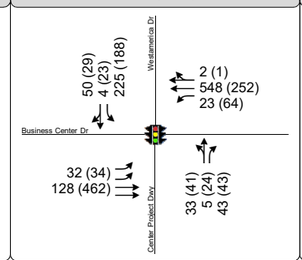

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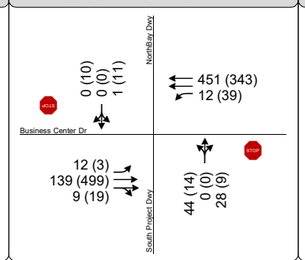
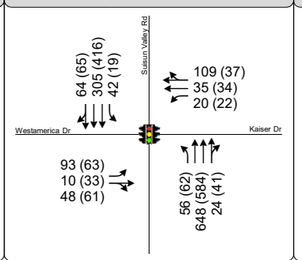


9. Suisun Valley Rd/Westamerica Dr-Kaiser Dr



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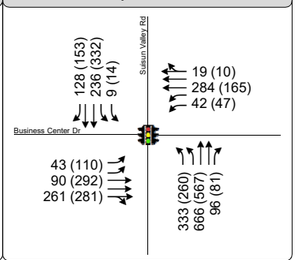
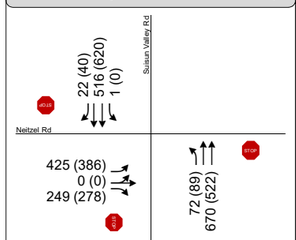
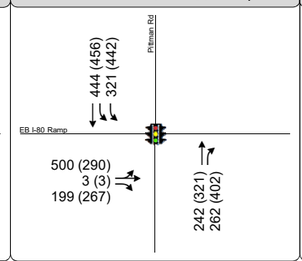


11. Suisun Valley Rd/Neitzel Rd-WB I-80 Ramp



12. Pittman Rd/EB I-80 Ramp



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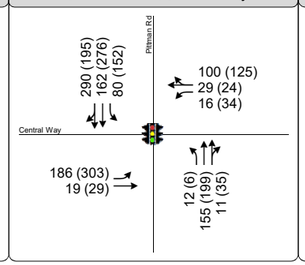
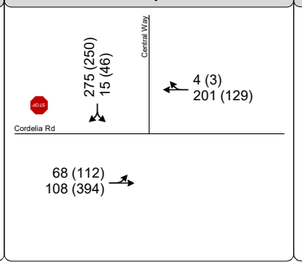
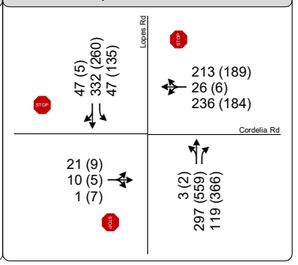


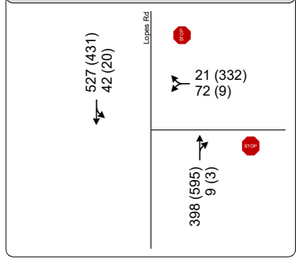
14. Central Way/Cordelia Rd



15. Lopes Rd/Cordelia Rd



16. Lopes Rd/Bridgeport Avenue



LEGEND

# Study Intersection	AM (PM) Peak Hour Traffic Volume
	Lane Configuration
	Stop Sign
	Signalized

Figure 12
Existing with Project Alternative 1 (Apartments and Retail) Conditions
Peak Hour Intersection Traffic Volumes, Lane Configurations and Traffic Controls

The results of the LOS calculations indicate that the majority of the study intersections operate acceptably with respect to their PM peak hour LOS standard. The following intersections do not meet their respective PM peak hour LOS standards under Existing with Project Conditions:

- Intersection 15: Lopes Road/Cordelia Road
- Intersection 16: Lopes Road/Bridgeport Avenue

The addition of Alternative 1 project traffic would worsen the operations of intersections operating deficiently under Existing Conditions, but it would not result in new PM peak hour LOS deficiencies at other study intersections.

TABLE 10: EXISTING WITH PROJECT INTERSECTION LEVELS OF SERVICE – ALTERNATIVE 1

Intersection		Control Type[1]	Peak Hour[2]	Existing Conditions		Existing with Project Conditions	
				Delay[3]	LOS[4]	Delay[3]	LOS[4]
1	Mangels Boulevard/ Green Valley Road	Signalized	AM PM	21.5 21.2	C C	21.5 21.3	C C
2	Business Center Drive/ Green Valley Road	Signalized	AM PM	34.4 48.0	C D	35.5 50.3	D D
3	Business Center Drive/ Neitzel Road	AWSC	AM PM	15.6 14.1	C B	16.6 14.9	C B
4	I-80 westbound ramps/ Green Valley Road	Signalized	AM PM	5.1 4.6	A A	5.4 4.7	A A
5	I-80 eastbound ramps/ Green Valley Road	Signalized	AM PM	13.8 15.8	B B	13.9 16.9	B B
6	Mangels Boulevard/ Westamerica Drive	Signalized	AM PM	13.8 13.9	B B	14.0 13.4	B B
7	Business Center Drive/ Center Project Driveway-Westamerica Drive	Signalized	AM PM	10.2 7.9	B A	15.1 17.0	B B
8	Business Center Drive/ South Project Driveway-NorthBay Driveway	SSSC	AM PM	0.2 (15.8) 0.6 (13.7)	A (C) A (B)	1.7 (17.9) 1.2 (19.3)	A (C) A (C)
9	Westamerica Drive/ Suisun Valley Road	Signalized	AM PM	14.0 10.9	B B	14.0 10.9	B B
10	Business Center Drive/ Suisun Valley Road	Signalized	AM PM	22.3 20.7	C C	22.3 21.9	C C

TABLE 10: EXISTING WITH PROJECT INTERSECTION LEVELS OF SERVICE – ALTERNATIVE 1

Intersection		Control Type[1]	Peak Hour[2]	Existing Conditions		Existing with Project Conditions	
				Delay[3]	LOS[4]	Delay[3]	LOS[4]
11	I-80 westbound ramps-Neitzel Road/Suisun Valley Road	AWSC	AM PM	90.7 21.1	F C	115.1 24.6	F C
12	I-80 eastbound ramps/ Pittman Road	Signalized	AM PM	16.8 12.9	B B	17.2 13.5	B B
13	Central Way/ Pittman Road	Signalized	AM PM	14.2 16.7	B B	14.4 16.8	B B
14	Central Way/ Cordelia Road	SSSC	AM PM	5.9 (12.1) 6.4 (17.7)	A (B) A (C)	6.1 (12.2) 6.7 (18.3)	A (B) A (C)
15	Lopes Road/ Cordelia Road	SSSC[5]	AM PM	>120 (>120) **>120 (>120)**	F (F) **F (F)**	>120 (>120**)** **>120 (>120)**	F (F) **F (F)**
16	Lopes Road/ Bridgeport Avenue	SSSC	AM PM	>120 (>120) **111.7 (>120)**	F (F) **F (F)**	>120 (>120) **>120 (>120)**	F (F) **F (F)**

Notes:
1. AWSC = All-Way Stop-Controlled, SSSC = Side-Street Stop-Controlled
2. AM = Weekday morning peak hour, PM = Weekday evening peak hour
3. Whole intersection average delay reported for signalized intersections and all-way stop-controlled intersections. Side-street stop-controlled delay presented as Whole Intersection Average Delay (Worst Movement Delay). Delay calculated per *HCM 2010* methodologies.
4. LOS designation per *HCM 2010*.
5. Analyzed as side-street stop-controlled after applying approximation process described in Section 2.5.3.
Bold indicates unacceptable operations. **Bold and highlighted** indicates a significant impact.
Source: Fehr & Peers, August 2019.

5.1.2 ALTERNATIVE 2 (APARTMENTS AND FIRE STATION) SCENARIO

Project-only traffic volumes (**Figure 11A**) were added to the existing peak hour traffic volumes (**Figure 6**) to estimate Existing with Project peak hour intersection turning movement volumes, as shown on **Figure 13.**

Traffic signal timings, peak hour factors, heavy vehicle percentages, and pedestrian and bicycle activity at the study intersections were left unchanged from Existing Conditions. Intersection improvements considered in Existing with Project Conditions include those proposed to be constructed as part of the project, which includes roadway connections to the site from Business Center Drive, and signal modifications at the Business Center Drive/Westamerica Drive/Project Driveway intersection to accommodate the addition of a fourth leg.

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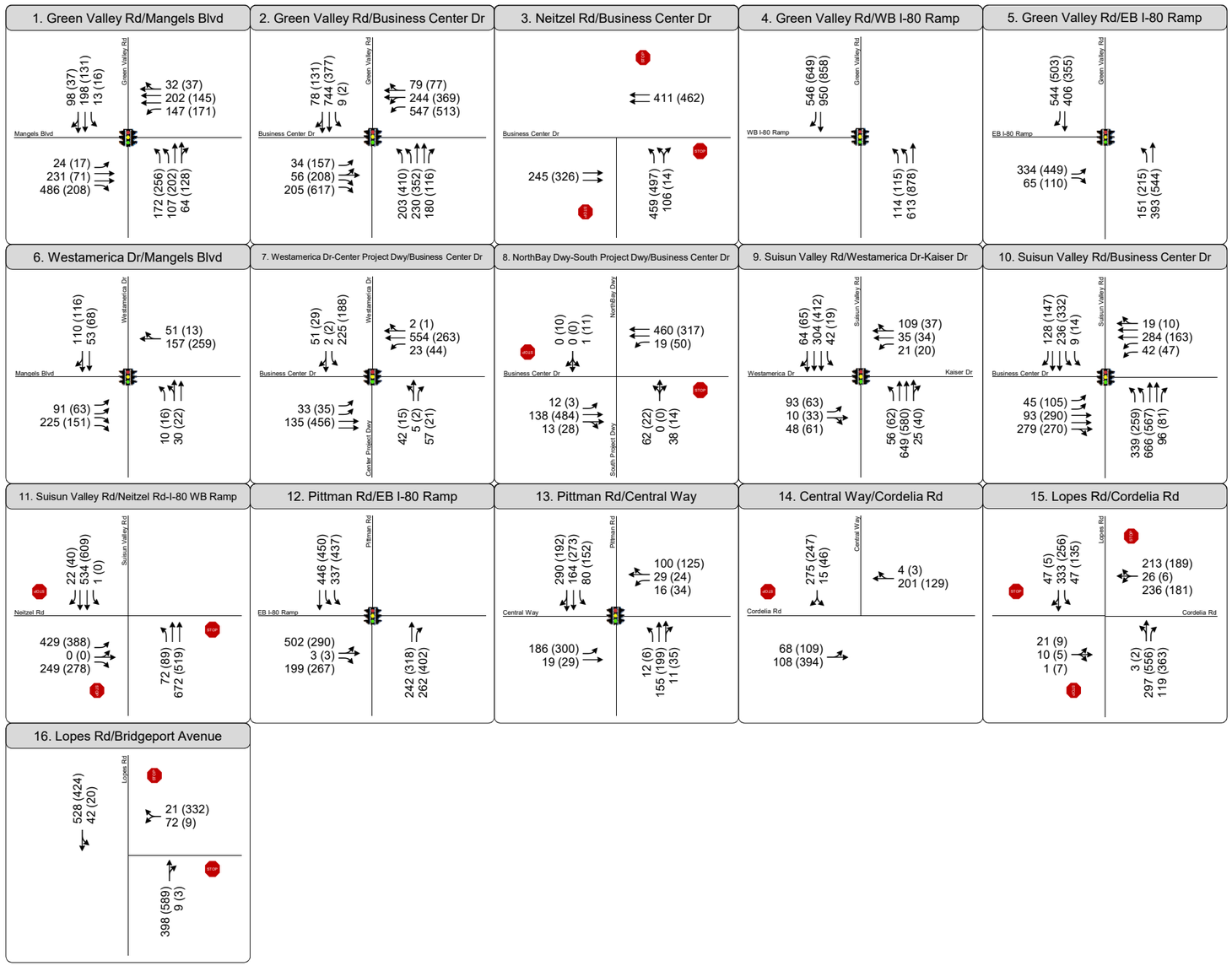

LEGEND

# Study Intersection	AM (PM) Peak Hour Traffic Volume
	Lane Configuration
	Stop Sign
	Signalized

Figure 13
Existing with Project Alternative 2 (Apartments and Fire Station) Conditions
Peak Hour Intersection Traffic Volumes, Lane Configurations and Traffic Controls

Table 11 provides the results of the intersection LOS calculations for Existing with Project Conditions, while **Appendix B** contains the corresponding calculation sheets. The results for Existing conditions are shown for comparison purposes. The changes in delay and LOS between Existing and Existing with Project Conditions are used to identify significant impacts. Impact significance is discussed in **Section 5.3**. The PM peak hour time period forms the basis of the CEQA transportation impact analysis; the AM peak hour results are presented for informational purposes only.

The results of the LOS calculations indicate that the majority of the study intersections operate acceptably with respect to their PM peak hour LOS standard. The following intersections do not meet their respective PM peak hour LOS standards under Existing Conditions:

- Intersection 15: Lopes Road/Cordelia Road
- Intersection 16: Lopes Road/Bridgeport Avenue

The addition of Alternative 2 project traffic would worsen the operations of the above intersections, but it would not result in new PM peak hour LOS deficiencies at other study intersections.

TABLE 11: EXISTING WITH PROJECT INTERSECTION LEVELS OF SERVICE – ALTERNATIVE 2

Intersection		Control Type[1]	Peak Hour[2]	Existing Conditions		Existing with Project Conditions	
				Delay[3]	LOS[4]	Delay[3]	LOS[4]
1	Mangels Boulevard/ Green Valley Road	Signalized	AM PM	21.5 21.2	C C	21.5 21.2	C C
2	Business Center Drive/ Green Valley Road	Signalized	AM PM	34.4 48.0	C D	36.5 49.7	D D
3	Business Center Drive/ Neitzel Road	AWSC	AM PM	15.6 14.1	C B	17.0 14.6	C B
4	I-80 westbound ramps/ Green Valley Road	Signalized	AM PM	5.1 4.6	A A	5.4 4.6	A A
5	I-80 eastbound ramps/ Green Valley Road	Signalized	AM PM	13.8 15.8	B B	14.4 16.8	B B
6	Mangels Boulevard/ Westamerica Drive	Signalized	AM PM	13.8 13.9	B B	14.1 13.3	B B
7	Business Center Drive/ Center Project Driveway-Westamerica Drive	Signalized	AM PM	10.2 7.9	B A	15.7 15.0	B B

TABLE 11: EXISTING WITH PROJECT INTERSECTION LEVELS OF SERVICE – ALTERNATIVE 2

Intersection		Control Type[1]	Peak Hour[2]	Existing Conditions		Existing with Project Conditions	
				Delay[3]	LOS[4]	Delay[3]	LOS[4]
8	Business Center Drive/ South Project Driveway-NorthBay Driveway	SSSC	AM PM	0.2 (15.8) 0.6 (13.7)	A (C) A (B)	2.3 (18.8) 1.6 (20.5)	A (C) A (C)
9	Westamerica Drive/ Suisun Valley Road	Signalized	AM PM	14.0 10.9	B B	14.0 10.9	B B
10	Business Center Drive/ Suisun Valley Road	Signalized	AM PM	22.3 20.7	C C	23.3 21.6	C C
11	I-80 westbound ramps-Neitzel Road/Suisun Valley Road	AWSC	AM PM	90.7 21.1	F C	>120 23.9	F C
12	I-80 eastbound ramps/ Pittman Road	Signalized	AM PM	16.8 12.9	B B	17.8 13.4	B B
13	Central Way/ Pittman Road	Signalized	AM PM	14.2 16.7	B B	14.3 16.7	B B
14	Central Way/ Cordelia Road	SSSC	AM PM	5.9 (12.1) 6.4 (17.7)	A (B) A (C)	6.1 (12.2) 6.6 (18.0)	A (B) A (C)
15	Lopes Road/ Cordelia Road	SSSC[5]	AM PM	>120 (>120) **>120 (>120)**	F (F) **F (F)**	>120 (>120) **>120 (>120)**	F (F) **F (F)**
16	Lopes Road/ Bridgeport Avenue	SSSC	AM PM	>120 (>120) **111.7 (>120)**	F (F) **F (F)**	>120 (>120) **>120 (>120)**	F (F) **F (F)**

Notes:
1. AWSC = All-Way Stop-Controlled, SSSC = Side-Street Stop-Controlled
2. AM = Weekday morning peak hour, PM = Weekday evening peak hour
3. Whole intersection average delay reported for signalized intersections and all-way stop-controlled intersections. Side-street stop-controlled delay presented as Whole Intersection Average Delay (Worst Movement Delay). Delay calculated per *HCM 2010* methodologies.
4. LOS designation per *HCM 2010*.
5. Analyzed as side-street stop-controlled after applying approximation process described in Section 2.5.3.
Bold indicates unacceptable operations. **Bold and highlighted** indicates a significant impact.
Source: Fehr & Peers, August 2019.

5.2 EXISTING WITH PROJECT SIGNAL WARRANT ANALYSIS

The peak-hour signal warrants (Warrant 3A and Warrant 3B) from the *Manual on Uniform Traffic Control Devices* (MUTCD) were used to evaluate unsignalized intersections that operate unacceptably under Existing with Project Conditions to determine if a traffic signal is warranted (see **Appendix C**). The following unsignalized intersections operating unacceptably under Existing and Existing with Project conditions meet either Warrant 3A or Warrant 3B in the PM peak hour:

- Intersection 15: Lopes Road/Cordelia Road
- Intersection 16: Lopes Road/Bridgeport Avenue

The above intersections meet the Peak Hour Signal Warrant under both project alternatives.

This analysis is intended to examine the general correlation between the current level of development in the region and the need to install new traffic signals. It estimates current traffic compared against a sub-set of the standard traffic signal warrants recommended in the Federal Highway Administration *Manual on Uniform Traffic Control Devices* and associated California MUTCD 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 by an experienced engineer based on field-measured rather than forecast traffic data and a thorough study of traffic and roadway conditions. Furthermore, the decision to install a signal should not be based solely upon the warrants, since the installation of signals can lead to certain types of collisions. The appropriate agency should undertake regular monitoring of actual traffic conditions and accident data, and timely re-evaluation of the full set of warrants to prioritize and program intersections for signalization.

5.3 EXISTING WITH PROJECT INTERSECTION IMPACTS

The following subsection outlines the intersection operations impacts for both project alternatives.

5.3.1 ALTERNATIVE 1 (APARTMENTS AND RETAIL) SCENARIO

This section of the report evaluates the Existing with Project Conditions PM peak hour intersection LOS results presented in **Table 10** against the City of Fairfield criteria for significant intersection impacts. The proposed project could result in a **significant impact** to intersection operations at the following intersections:

- Intersection 15: Lopes Road/Cordelia Road
- Intersection 16: Lopes Road/Bridgeport Avenue

Intersection 15: Lopes Road/Cordelia Road – Although this intersection operates at an overall LOS F during the PM peak hour, and peak hour traffic signal warrants are met, the proposed project would add less than 10 trips to the westbound approach in the PM peak hour. Therefore the impact at this location in the PM peak hour is ***less-than-significant*** based on the 10 trips added threshold described in **Section 2.7.1.3**. Based on the significance criteria, no mitigation is required.

Intersection 16: Lopes Road/Bridgeport Avenue - The addition of project trips to Lopes Road/Bridgeport Avenue in the PM peak hour would exacerbate LOS F operations in the PM peak hour by adding more than 10 trips to the northbound through movement at the intersection. As noted in **Section 5.2**, the Peak Hour Signal Warrant is met at this location. Therefore, the impact to this intersection in the PM peak hour is a **significant impact**. Mitigation measures to alleviate this impact are presented in **Section 5.5.1.**

The results of the intersection operations analysis indicate that other study intersections would continue to operate at LOS D or better after the addition of Alternative 1 project trips. Based on the impact criteria presented in **Section 2.7.1**, the project's impacts to these other study intersections under Existing with Project Conditions are ***less-than-significant***.

5.3.2 ALTERNATIVE 2 (APARTMENTS AND FIRE STATION) SCENARIO

This section of the report evaluates the Existing with Project Conditions PM peak hour intersection LOS results presented in **Table 11** against the City of Fairfield criteria for significant intersection impacts. The proposed project could result in a **significant impact** to intersection operations at the following intersection:

- Intersection 15: Lopes Road/Cordelia Road
- Intersection 16: Lopes Road/Bridgeport Avenue

Intersection 15: Lopes Road/Cordelia Road – Although this intersection operates at an overall LOS F during the PM peak hour, and peak hour traffic signal warrants are met, the proposed project would add less than 10 trips to the westbound approach in the PM peak hour. Therefore the impact at this location in the PM peak hour is ***less-than-significant*** based on the 10 trips added threshold described in **Section 2.7.1.3**. Based on the significance criteria, no mitigation is required.

Intersection 16: Lopes Road/Bridgeport Avenue - Although this intersection operates at an overall LOS F during the PM peak hour, and peak hour traffic signal warrants are met, the proposed project would add

less than 10 trips to the northbound approach in the PM peak hour. Therefore the impact at this location in the PM peak hour is ***less-than-significant*** based on the 10 trips added threshold described in **Section 2.7.1.3**. Based on the significance criteria, no mitigation is required.

The results of the intersection operations analysis indicate that other study intersections would continue to operate at LOS D or better after the addition of Alternative 2 project trips. Based on the impact criteria presented in **Section 2.7.1**, the project's impacts to these other study intersections under Existing with Project Conditions are ***less-than-significant***.

5.4 MULTIMODAL TRANSPORTATION IMPACTS

This section of the report details the project's impacts to the multimodal transportation system, including impacts to pedestrians, bicyclists and the public transit system. The level of impact is similar between project alternatives, and thus the impacts and findings have been presented in a combined format.

5.4.1 PEDESTRIAN AND BICYCLE IMPACTS

The project site plans (presented earlier as **Figure 1 and Figure 2** in **Section 2.1**) notes that the project proposes to construct a sidewalk along the Business Center Drive frontage of the site. This sidewalk would connect to the existing pedestrian facilities at Business Center Drive/Suisun Valley Road. At the Business Center Drive/Westamerica Drive-Center Driveway intersection, the site plan includes the addition of a striped crosswalk across the new Center Driveway. However, the site plan does not show the addition of a crosswalk across Business Center Drive at this location. Given the locally-serving retail uses proposed as part of the project and the existing office and residential uses on the other side of Business Center Drive from the project, it is likely that there will be pedestrian demand to cross Business Center Drive at the Business Center Drive/Westamerica Drive-Center Driveway intersection. Therefore, the lack of a crosswalk and associated pedestrian crossing signals at this location represents a ***significant impact*** to pedestrians because the project would not provide standard improvements to serve the new pedestrian demand generated as part of the project. Mitigation measures to address this significant impact are provided in **Section 5.5.3**.

The proposed project would not substantially degrade existing bicycling infrastructure by eliminating existing bicycling facilities, nor would it preclude the installation of additional public bicycle infrastructure. Therefore, the impacts to bicyclists are ***less-than-significant.***

5.4.2 PUBLIC TRANSIT IMPACTS

The project site is served by three local Fairfield and Suisun Transit (FAST) bus routes and one Solano County Transit (SolTrans) regional bus routes; the nearest public transit stop is located at Suisun Valley Road/Kaiser Drive. Access to this stop would be provided via the proposed sidewalk along the Business Center Drive frontage of the project site and the public sidewalk network along Suisun Valley Road.

While the project may result in an increase in public transit demand, the increase in public transit demand is not expected to result in over-capacity conditions on transit. The proposed project would not disrupt existing public transit services or preclude planned public transit facilities or services. Therefore, the project's impacts to the public transit system are ***less-than-significant***.

5.4.3 EMERGENCY ACCESS IMPACTS

The proposed project includes the following primary access points: the South Driveway (both alternatives), the Center Driveway (both alternatives) and the North Driveway (Alternative 1 only). Retail access points are open access, whereas residential access points are gated. Typically, gated access points include a special code for emergency access; this analysis assumes that emergency access codes are provided.

The proposed project is not anticipated to degrade roadway operations to the point where emergency vehicles are impacted. Therefore, the project does not conflict with existing or planned emergency response routes, nor does it provide inadequate access to accommodate emergency vehicles. Accordingly, the project's impacts to external and internal emergency access are ***less-than-significant***.

5.5 EXISTING WITH PROJECT MITIGATION MEASURES

This section of the report outlines the mitigation measures required to reduce the project's impacts to intersection operations (described in **Section 5.3**) and pedestrians (described in **Section 5.4.1**) to less-than-significant levels.

5.5.1 INTERSECTION OPERATIONS MITIGATION MEASURES – ALTERNATIVE 1

As noted in **Section 5.3.1** the project would result in a **significant impact** to PM peak hour intersection operations at the following intersection:

- Intersection 16: Lopes Road/Bridgeport Avenue

5.5.1.1 Intersection 16: Lopes Road/Bridgeport Avenue

Mitigation Measure #1: Lopes Road/Bridgeport Avenue is a side-street stop-controlled intersection that operates unacceptably in the PM peak hour under both Existing conditions and Existing with Project conditions. The intersection meets the Peak Hour Signal Warrant under Existing Conditions for the PM peak hour. The mitigation measure is to fund (on a fair share basis) construction of the following improvements at the intersection:

- Signalize the Lopes Road/Bridgeport Avenue/Cordelia Road intersection complex, including:
    - Split phases for all approaches at Lopes Road/Cordelia Road
    - Split phases for all approaches at Lopes Road/Bridgeport Avenue
    - Clustered intersection phasing with overlaps provided for movements crossing the railroad tracks.
- Modify southbound approach at Lopes Road/Bridgeport Avenue to include one through lane and one southbound left turn lane
- Modify northbound approach at Lopes road/Bridgeport Avenue to include one through lane and one through-right turn shared lane
- Install four-quadrant railroad crossing gates to prevent motorists from entering the conflict area when a train preemption event occurs

Construction of these improvements would result in acceptable PM peak hour traffic operations (LOS D or better) at the intersection (40.6 seconds of delay). Acceptable operations would also occur at Lopes Road/Cordelia Road after signalization (49.9 seconds of delay in the PM peak hour). Benefits to AM peak hour operations would also occur, with Lopes Road/Bridgeport Avenue operating at LOS B (18.9 seconds of delay) and Lopes Road/Cordelia Road operating at LOS D (45.1 seconds of delay).

Since the intersection operates unacceptably under Existing conditions and meets the Peak Hour signal warrant under Existing conditions, the project applicant shall pay a fair share contribution towards the construction of a signal and other improvements at the intersection. Alternatively, improvements may be funded through payment into the City's Development Impact Fee (DIF) program. While the improvements would mitigate the impact, the construction of the improvements would require substantial additional funding and coordination with the Union Pacific Railroad, and thus the impact is considered ***significant and unavoidable***.

It is noted that the mitigation measures would not preclude implementation of the Cumulative year I-80/I-680/SR 12 interchange improvement projects associated with the I-80/Suisun Valley Road-Pittman Road

interchange. The Design Year analysis for the I-80/I-680/SR 12 interchange improvement project assumed that both the Lopes Road/Bridgeport Avenue and Lopes Road/Cordelia Road intersections would be signalized.

5.5.2 INTERSECTION OPERATIONS MITIGATION MEASURES – ALTERNATIVE 2

As noted in **Section 5.3.2,** the project's impacts to PM peak hour operations are ***less-than-significant*** and thus no intersection operations mitigation measures are required under Existing with Project Conditions.

5.5.3 PEDESTRIAN MITIGATION MEASURES

As noted in **Section 5.4.1**, the proposed project (under both Alternative 1 and Alternative 2) results in a significant impact to pedestrians as a crosswalk and associated pedestrian signals are not proposed to be provided at the Business Center Drive/Westamerica Drive-Center Driveway intersection. The mitigation measure to alleviate this impact is as follows:

Mitigation Measure #2: Install a crosswalk connecting the existing curb ramp at the southwest corner of Business Center Drive/Westamerica Drive-Center Driveway to the proposed curb ramp at the southeast corner of Business Center Drive/Westamerica Drive-Center Driveway. Install pedestrian signal heads for this crossing and retime the signal at this location to account for the pedestrian signal phase at this location. Intersection operations at Business Center Drive/Westamerica Drive-Center Driveway would remain acceptable (LOS D or better) after construction of this improvement.

Construction of this mitigation measure would result in the impact to pedestrians being ***less-than-significant with mitigation***.

6.0 EXISTING PLUS APPROVED PROJECTS (EPAP) CONDITIONS

This chapter presents the results of the intersection operations impact analysis and multimodal transportation impact analysis under Existing plus Approved Projects (EPAP) conditions and EPAP with Project conditions. EPAP conditions, also sometimes known as Near Term or Background Conditions, are defined as existing traffic volumes plus traffic generated by projects that are approved but not yet built, and built but not yet occupied. For the analysis of the proposed project, other nearby projects that are in the project development or approvals process have also been considered in this scenario. The EPAP scenario is intended to reflect conditions at the "opening day" of the proposed project. EPAP with Project conditions are defined as EPAP conditions plus traffic generated by the proposed project. EPAP conditions freeway operations are described in **Chapter 8**.

6.1 EPAP CONDITIONS ROADWAY IMPROVEMENTS

As noted in **Section 3.1**, several local and regional transportation improvements may influence traffic volume patterns along study area roadways. City of Fairfield staff confirmed that the proposed Mangels Boulevard/Business Center Drive connection (currently under construction as of January 2019) would be open to traffic later in winter 2019. Therefore, the effects of this extension (volume shifts along the Mangels Boulevard, Green Valley Road and Business Center Drive corridors) have been considered in the analysis. The Jayo Residential Project TIA (Fehr & Peers, January 2016) – now a part of the Harvest and Bloom Development – included the effects of the traffic volume shifts, and these volume shifts were applied in the EPAP Conditions analysis scenario.

City staff have also noted that the City expects to install a signal at the intersection of Business Center Drive/ Neitzel Road (Intersection 3) in the near term. Therefore, the EPAP Conditions analysis assumes that the intersection has been converted from all-way stop-controlled operations to signalized operations.

6.2 EPAP CONDITIONS TRAFFIC VOLUME ESTIMATES

This section outlines the EPAP Conditions volume development process. Included in this section is a list of specific projects considered in the analysis, as well as other assumptions used in the development of EPAP conditions volumes.

6.2.1 PROJECTS CONSIDERED UNDER EPAP CONDITIONS

City staff and Fehr & Peers coordinated to develop a list of projects to include in the EPAP scenario. Based on this coordination, a total of 18 projects were included in the analysis, as presented in **Table 12**.

TABLE 12: EPAP CONDITIONS PROJECT LIST

Project	Project Size	Project Type
Denny's Restaurant	5,000 square feet	Quick Turnover Restaurant
Montessori Preschool	6,000 square feet	Preschool
Falls Event Center	15,000 square feet	Events Center
Partnership Health Plan	101,000 square feet	Office
Eastridge	54 dwelling units	Single-Family Residential
Estaire	25 dwelling units	Condominiums
Garibaldi Ranch Unit	112 dwelling units	Single-Family Residential
Goldhill Village 2	64 dwelling units	Single-Family Residential
Harvest and Bloom	151 dwelling units	Single-Family Residential
Koros (Village Oaks)	38 dwelling units	Single-Family Residential
Bella Vita	13 dwelling units	Single-Family Residential
Enclave	148 dwelling units	Single-Family Residential
Fieldcrest	394 dwelling units	Apartments
Villas at Havenhill	324 dwelling units	Apartments
The Vines at 80	30 dwelling units[1]	Apartments
Verdant at Green Valley	143 dwelling units[1]	Apartments
Rockville Terrace	148 dwelling units	Senior Residential
The Cottages (Bradbury Park)	15 dwelling units	Single-Family Residential

Notes:
1. Aerial imagery from October 2017 indicate these developments are constructed and partially occupied. Accordingly, the EPAP Conditions analysis assumes that the projects were 50 percent occupied at the time of the traffic counts. Values in the table reflect the portions of the projects yet to be occupied.
Source: Fehr & Peers, August 2019.

To apportion trips generated by the projects in **Table 12** to the study network, two data sources were considered. Where available, data from the approved TIA for a given project was used to assign trips through the study area. In cases where the study area for a given project and the study area for this project do not overlap, a manual assignment of the project trips through the study intersections was performed, taking special care to consider the locations of compatible land uses (for example, the locations of schools for residential trips). Where an approved TIA for a project was not available, trip generation for the project was estimated using data from the ITE *Trip Generation Manual, 10th Edition*. Trips were distributed and assigned to the study area based on the locations of complementary land uses and published TIA trip distribution and assignment data for similar nearby projects. **Appendix D** summarizes the trip generation assumptions for each of the projects included EPAP analysis.

6.2.2 OTHER EPAP CONDITIONS TRAFFIC VOLUME ASSUMPTIONS

As the economy in the San Francisco Bay Area and the Sacramento area continue to expand, it is likely that regional traffic volumes will continue to increase over time. Therefore, to account for regional growth in traffic volumes, as well as to account for traffic generated by other approved, pending or built but not yet occupied projects in the City of Fairfield and the surrounding region, the baseline Existing Conditions traffic volumes were increased by 5.0 percent.

6.2.3 EPAP CONDITIONS TRAFFIC VOLUMES

EPAP conditions traffic volumes were calculated by adding the growth in traffic volumes resulting from the projects in **Table 12** to the factored Existing Conditions traffic volumes. The EPAP Conditions traffic volume forecasts are presented on **Figure 14**.

6.3 EPAP WITH PROJECT CONDITIONS TRAFFIC VOLUMES

Net new trips from the proposed project were added to the EPAP Conditions traffic projections to develop traffic volumes for EPAP with Project Conditions. The resulting volumes are shown on the following figures:

- **Figure 15** – EPAP plus Project Alternative 1 (Apartments and Retail)
- **Figure 16** – EPAP plus Project Alternative 2 (Apartments and Fire Station)

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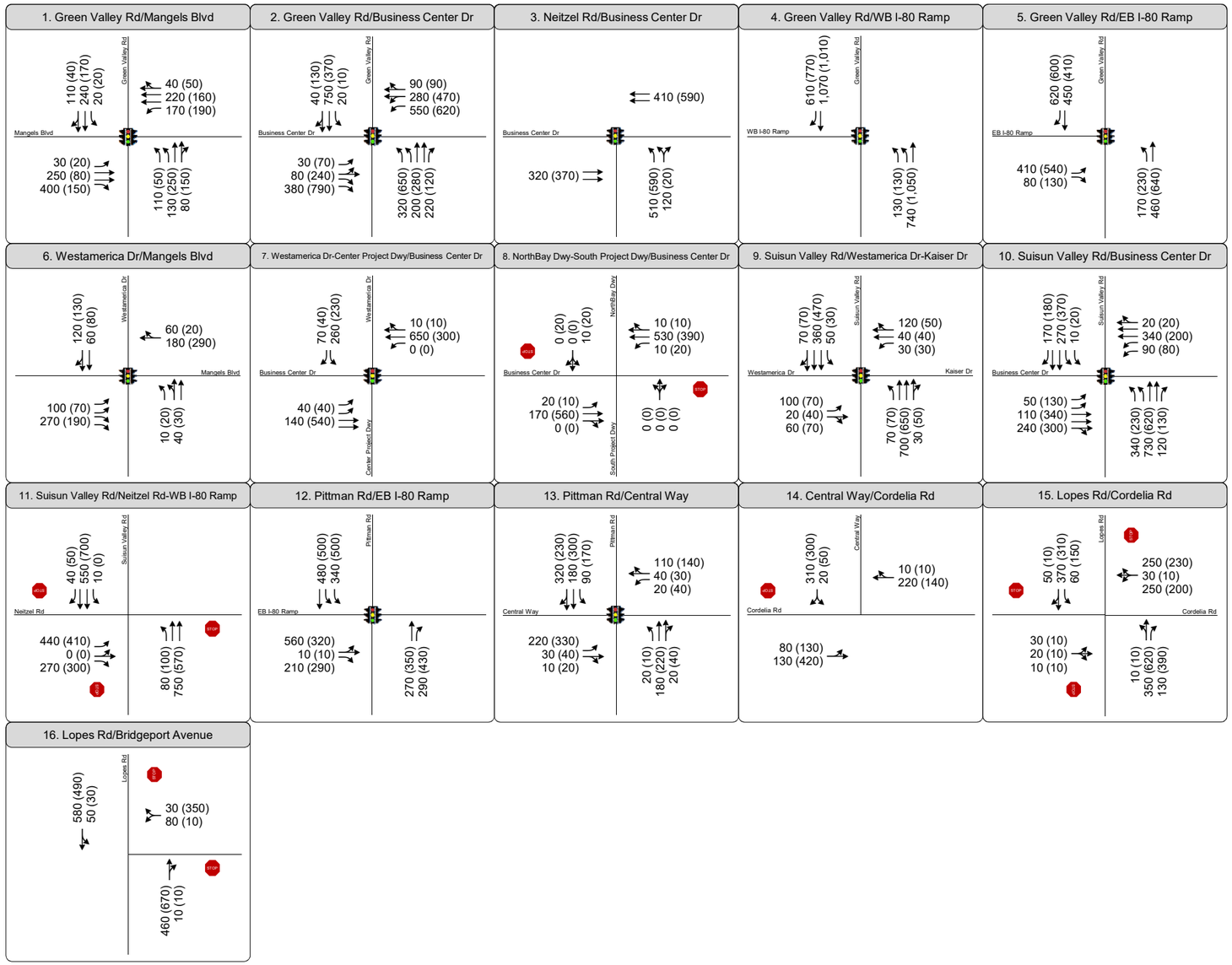

LEGEND

# Study Intersection	AM (PM) Peak Hour Traffic Volume
	Lane Configuration
	Stop Sign
	Signalized

Figure 14
EPAP without Project Conditions Peak Hour Intersection Traffic Volumes, Lane Configurations and Traffic Controls

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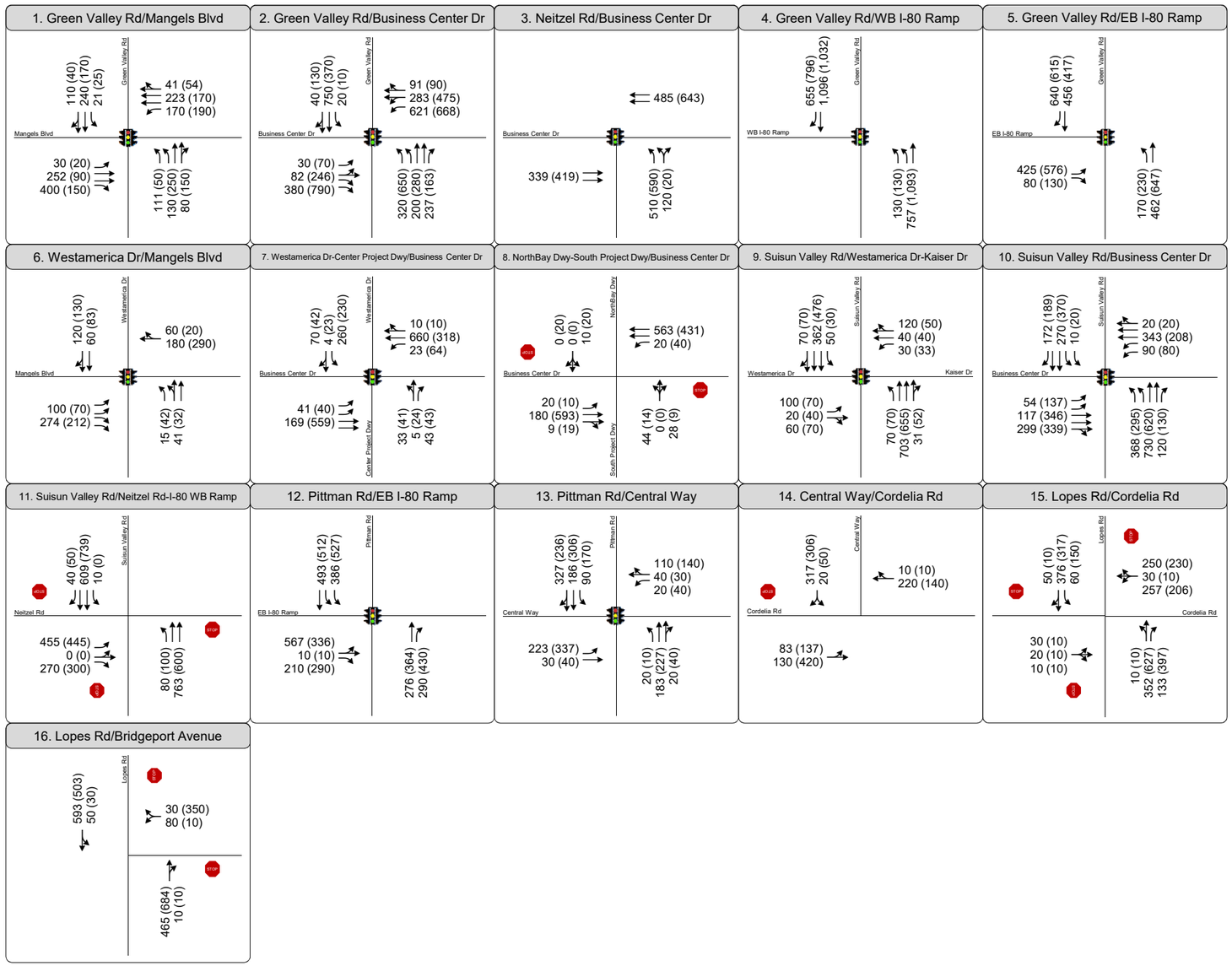

LEGEND

# Study Intersection	AM (PM) Peak Hour Traffic Volume
	Lane Configuration
	Stop Sign
	Signalized

Figure 15
EPAP with Project Alternative 1 (Apartments and Retail) Conditions
Peak Hour Intersection Traffic Volumes, Lane Configurations and Traffic Controls

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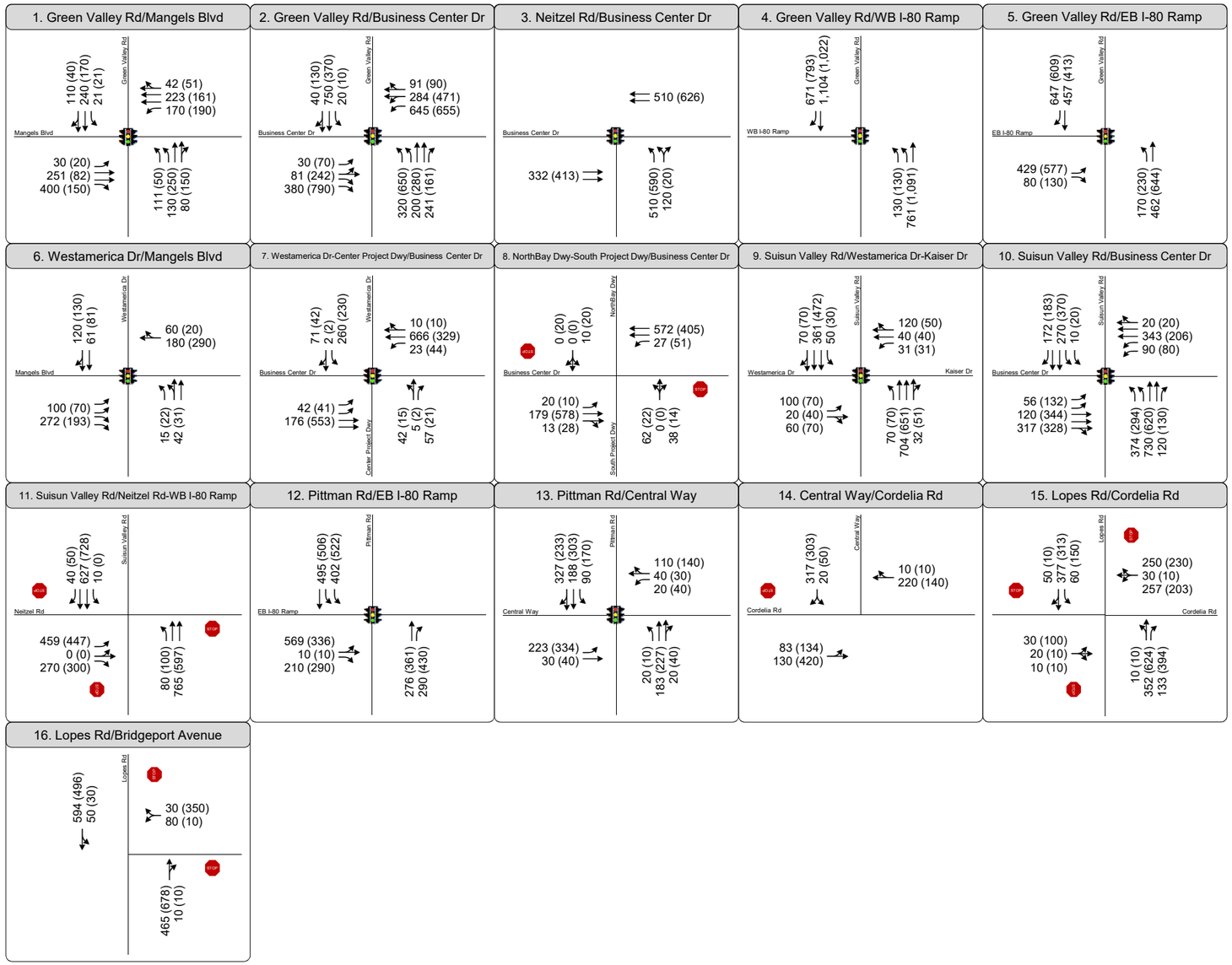


LEGEND

# Study Intersection	AM (PM) Peak Hour Traffic Volume
	Lane Configuration
	Stop Sign
	Signalized

Figure 16
EPAP with Project Alternative 2 (Apartments and Fire Station) Conditions
Peak Hour Intersection Traffic Volumes, Lane Configurations and Traffic Controls

6.4 EPAP CONDITIONS INTERSECTION LEVELS OF SERVICE

The following subsection outlines the intersection operations analysis for both project alternatives.

6.4.1 ALTERNATIVE 1 (APARTMENTS AND RETAIL) SCENARIO

Intersection LOS was calculated for EPAP without and with Project Alternative 1 Conditions to identify potential project impacts to the roadway system.

Table 13 provides the results of the intersection LOS calculations for EPAP Conditions and EPAP with Project Alternative 1 (Apartments and Retail) Conditions, while **Appendix B** contains the corresponding calculation sheets. The changes in delay and LOS between EPAP without Project and EPAP with Project Alternative 1 (Apartments and Retail) Conditions are used to identify significant impacts. Impact significance is discussed in **Section 6.6**. The PM peak hour time period forms the basis of the CEQA transportation impact analysis; the AM peak hour results are presented for informational purposes only.

The results of the LOS calculations indicate that the majority of the study intersections are projected to continue operating acceptably with respect to their PM peak hour LOS standard. The following intersections are projected to not meet their respective PM peak hour LOS standards under EPAP without Project Conditions:

- Intersection 2: Business Center Drive/Green Valley Road
- Intersection 11: I-80 westbound ramps-Neitzel Road/Suisun Valley Road
- Intersection 15: Lopes Road/Cordelia Road
- Intersection 16: Lopes Road/Bridgeport Avenue

The addition of Alternative 1 project traffic would worsen the operations of the above intersections, but it would not result in new PM peak hour LOS deficiencies.

TABLE 13: EPAP CONDITIONS INTERSECTION LEVELS OF SERVICE – ALTERNATIVE 1

	Intersection	Control Type[1]	Peak Hour[2]	EPAP Conditions		EPAP with Project Conditions	
				Delay[3]	LOS[4]	Delay[2]	LOS[3]
1	Mangels Boulevard/ Green Valley Road	Signalized	AM PM	21.3 19.3	C B	21.3 19.4	C B
2	Business Center Drive/ Green Valley Road	Signalized	AM PM	44.6 **91.6**	D **F**	47.4 **95.2**	D **F**
3	Business Center Drive/ Neitzel Road	Signalized	AM PM	8.3 8.1	A A	8.5 8.2	A A
4	I-80 westbound ramps/ Green Valley Road	Signalized	AM PM	6.9 6.2	A A	7.3 6.5	A A
5	I-80 eastbound ramps/ Green Valley Road	Signalized	AM PM	18.1 25.0	B C	19.1 28.7	B C
6	Mangels Boulevard/ Westamerica Drive	Signalized	AM PM	14.7 13.7	B B	14.9 14.0	B B
7	Business Center Drive/Center Project Driveway-Westamerica Drive	Signalized	AM PM	11.4 9.1	A A	16.8 18.9	B B
8	Business Center Drive/South Project Driveway-NorthBay Driveway	SSSC	AM PM	0.6 (21.8) 0.9 (17.3)	A (C) A (C)	2.0 (25.4) 1.6 (25.5)	A (D) A (D)
9	Westamerica Drive/ Suisun Valley Road	Signalized	AM PM	15.2 11.8	B B	15.2 11.9	B B
10	Business Center Drive/ Suisun Valley Road	Signalized	AM PM	25.0 23.7	C C	25.6 25.2	C C
11	I-80 westbound ramps-Neitzel Road/Suisun Valley Road	AWSC	AM PM	>120 **37.1**	F **E**	>120 **47.5**	F **E**
12	I-80 eastbound ramps/ Pittman Road	Signalized	AM PM	21.3 15.3	C B	23.2 16.3	C B
13	Central Way/ Pittman Road	Signalized	AM PM	16.0 17.8	B B	16.0 18.0	B B
14	Central Way/ Cordelia Road	SSSC	AM PM	6.6 (13.4) 9.5 (25.4)	A (B) A (D)	6.7 (13.6) 10.0 (26.7)	A (B) B (D)
15	Lopes Road/ Cordelia Road	SSSC[5]	AM PM	>120 (>120) **>120 (>120)**	F (F) **F (F)**	>120 (>120) **>120 (>120)**	F (F) **F (F)**

TABLE 13: EPAP CONDITIONS INTERSECTION LEVELS OF SERVICE – ALTERNATIVE 1

Intersection		Control Type[1]	Peak Hour[2]	EPAP Conditions		EPAP with Project Conditions	
				Delay[3]	LOS[4]	Delay[2]	LOS[3]
16	Lopes Road/ Bridgeport Avenue	SSSC	AM PM	>120 (>120) **>120 (>120)**	F (F) **F (F)**	>120 (>120) **>120 (>120)**	F (F) **F (F)**

Notes:
1. AWSC = All-Way Stop-Controlled, SSSC = Side-Street Stop-Controlled
2. AM = Weekday morning peak hour, PM = Weekday evening peak hour
3. Whole intersection average delay reported for signalized intersections and all-way stop-controlled intersections. Side-street stop-controlled delay presented as Whole Intersection Average Delay (Worst Movement Delay). Delay calculated per *HCM 2010* methodologies.
4. LOS designation per *HCM 2010*.
5. Analyzed as side-street stop-controlled after applying approximation process described in Section 2.5.3.
Bold indicates unacceptable operations. **Bold and highlighted** indicates a significant impact.
Source: Fehr & Peers, August 2019.

6.4.2 ALTERNATIVE 2 (APARTMENTS AND FIRE STATION) SCENARIO

Intersection LOS was calculated for EPAP without and with Project Alternative 2 conditions to identify potential project impacts to the roadway system.

Table 14 provides the results of the intersection LOS calculations for EPAP Conditions and EPAP with Project Alternative 2 (Apartments and Fire Station) Conditions, while **Appendix B** contains the corresponding calculation sheets. The changes in delay and LOS between EPAP without Project and EPAP with Project Alternative 2 (Apartments and Fire Station) Conditions are used to identify significant impacts. Impact significance is discussed in **Section 6.6**. The PM peak hour time period forms the basis of the CEQA transportation impact analysis; the AM peak hour results are presented for informational purposes only.

The results of the LOS calculations indicate that the majority of the study intersections operate acceptably with respect to their PM peak hour LOS standard. The following intersections are projected to not meet their respective PM peak hour LOS standards under EPAP without Project Conditions:

- Intersection 2: Business Center Drive/Green Valley Road
- Intersection 11: I-80 westbound ramps-Neitzel Road/Suisun Valley Road
- Intersection 15: Lopes Road/Cordelia Road
- Intersection 16: Lopes Road/Bridgeport Avenue

The addition of Alternative 2 project traffic would worsen the operations of the above intersections, but it would not result in new PM peak hour LOS deficiencies.

TABLE 14: EPAP CONDITIONS INTERSECTION LEVELS OF SERVICE – ALTERNATIVE 2

	Intersection	Control Type[1]	Peak Hour[2]	EPAP Conditions		EPAP with Project Conditions	
				Delay[3]	LOS[4]	Delay[2]	LOS[3]
1	Mangels Boulevard/ Green Valley Road	Signalized	AM PM	21.3 19.3	C B	21.3 19.3	C B
2	Business Center Drive/ Green Valley Road	Signalized	AM PM	44.6 **91.6**	D **F**	48.6 **94.2**	D **F**
3	Business Center Drive/ Neitzel Road	Signalized	AM PM	8.3 8.1	A A	8.6 8.2	A A
4	I-80 westbound ramps/ Green Valley Road	Signalized	AM PM	6.9 6.2	A A	7.5 6.4	A A
5	I-80 eastbound ramps/ Green Valley Road	Signalized	AM PM	18.1 25.0	B C	19.4 28.5	B C
6	Mangels Boulevard/ Westamerica Drive	Signalized	AM PM	14.7 13.7	B B	14.9 13.8	B B
7	Business Center Drive/Center Project Driveway-Westamerica Drive	Signalized	AM PM	11.4 9.1	A A	17.4 16.7	B B
8	Business Center Drive/South Project Driveway-NorthBay Driveway	SSSC	AM PM	0.6 (21.8) 0.9 (17.3)	A (C) A (C)	2.7 (27.0) 2.0 (27.6)	A (D) A (D)
9	Westamerica Drive/ Suisun Valley Road	Signalized	AM PM	15.2 11.8	B B	15.2 11.8	B B
10	Business Center Drive/ Suisun Valley Road	Signalized	AM PM	25.0 23.7	C C	25.9 24.9	C C
11	I-80 westbound ramps-Neitzel Road/Suisun Valley Road	AWSC	AM PM	>120 **37.1**	F **E**	>120 **46.1**	F **E**
12	I-80 eastbound ramps/ Pittman Road	Signalized	AM PM	21.3 15.3	C B	24.0 16.2	C B
13	Central Way/ Pittman Road	Signalized	AM PM	16.0 17.8	B B	16.0 17.9	B B
14	Central Way/ Cordelia Road	SSSC	AM PM	6.6 (13.4) 9.5 (25.4)	A (B) A (D)	6.7 (13.6) 9.7 (26.2)	A (B) A (D)
15	Lopes Road/ Cordelia Road	SSSC[5]	AM PM	>120 (>120) **>120 (>120)**	F (F) **F (F)**	>120 (>120) **>120 (>120)**	F (F) **F (F)**

TABLE 14: EPAP CONDITIONS INTERSECTION LEVELS OF SERVICE – ALTERNATIVE 2

Intersection		Control Type[1]	Peak Hour[2]	EPAP Conditions		EPAP with Project Conditions	
				Delay[3]	LOS[4]	Delay[2]	LOS[3]
16	Lopes Road/ Bridgeport Avenue	SSSC	AM PM	>120 (>120) **>120 (>120)**	F (F) **F (F)**	>120 (>120) **>120 (>120)**	F (F) **F (F)**

Notes:
1. AWSC = All-Way Stop-Controlled, SSSC = Side-Street Stop-Controlled
2. AM = Weekday morning peak hour, PM = Weekday evening peak hour
3. Whole intersection average delay reported for signalized intersections and all-way stop-controlled intersections. Side-street stop-controlled delay presented as Whole Intersection Average Delay (Worst Movement Delay). Delay calculated per *HCM 2010* methodologies.
4. LOS designation per *HCM 2010*.
5. Analyzed as side-street stop-controlled after applying approximation process described in Section 2.5.3.
Bold indicates unacceptable operations. **Bold and highlighted** indicates a significant impact.
Source: Fehr & Peers, August 2019.

6.5 EPAP WITH PROJECT SIGNAL WARRANT ANALYSIS

The peak-hour signal warrants (Warrant 3A and Warrant 3B) from the *Manual on Uniform Traffic Control Devices* (MUTCD) were used to evaluate unsignalized intersections that operate unacceptably under EPAP without and with Project conditions to determine if a traffic signal is warranted (see **Appendix C**). The following unsignalized intersections, which operate at unacceptable levels in the Existing plus Approved Project condition, also meet the Peak Hour Signal Warrants in either the Existing condition or Existing plus Approved Project condition:

- Intersection 11: I-80 westbound ramps-Neitzel Road/Suisun Valley Road
- Intersection 15: Lopes Road/Cordelia Road
- Intersection 16: Lopes Road/Bridgeport Avenue

The above intersections would continue to meet the Peak Hour Signal Warrant under both project alternatives in the EPAP with Project condition.

6.6 EPAP WITH PROJECT INTERSECTION IMPACTS

The following subsection outlines the intersection operations impacts for both project alternatives.

6.6.1 ALTERNATIVE 1 (APARTMENTS AND RETAIL) SCENARIO

This section of the report evaluates the EPAP with Project Alternative 1 (Apartments and Retail) Conditions PM peak hour intersection LOS results presented in **Table 13** against the City of Fairfield criteria for significant intersection impacts. The proposed project could result in a **significant impact** to intersection operations at the following intersections:

- Intersection 2: Business Center Drive/Green Valley Road
- Intersection 11: I-80 westbound ramps-Neitzel Road/Suisun Valley Road
- Intersection 15: Lopes Road/Cordelia Road
- Intersection 16: Lopes Road/Bridgeport Avenue

Intersection 2: Business Center Drive/Green Valley Road – This intersection is projected to operate at a deficient LOS F during the PM peak hour in the EPAP without Project condition. The addition of project traffic would increase average peak hour delay, but by less than the 5.0 seconds required to result in a significant impact. Therefore, based on the significance criteria in **Section 2.7.1.1**, this impact is considered ***less-than-significant*** and no mitigation is required.

Intersection 11: I-80 westbound ramps-Neitzel Road/Suisun Valley Road – The addition of project trips to I-80 westbound ramps-Neitzel Road/Suisun Valley Road in the PM peak hour would exacerbate LOS E operations in the PM peak hour by increasing the average control delay at the intersection by more than 5.0 seconds. As noted in **Section 6.5**, the Peak Hour Signal Warrant is met at this location. Therefore, the impact to this intersection in the PM peak hour is a **significant impact**. Mitigation measures to alleviate this impact are presented in **Section 6.8.1.**

Intersection 15: Lopes Road/Cordelia Road – Although this intersection operates at an overall LOS F during the PM peak hour, and peak hour traffic signal warrants are met, the proposed project would add less than 10 trips to the westbound approach in the PM peak hour. Therefore the impact at this location in the PM peak hour is ***less-than-significant*** based on the 10 trips added threshold described in **Section 2.7.1.3**. Based on the significance criteria, no mitigation is required.

Intersection 16: Lopes Road/Bridgeport Avenue - The addition of project trips to Lopes Road/Bridgeport Avenue in the PM peak hour would exacerbate LOS F operations in the PM peak hour by adding more than 10 trips to the northbound through movement at the intersection. As noted in **Section 6.5**, the Peak Hour Signal Warrant is met at this location. Therefore, the impact to this intersection in the PM peak hour is a **significant impact**. Mitigation measures to alleviate this impact are presented in **Section 6.8.1.**

The results of the intersection operations analysis indicate that other study intersections would continue to operate at LOS D or better after the addition of project trips. Based on the impact criteria presented in **Section 2.7.1**, the Alternative 1 project's impacts to these other study intersections under EPAP with Project Conditions are ***less-than-significant***.

6.6.2 ALTERNATIVE 2 (APARTMENTS AND FIRE STATION) SCENARIO

This section of the report evaluates the EPAP with Project Alternative 2 (Apartments and Fire Station) Conditions PM peak hour intersection LOS results presented in **Table 14** against the City of Fairfield criteria for significant intersection impacts. The proposed project could result in a **significant impact** to intersection operations at the following intersections:

- Intersection 2: Business Center Drive/Green Valley Road
- Intersection 11: I-80 westbound ramps-Neitzel Road/Suisun Valley Road
- Intersection 15: Lopes Road/Cordelia Road
- Intersection 16: Lopes Road/Bridgeport Avenue

Intersection 2: Business Center Drive/Green Valley Road – This intersection is projected to operate at a deficient LOS F during the PM peak hour in the EPAP without Project condition. The addition of project traffic would increase average peak hour delay, but by less than the 5.0 seconds required to result in a significant impact. Therefore, based on the significance criteria in **Section 2.7.1.1**, this impact is considered ***less-than-significant*** and no mitigation is required.

Intersection 11: I-80 westbound ramps-Neitzel Road/Suisun Valley Road – The addition of project trips to I-80 westbound ramps-Neitzel Road/Suisun Valley Road in the PM peak hour would exacerbate LOS E operations in the PM peak hour by increasing the average control delay at the intersection by more than 5.0 seconds. As noted in **Section 6.5**, the Peak Hour Signal Warrant is met at this location. Therefore, the impact to this intersection in the PM peak hour is a **significant impact**. Mitigation measures to alleviate this impact are presented in **Section 6.8.2.**

Intersection 15: Lopes Road/Cordelia Road – Although this intersection operates at an overall LOS F during the PM peak hour, and peak hour traffic signal warrants are met, the proposed project would add less than 10 trips to the westbound approach in the PM peak hour**.** Therefore the impact at this location in the PM peak hour is ***less-than-significant*** based on the 10 trips added threshold described in **Section 2.7.1.3**. Based on the significance criteria, no mitigation is required.

Intersection 16: Lopes Road/Bridgeport Avenue - Although this intersection operates at an overall LOS F during the PM peak hour, and peak hour traffic signal warrants are met, the proposed project would add less than 10 trips to the northbound approach in the PM peak hour**.** Therefore the impact at this location in the PM peak hour is ***less-than-significant*** based on the 10 trips added threshold described in **Section 2.7.1.3**. Based on the significance criteria, no mitigation is required.

The results of the intersection operations analysis indicate that other study intersections would continue to operate at LOS D or better after the addition of project trips. Based on the impact criteria presented in **Section 2.7.1**, the Alternative 2 project's impacts to these other study intersections under EPAP with Project Conditions are ***less-than-significant***.

6.7 MULTIMODAL TRANSPORTATION IMPACTS

6.7.1 PEDESTRIAN, BICYCLE, PUBLIC TRANSIT, AND EMERGENCY VEHICLE IMPACTS

EPAP without Project and EPAP with Project Conditions for pedestrian facilities, bicycle facilities, public transit facilities, and emergency vehicle access would generally be equivalent to Existing Conditions and Existing with Project Conditions. Discussion regarding project impacts to these modes of transportation under Existing with Project Conditions is provided in **Chapter 5**. Similar to Existing with Project Conditions, the impacts to pedestrian, bicycle and transit modes are expected to be ***less-than-significant*** (for bicycles, public transit and emergency vehicles) or ***less-than-significant with mitigation*** (for pedestrians, assuming Mitigation Measure #2 is constructed) under EPAP with Project Conditions.

6.8 EPAP WITH PROJECT MITIGATION MEASURES

This section of the report outlines the mitigation measures required to reduce the project's EPAP impacts to intersection operations to less-than-significant levels.

6.8.1 INTERSECTION OPERATIONS MITIGATION MEASURES – ALTERNATIVE 1

As noted in **Section 6.6.1** the Alternative 1 project would result in a **significant impact** to PM peak hour intersection operations at the following two intersections:

- Intersection 11: I-80 westbound ramps-Neitzel Road/Suisun Valley Road
- Intersection 16: Lopes Road/Bridgeport Avenue

6.8.1.1 Intersection 11: I-80 westbound ramps-Neitzel Road/Suisun Valley Road

Mitigation Measure #3: I-80 westbound ramps-Neitzel Road/Suisun Valley Road is an all-way stop-controlled intersection that operates unacceptably in the PM peak hour under both EPAP Conditions and EPAP with Project conditions. The intersection meets the Peak Hour Signal Warrant under EPAP Conditions for the PM peak hour. The mitigation measure is to fund (on a fair share basis) construction of the following improvements at the intersection:

- Signalize the intersection, including:
    - Northbound and southbound protected left turn phases
    - Eastbound and westbound split phases
- Modify southbound right turn movement to remove the high-speed channelizer island and install a standard right turn pocket

Constructing these improvements would result in acceptable PM peak hour traffic operations (LOS D or better) at the intersection (10.4 seconds of delay) under EPAP with Project Conditions. Benefits to AM peak hour operations would also occur, with the intersection operating at LOS B (14.6 seconds of delay).

Since the intersection operates unacceptably under EPAP (without Project) Conditions and meets the Peak Hour signal warrant under EPAP (without Project) Conditions, the project applicant shall pay a fair share contribution towards the construction of a signal and other improvements at the intersection. Alternatively, improvements may be funded through payment into the City's Development Impact Fee (DIF) program. City staff have confirmed that the project is eligible for inclusion into the City's Capital Improvements Program (CIP), and thus the project impact is considered ***less-than-significant with mitigation***.

It is noted that the mitigation measure would not preclude implementation of the Cumulative year I-80/I-680/SR 12 interchange improvement project associated with the I-80/Suisun Valley Road-Pittman Road interchange. The Design Year analysis for the I-80/I-680/SR 12 interchange improvement project assumed that this intersection would be signalized.

6.8.1.2 Intersection 16: Lopes Road/Bridgeport Avenue

Mitigation Measure #4: Implement Mitigation Measure #1 (signalization of Lopes Road/Bridgeport Avenue, signalization of Lopes Road/Cordelia Road, and associated geometric improvements).

Construction of these improvements would result in acceptable traffic operations (LOS D or better) at the intersection of Lopes Road/Bridgeport Avenue (51.9 seconds of delay). Operations at Lopes Road/Cordelia Road after signalization would improve over "no project" conditions but would still remain at LOS F (90.1

seconds of delay). Benefits to AM peak hour operations would also occur, with Lopes Road/Bridgeport Avenue operating at LOS C (26.5 seconds of delay) and improved operations at Lopes Road/Cordelia Road operating at 82.4 seconds of delay (the LOS remains LOS F, but the delay is substantially reduced).

Since the intersection operates unacceptably under Existing Conditions and meets the Peak Hour signal warrant under Existing Conditions, the project applicant shall pay a fair share contribution towards the construction of a signal and other improvements at the intersection. Alternatively, improvements may be funded through payment into the City's Development Impact Fee (DIF) program. While the improvements would mitigate the impact, the construction of the improvements would require substantial additional funding and coordination with the Union Pacific Railroad, and thus the impact is considered ***significant and unavoidable***.

It is noted that the mitigation measure would not preclude implementation of the Cumulative year I-80/I-680/SR 12 interchange improvement projects associated with the I-80/Suisun Valley Road-Pittman Road interchange. The Design Year analysis for the I-80/I-680/SR 12 interchange improvement project assumed that both the Lopes Road/Bridgeport Avenue and Lopes Road/Cordelia Road intersections would be signalized.

6.8.2 INTERSECTION OPERATIONS MITIGATION MEASURES – ALTERNATIVE 2

As noted in **Section 6.6.2** the project would result in a **significant impact** to PM peak hour intersection operations at the following intersection:

- Intersection 11: I-80 westbound ramps-Neitzel Road/Suisun Valley Road

6.8.2.1 Intersection 11: I-80 westbound ramps-Neitzel Road/Suisun Valley Road

Mitigation Measure #5: Implement Mitigation Measure #3 (signalization of intersection with associated geometric improvements).

Constructing these improvements would result in acceptable traffic operations (LOS D or better) at the intersection (10.3 seconds of delay) under EPAP with Project Conditions. Benefits to AM peak hour operations would also occur, with the intersection operating at LOS B (13.1 seconds of delay).

Since the intersection operates unacceptably under EPAP (without Project) Conditions and meets the Peak Hour signal warrant under EPAP (without Project) Conditions, the project applicant shall pay a fair share contribution towards the construction of a signal and other improvements at the intersection. Alternatively, improvements may be funded through payment into the City's Development Impact Fee (DIF) program.

City staff have confirmed that the project is eligible for inclusion into the City's Capital Improvements Program (CIP), and thus the project impact is considered ***less-than-significant with mitigation***.

It is noted that the mitigation measures would not preclude implementation of the Cumulative year I-80/I-680/SR 12 interchange improvement project associated with the I-80/Suisun Valley Road-Pittman Road interchange. The Design Year analysis for the I-80/I-680/SR 12 interchange improvement project assumed that this intersection would be signalized.

7.0 CUMULATIVE (YEAR 2035) CONDITIONS

The Cumulative condition represents conditions at the buildout of the City's General Plan and other regional planning documents such as Plan Bay Area. Based on a review of previously-completed transportation analyses for projects in the City of Fairfield, City staff indicated that 2035 is the Cumulative horizon year, consistent with the horizon year of City's General Plan.

To evaluate the potential impact of traffic generated by the proposed project on the surrounding street system, volume estimates representing Cumulative without Project conditions were prepared. Traffic conditions without the project under this future scenario reflect traffic increases due to nearby and regional development along with background roadway network changes and street improvements. The forecasted Cumulative without Project conditions traffic volumes were then used as the baseline to identify impacts on the roadway system. This chapter presents the results of the level of service calculations under Cumulative conditions with and without the Project. Cumulative (Year 2035) Conditions freeway operations are described in **Chapter 8**.

7.1 CUMULATIVE BASELINE ROADWAY IMPROVEMENTS

This section outlines the changes to the study area roadway system proposed as part of the I-80/I-680/SR 12 interchange improvement project. Year 2035 study intersection lane configurations are also presented in this section.

7.1.1 I-80/I-680/SR 12 INTERCHANGE IMPROVEMENT PROJECT

The proposed I-80/I-680/SR 12 interchange project would substantially alter the travel patterns in the study area. The interchange project is comprised of seven construction packages; Package 1 (improvements at the I-80/Green Valley Road/SR 12 interchange complex) was opened to traffic in 2017. To understand which packages would likely be constructed by Year 2035, City staff directed Fehr & Peers to review transportation improvement funding data from the Solano Transportation Authority's Comprehensive Transportation Plan (the County of Solano's financially constrained transportation plan) and the Plan Bay Area regional transportation funding list (the Metropolitan Transportation Commission's Bay Area-wide financially constrained transportation plan). After reviewing these key regional funding documents it was determined that it would be reasonable to assume that Packages 1-5 of the project would be completed by Year 2035. A similar assumption was made for the Cumulative analysis for the Jayo residential project, now known as the Harvest and Bloom project. In general, Packages 1-5 of the interchange project include:

- Package 1: I-80/Green Valley Road interchange improvements, ramp braiding between the westbound I-80 on-ramp from Green Valley Road and the westbound I-80 to westbound SR 12 connector (completed in 2017)
- Package 2: Upgraded eastbound SR 12 to eastbound I-80 connector, and construction of new I-680/Red Top Road interchange
- Package: 3 Realigned westbound I-80 to southbound I-680 connector, new westbound I-80 on-ramp at Suisun Valley Road, new westbound I-80 off-ramp at Green Valley Road, and removal of Neitzel Road
- Package 4: Realigned northbound I-680 to eastbound I-80 connector
- Package 5: Reconstruction of I-80/Red Top Road interchange, realignment of Red Top Road to a new SR 12/Red Top Road interchange, and an extension of Business Center Drive west to the new SR 12/Red Top Road interchange

Packages 6 and 7 of the interchange improvement project consist of HOV direct connectors between I-80 and I-680 (Package 6) and construction of connectors from northbound I-680 to westbound I-80 and from eastbound I-80 to southbound I-680. These packages serve traffic bypassing the study intersections, and therefore the effects of not incorporating these later-stage packages into the Year 2035 analysis is expected to be minimal and not change the overall conclusions of the analysis presented below.

The Cumulative Conditions analysis was performed assuming two states of completion of the I-80/I-680/SR 12 interchange improvement project:

- Cumulative Conditions: Assumes the construction and associated after-construction effects of interchange improvement Packages 1-4 only.
- Cumulative plus Business Center Drive Extension Conditions: Assumes the construction and associated after-construction effects of interchange improvement Packages 1-5.

7.1.2 STUDY INTERSECTION LANE CONFIGURATIONS

Packages 1-4 of the I-80/I-680/SR 12 improvement project includes modifications to study intersection lane configurations at the following intersections[3]:

- Intersection #3: Business Center Drive/Neitzel Road: removal of intersection
- Intersection #4: Green Valley Road/I-80 westbound Ramps
    - Northbound approach: 1 left turn lane, 3 through lanes

[3] As identified in the *Traffic Operations Report for the I-80/I-680/SR 12Interchange Project Report (August 2010)*.

  - Southbound approach: 2 through lanes, 1 through-right turn shared lane
  - Westbound approach: 1 left turn lane, 1 left turn-through-right turn shared lane, 1 right turn lane
- Intersection #5: Green Valley Road/I-80 eastbound Ramps
  - Northbound approach: 2 left turn lanes, 3 through lanes
  - Southbound approach: 3 through lanes, 1 right turn lane
  - Eastbound approach: 2 left turn lanes, 1 right turn lane

All other study intersections were analyzed under their EPAP Conditions configurations.

7.2 CUMULATIVE CONDITIONS TRAFFIC VOLUMES

Traffic volumes for Cumulative Conditions are comprised of Existing Conditions volumes plus traffic generated by anticipated local and regional land use growth. The City of Fairfield travel demand model incorporates most roadways throughout the City of Fairfield, and is generally a reasonable tool for use in the analysis of City arterials (such as Suisun Valley Road, Business Center Drive and Green Valley Road) and other major collector roadways. After reviewing the structure of the model traffic analysis zone (TAZ) system and roadway network detail in and around the project site and study intersections, it was determined that the City's travel demand model would be a suitable tool for the estimation of future year demand volumes. The Year 2035 model used in the development of the traffic volume forecasts presented in this chapter incorporated I-80/I-680/SR 12 interchange improvement project construction Packages 1-4 (as outlined in **Section 7.1**).

The following presents the specific steps used to develop Year 2035 forecasts from the model:

- **Step 1** – Run the validated base year (2010) model to estimate AM and PM peak hour traffic volumes.
- **Step 2** – Run the Year 2035 model to estimate AM and PM peak hour traffic volumes.
- **Step 3** – Develop Year 2035 No Project (Cumulative) forecasts using the following formula:

  Cumulative Forecasts = Existing Peak Hour Volume + (Year 2035 Model Peak Hour Volume – Base Year Model Peak Hour Volume)
- **Step 4** – Check for reasonableness (e.g., ensure that volumes do not drop below Existing or EPAP levels, or grow exponentially unless there is a specific reason).

The Cumulative Conditions intersection turning movement forecasts are presented in **Figure 17**. The Cumulative plus Business Center Drive Extension Conditions are presented in **Figure 18.** In both scenarios, a large growth in vehicles in the area is expected as the area surrounding the project site is built out with residential and commercial/industrial uses.

7.3 CUMULATIVE WITH PROJECT TRAFFIC VOLUMES

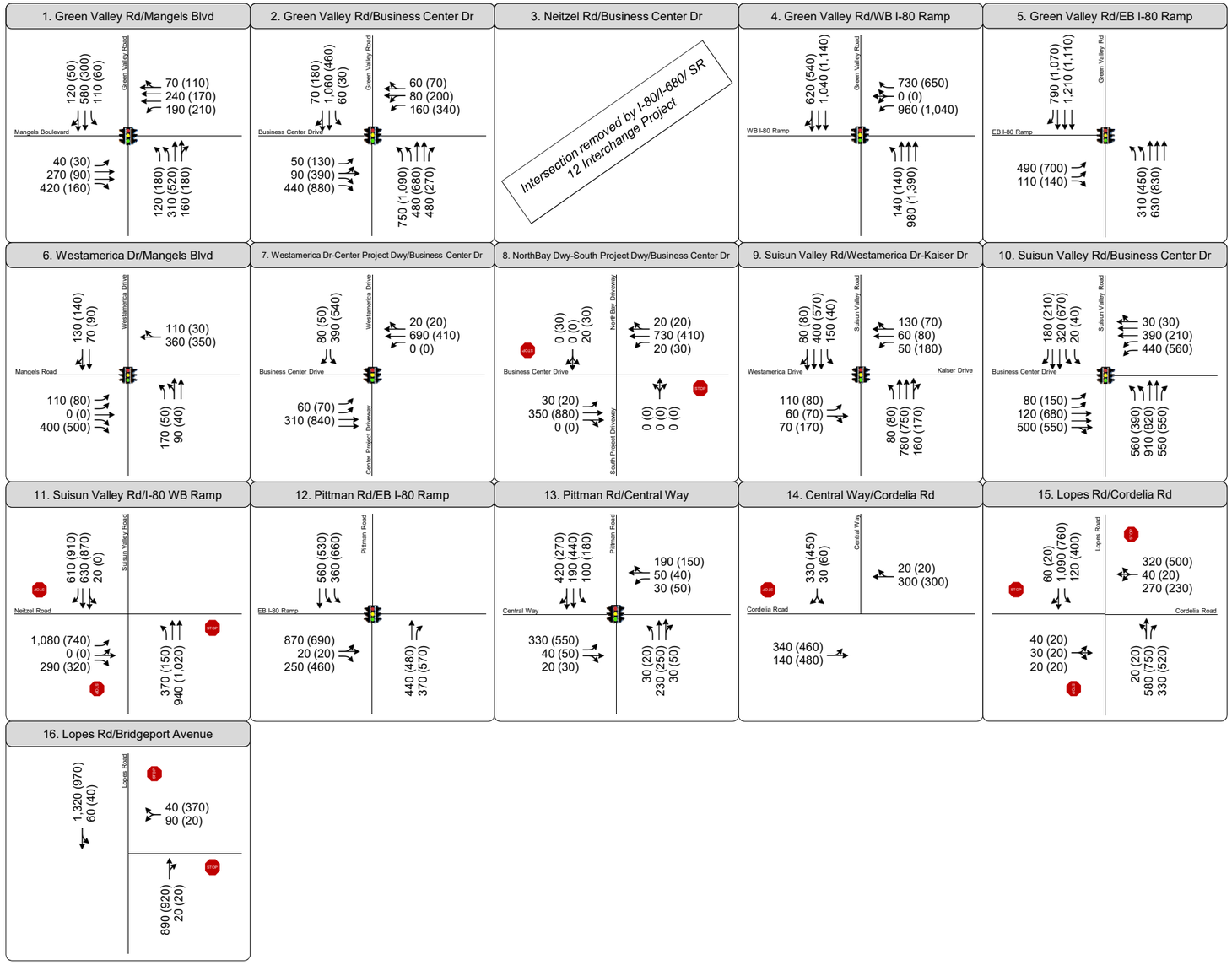
Trips generated from the proposed project (**Figure 10B** for Alternative 1, **Figure 11B** for Alternative 2) were added to the Cumulative conditions traffic projections (**Figure 17**) to develop traffic volumes for Cumulative with Project condition.

Similarly, trips generated from the proposed project (**Figure 10B** for Alternative 1, **Figure 11B** for Alternative 2) were added to the Cumulative plus Business Center Drive condition traffic projections (**Figure 18**) to develop traffic volumes for Cumulative plus Business Center Drive with Project condition.

The following figures present the Cumulative with Project Conditions traffic volumes.

- **Figure 19** – Cumulative with Project Alternative 1 (Apartments and Retail) Conditions
- **Figure 20**– Cumulative with Project Alternative 2 (Apartments and Fire Station) Conditions
- **Figure 21** – Cumulative plus Business Center Drive Extension with Project Alternative 1 (Apartments and Retail) Conditions
- **Figure 22** – Cumulative plus Business Center Drive Extension with Project Alternative 2 (Apartments and Fire Station) Conditions

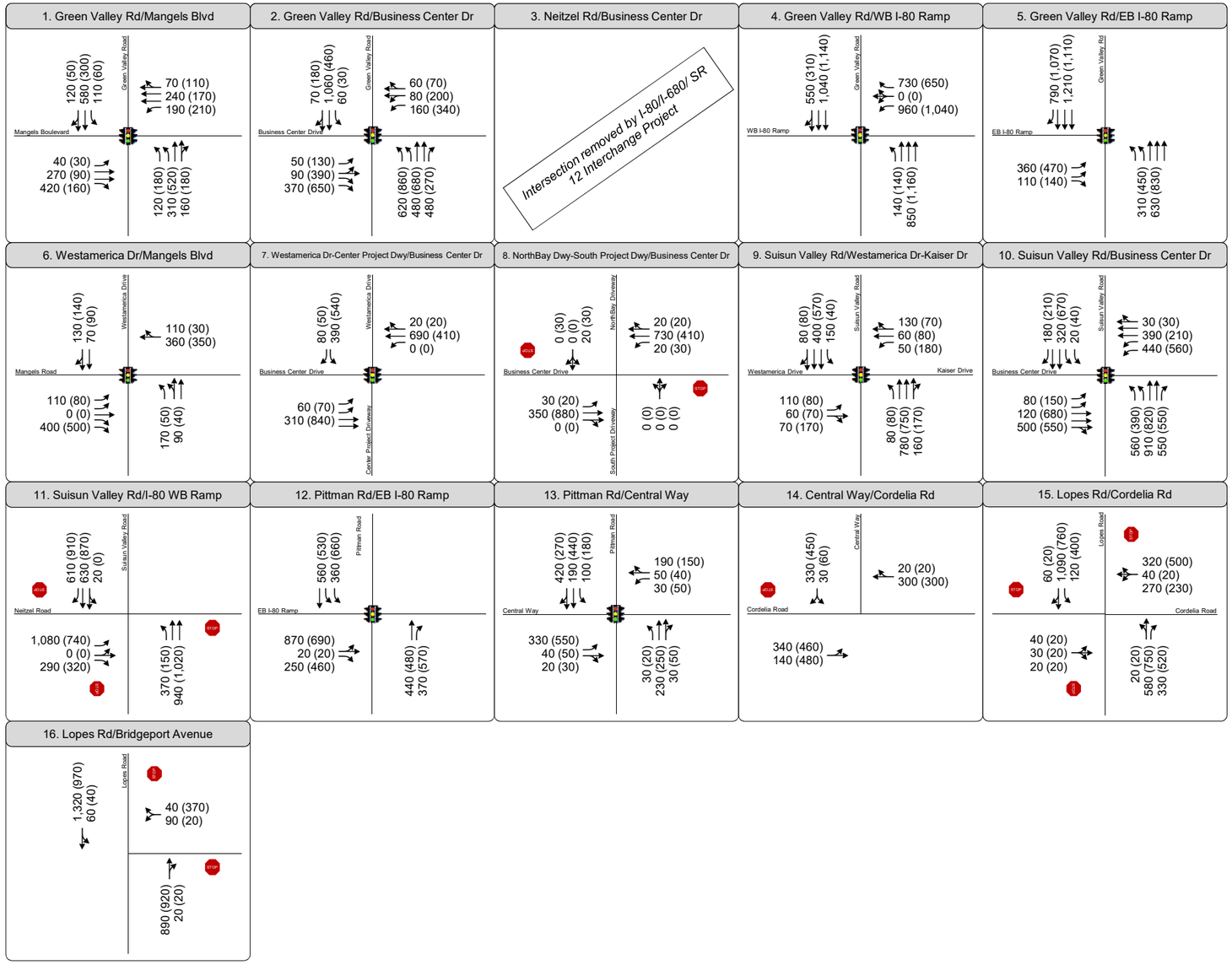
The forecasting described above does not take into consideration some foreseeable travel changes, including increased use of transportation network companies, such as Uber and Lyft, nor the potential for autonomous vehicles. Although the technology for autonomous vehicles is expected to be available over the planning horizon, the federal and State legal and policy frameworks are uncertain. Initial modeling of an autonomous future indicates that with automated and connected vehicles, the capacity of the existing transportation system would increase as vehicles can travel closer together; however, these efficiencies are only realized when a high percentage of vehicles on the roadway are automated and connected. There is also the potential for vehicle travel to increase with zero-occupancy vehicles on the roadway, off-setting any potential capacity benefits. Although the future baseline is uncertain, the project's incremental effect on that future baseline is expected to be similar to the analysis results presented below.



LEGEND

# Study Intersection	AM (PM) Peak Hour Traffic Volume
	Lane Configuration
	Stop Sign
	Signalized

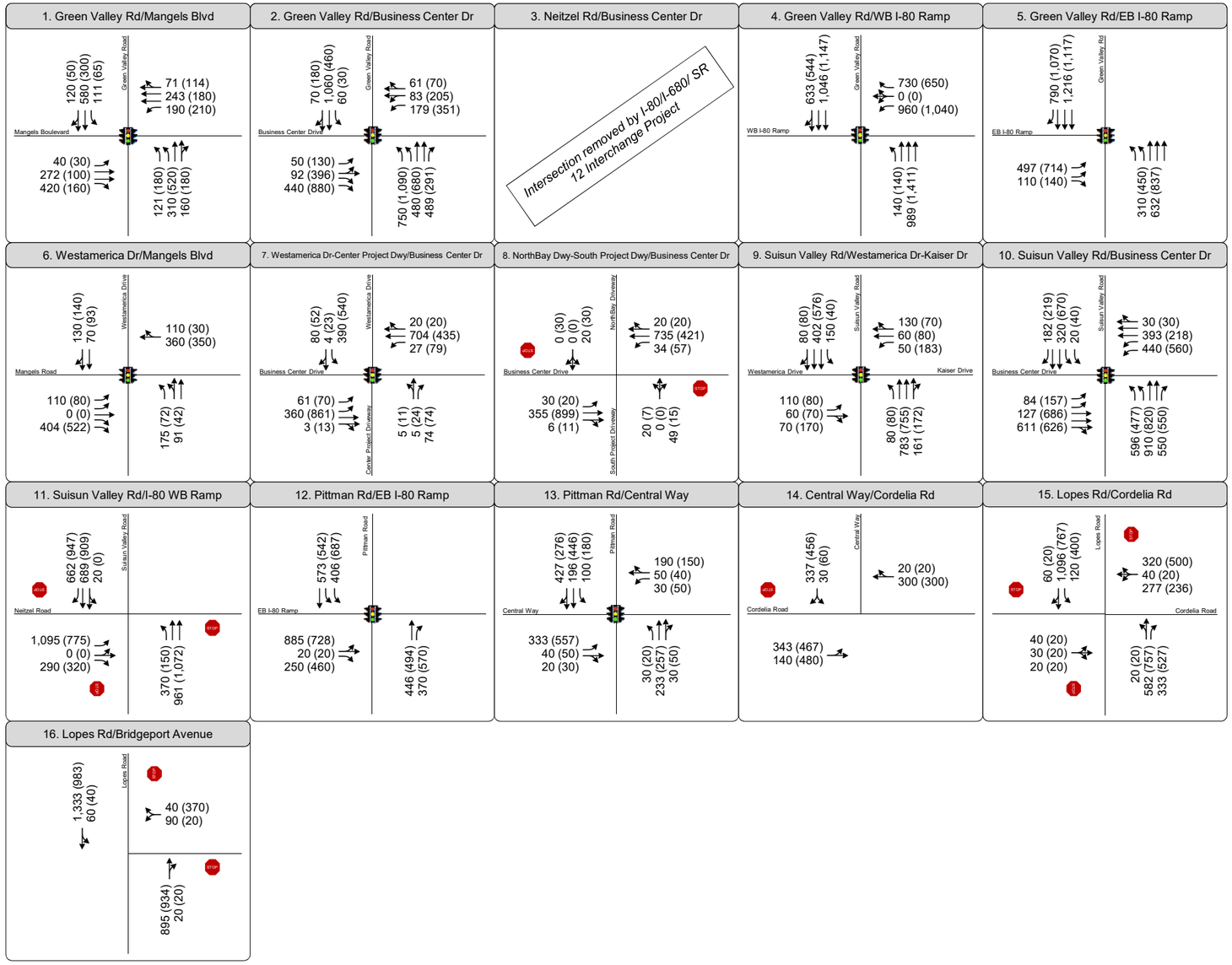
Figure 17
Cumulative without Project Conditions Peak Hour Intersection Traffic Volumes, Lane Configurations and Traffic Controls



LEGEND

# Study Intersection	AM (PM) Peak Hour Traffic Volume
	Lane Configuration
	Stop Sign
	Signalized

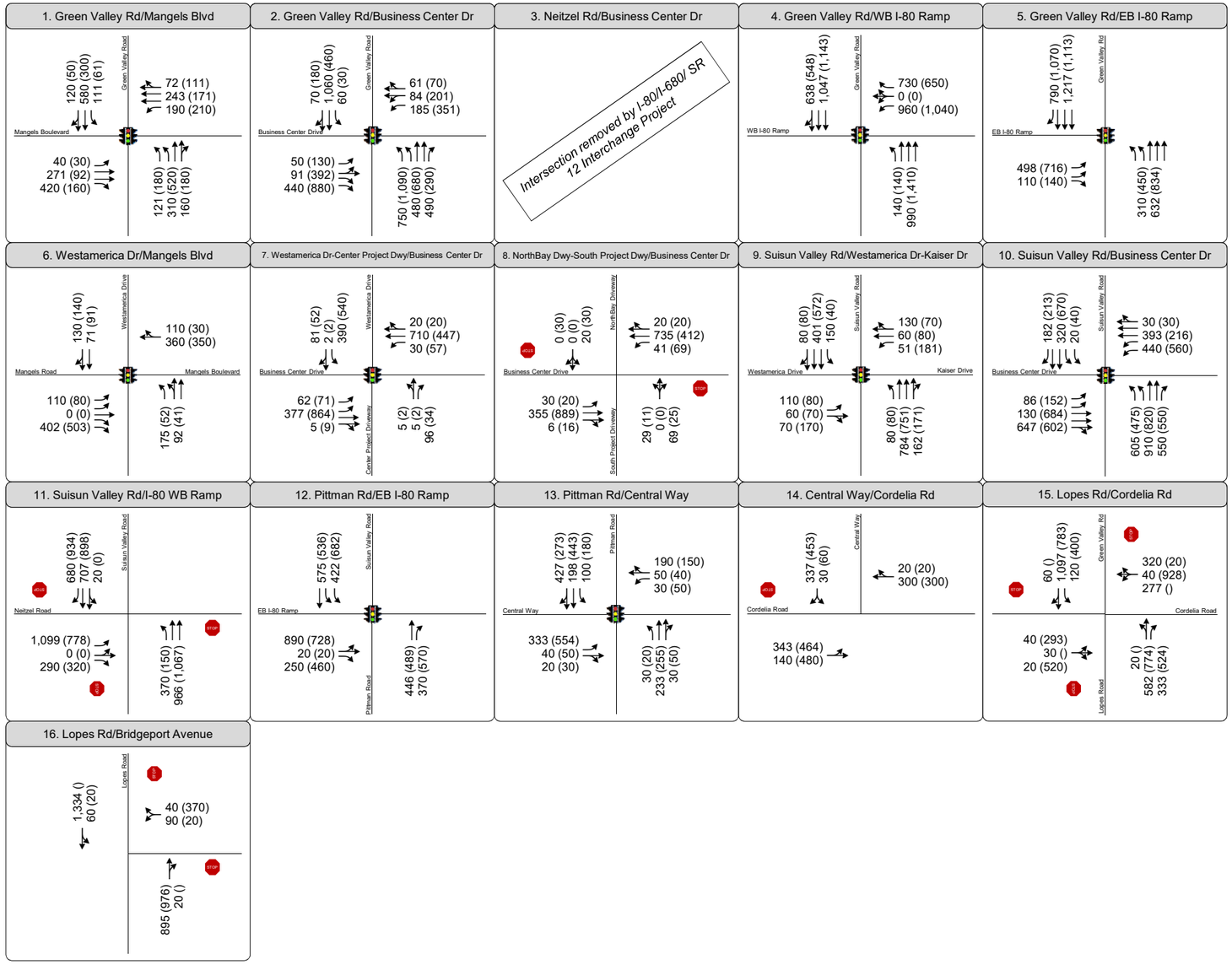
Figure 18
Cumulative plus Business Center Drive Extension without Project Conditions
Peak Hour Intersection Traffic Volumes, Lane Configurations and Traffic Controls



LEGEND

# Study Intersection	AM (PM) Peak Hour Traffic Volume
	Lane Configuration
	Stop Sign
	Signalized

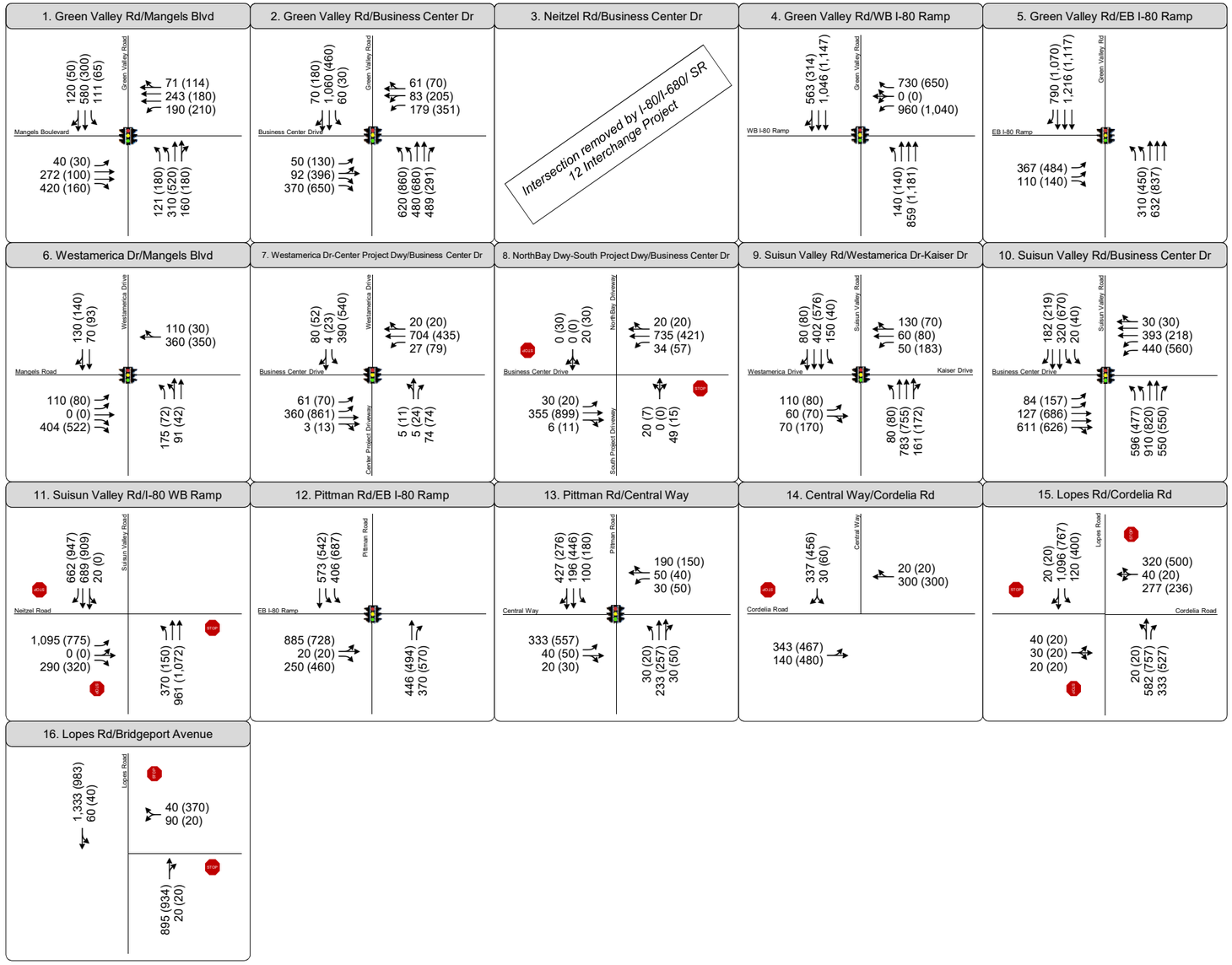
Figure 19
Cumulative with Project Alternative 1 (Apartments and Retail) Conditions
Peak Hour Intersection Traffic Volumes, Lane Configurations and Traffic Controls



LEGEND

# Study Intersection	AM (PM) Peak Hour Traffic Volume
	Lane Configuration
	Stop Sign
	Signalized

Figure 20
Cumulative with Project Alternative 2 (Apartments and Fire Station) Conditions
Peak Hour Intersection Traffic Volumes, Lane Configurations and Traffic Controls

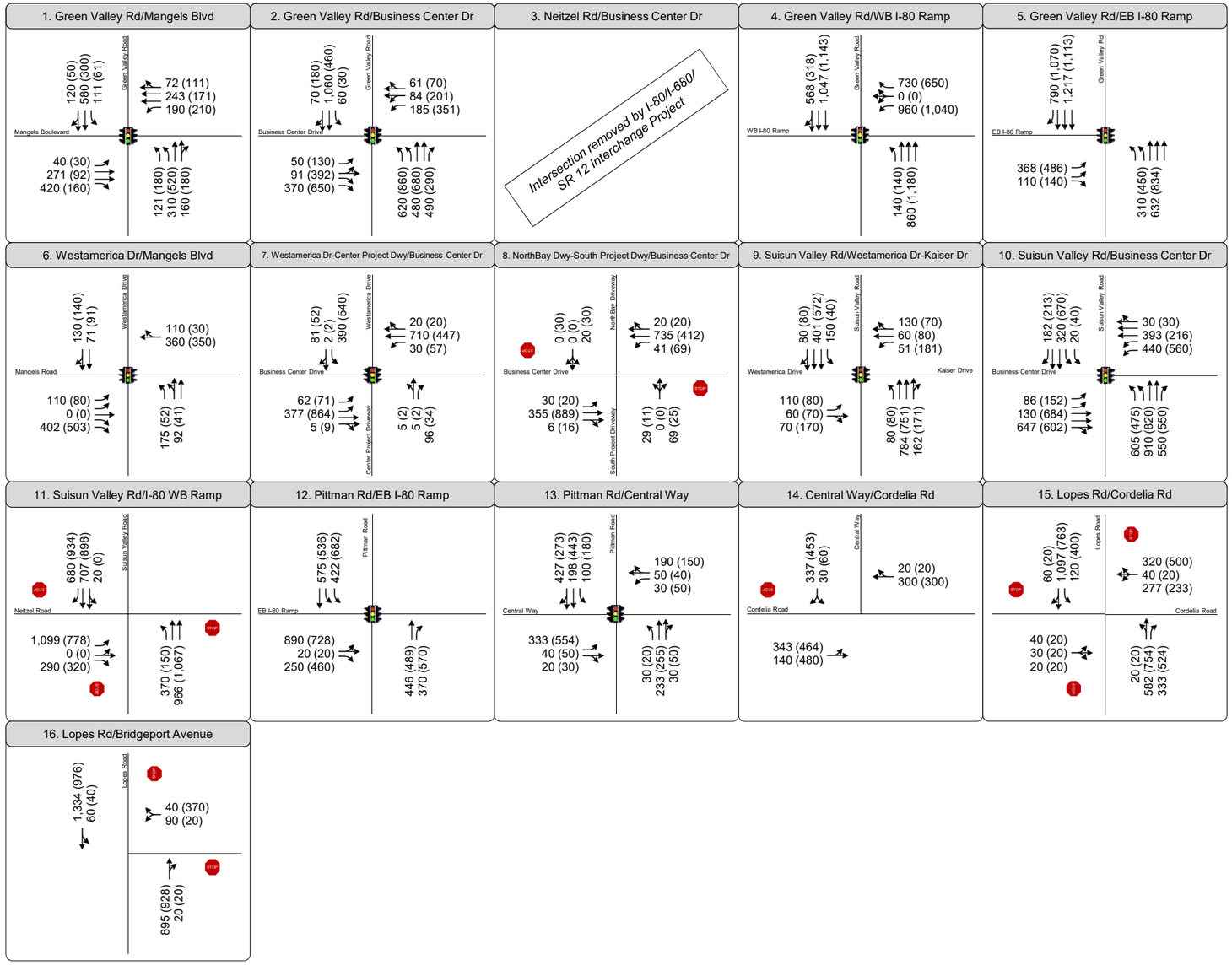


LEGEND

# Study Intersection	AM (PM) Peak Hour Traffic Volume
	Lane Configuration
	Stop Sign
	Signalized

Figure 21

Cumulative plus Business Center Drive Extension with Project Alternative 1 (Apartments and Retail) Conditions
Peak Hour Intersection Traffic Volumes, Lane Configurations and Traffic Controls



LEGEND

# Study Intersection	AM (PM) Peak Hour Traffic Volume
	Lane Configuration
	Stop Sign
	Signalized

Figure 22

Cumulative plus Business Center Drive Extension with Project Alternative 2 (Apartments and Fire Station) Conditions Peak Hour Intersection Traffic Volumes, Lane Configurations and Traffic Controls

7.4 CUMULATIVE WITH PROJECT INTERSECTION LEVELS OF SERVICE

The following subsection outlines the intersection operations analysis for both project alternatives.

7.4.1 ALTERNATIVE 1 (APARTMENTS AND RETAIL) SCENARIO

Intersection LOS was calculated for the following scenarios: Cumulative without Project, Cumulative with Project Alternative 1 (Apartments and Retail), Cumulative plus Business Center Drive without Project, and Cumulative plus Business Center Drive with Project Alternative 1 (Apartments and Retail).

The results of the analyses are used to identify potential project impacts to the roadway system.

Table 15 provides the results of the intersection LOS calculations, while **Appendix B** contains the corresponding calculation sheets. The changes in delay and LOS between Cumulative and Cumulative with Project conditions are used to identify significant impacts. Impact significance is discussed in **Section 7.6**. The PM peak hour time period forms the basis of the CEQA transportation impact analysis; the AM peak hour results are presented for informational purposes only.

The results of the LOS calculations indicate that the following intersections are projected to not meet their respective PM peak hour LOS standards under Cumulative without Project conditions, both without and with the Business Center Drive extension:

- Intersection 2: Business Center Drive/Green Valley Road
- Intersection 10: Business Center Drive/Suisun Valley Road
- Intersection 11: I-80 westbound ramps-Neitzel Road/Suisun Valley Road
- Intersection 12: I-80 eastbound ramps/Pittman Road
- Intersection 14: Central Way/Cordelia Road
- Intersection 15: Lopes Road/Cordelia Road
- Intersection 16: Lopes Road/Bridgeport Avenue

The addition of Alternative 1 project traffic would worsen the operations of the above intersections, but would not result in new PM peak hour LOS deficiencies.

TABLE 15: CUMULATIVE CONDITIONS INTERSECTION LEVELS OF SERVICE – ALTERNATIVE 1

	Intersection	Control Type[1]	Peak Hour[2]	Without Business Center Drive Extension				Plus Business Center Drive Extension			
				Cumulative without Project Conditions		Cumulative with Project Conditions		Cumulative without Project Conditions		Cumulative with Project Conditions	
				Delay[3]	LOS[4]	Delay[3]	LOS[4]	Delay[3]	LOS[4]	Delay[3]	LOS[4]
1	Mangels Boulevard/ Green Valley Road	Signalized	AM PM	37.5 24.7	D C	37.7 25.0	D C	36.4 24.7	D C	37.7 25.0	D C
2	Business Center Drive/ Green Valley Road	Signalized	AM PM	>120 **>120**	F **F**	>120 **>120**	F **F**	>120 **>120**	F **F**	>120 **>120**	F **F**
3	Business Center Drive/ Neitzel Road	*Intersection Removed by I-80/I-680/SR 12 Interchange Improvement Project*									
4	I-80 westbound ramps/ Green Valley Road	Signalized	AM PM	36.9 38.2	D D	37.8 38.5	D D	33.8 34.7	C C	34.5 34.8	C C
5	I-80 eastbound ramps/ Green Valley Road	Signalized	AM PM	16.5 41.9	B D	16.7 48.8	B D	14.1 34.5	B C	14.3 34.9	B C
6	Mangels Boulevard/ Westamerica Drive	Signalized	AM PM	18.5 12.6	B B	18.5 12.9	B B	18.5 12.6	B B	18.5 12.9	B B
7	Business Center Drive/ Center Project Driveway-Westamerica Drive	Signalized	AM PM	13.2 14.9	B B	17.9 31.0	B C	13.2 14.9	B B	17.8 31.0	B C
8	Business Center Drive/ South Project Driveway-NorthBay Driveway	SSSC	AM PM	0.9 (31.4) 1.3 (21.6)	A (D) A (C)	1.8 (36.4) 1.9 (26.0)	A (E) A (D)	0.9 (31.4) 1.3 (21.6)	A (D) A (C)	1.8 (36.4) 1.9 (26.0)	A (E) A (D)
9	Westamerica Drive/ Suisun Valley Road	Signalized	AM PM	17.0 20.6	B C	17.0 20.9	B C	17.0 20.8	B C	17.0 20.9	B C

TABLE 15: CUMULATIVE CONDITIONS INTERSECTION LEVELS OF SERVICE – ALTERNATIVE 1

Intersection		Control Type[1]	Peak Hour[2]	Without Business Center Drive Extension				Plus Business Center Drive Extension			
				Cumulative without Project Conditions		Cumulative with Project Conditions		Cumulative without Project Conditions		Cumulative with Project Conditions	
				Delay[3]	LOS[4]	Delay[3]	LOS[4]	Delay[3]	LOS[4]	Delay[3]	LOS[4]
10	Business Center Drive/ Suisun Valley Road	Signalized	AM PM	32.5 **64.1**	C **E**	39.3 **75.6**	D **E**	32.5 **64.1**	C **E**	39.3 **75.6**	D **E**
11	I-80 westbound ramps- Neitzel Road/Suisun Valley Road	AWSC	AM PM	>120 **>120**	F **F**	>120 **>120**	F **F**	>120 **>120**	F **F**	>120 **>120**	F **F**
12	I-80 eastbound ramps/ Pittman Road	Signalized	AM PM	59.9 **59.6**	E **E**	69.2 **68.1**	E **E**	59.9 **59.6**	E **E**	69.2 **68.1**	E **E**
13	Central Way/ Pittman Road	Signalized	AM PM	19.0 24.2	B C	19.0 24.7	B C	19.0 24.2	B C	19.0 24.7	B C
14	Central Way/ Cordelia Road	SSSC	AM PM	11.0 (26.9) **>120 (>120)**	B (D) **F (F)**	11.4 (27.8) **>120 (>120)**	B (D) **F (F)**	11.0 (26.9) **>120 (>120)**	B (D) **F (F)**	11.4 (27.8) **>120 (>120)**	B (D) **F (F)**
15	Lopes Road/ Cordelia Road	SSSC[5]	AM PM	>120 (>120) **>120 (>120)**	F (F) **F (F)**	>120 (>120) **>120 (>120)**	F (F) **F (F)**	>120 (>120) **>120 (>120)**	F (F) **F (F)**	>120 (>120) **>120 (>120)**	F (F) **F (F)**
16	Lopes Road/ Bridgeport Avenue	SSSC	AM PM	>120 (>120) **>120 (>120)**	F (F) **F (F)**	>120 (>120) **>120 (>120)**	F (F) **F (F)**	>120 (>120) **>120 (>120)**	F (F) **F (F)**	>120 (>120) **>120 (>120)**	F (F) **F (F)**

Notes:
1. AWSC = All-Way Stop-Controlled, SSSC = Side-Street Stop-Controlled
2. AM = Weekday morning peak hour, PM = Weekday evening peak hour
3. Whole intersection average delay reported for signalized intersections and all-way stop-controlled intersections. Side-street stop-controlled delay presented as Whole Intersection Average Delay (Worst Movement Delay). Delay calculated per *HCM 2010* methodologies.
4. LOS designation per *HCM 2010*.
5. Analyzed as side-street stop-controlled after applying approximation process described in Section 2.5.3.
Bold indicates unacceptable operations. **Bold and highlighted** indicates a significant impact.
Source: Fehr & Peers, August 2019.

7.4.2 ALTERNATIVE 2 (APARTMENTS AND FIRE STATION) SCENARIO

Intersection LOS was calculated for the following scenarios: Cumulative without Project, Cumulative with Project Alternative 2 (Apartments and Fire Station), Cumulative plus Business Center Drive without Project, and Cumulative plus Business Center Drive with Project Alternative 2 (Apartments and Fire Station).

The results of the above analyses are used to identify potential project impacts to the roadway system.

Table 16 provides the results of the intersection LOS calculations, while **Appendix B** contains the corresponding calculation sheets. The changes in delay and LOS between Cumulative and Cumulative with Project conditions are used to identify significant impacts. Impact significance is discussed in **Section 7.6**. The PM peak hour time period forms the basis of the CEQA transportation impact analysis; the AM peak hour results are presented for informational purposes only.

The results of the LOS calculations indicate that the following intersections are projected to not meet their respective PM peak hour LOS standards under Cumulative without Project conditions, both without and with the Business Center Drive extension:

- Intersection 2: Business Center Drive/Green Valley Road
- Intersection 10: Business Center Drive/Suisun Valley Road
- Intersection 11: I-80 westbound ramps-Neitzel Road/Suisun Valley Road
- Intersection 12: I-80 eastbound ramps/Pittman Road
- Intersection 14: Central Way/Cordelia Road
- Intersection 15: Lopes Road/Cordelia Road
- Intersection 16: Lopes Road/Bridgeport Avenue

The addition of Alternative 2 project traffic would worsen the operations of the above intersections, but would not result in new PM peak hour LOS deficiencies.

TABLE 16: CUMULATIVE CONDITIONS INTERSECTION LEVELS OF SERVICE – ALTERNATIVE 2

	Intersection	Control Type[1]	Peak Hour[2]	Without Business Center Drive Extension				Plus Business Center Drive Extension			
				Cumulative without Project Conditions		Cumulative with Project Conditions		Cumulative without Project Conditions		Cumulative with Project Conditions	
				Delay[3]	LOS[4]	Delay[3]	LOS[4]	Delay[3]	LOS[4]	Delay[3]	LOS[4]
1	Mangels Boulevard/ Green Valley Road	Signalized	AM PM	37.5 24.7	D C	37.7 24.7	D C	36.4 24.7	D C	37.7 24.7	D C
2	Business Center Drive/ Green Valley Road	Signalized	AM PM	>120 **>120**	F **F**	>120 **>120**	F **F**	>120 **>120**	F **F**	>120 **>120**	F **F**
3	Business Center Drive/ Neitzel Road	*Intersection Removed by I-80/I-680/SR 12 Interchange Improvement Project*									
4	I-80 westbound ramps/ Green Valley Road	Signalized	AM PM	36.9 38.2	D D	38.3 38.5	D D	33.8 34.7	C C	34.6 34.8	C C
5	I-80 eastbound ramps/ Green Valley Road	Signalized	AM PM	16.5 41.9	B D	16.7 48.9	B D	14.1 34.5	B C	14.3 35.6	B D
6	Mangels Boulevard/ Westamerica Drive	Signalized	AM PM	18.5 12.6	B B	18.6 12.7	B B	18.5 12.6	B B	18.6 12.7	B B
7	Business Center Drive/ Center Project Driveway-Westamerica Drive	Signalized	AM PM	13.2 14.9	B B	18.1 26.3	B C	13.2 14.9	B B	18.1 26.3	B C
8	Business Center Drive/ South Project Driveway-NorthBay Driveway	SSSC	AM PM	0.9 (31.4) 1.3 (21.6)	A (D) A (C)	2.3 (38.8) 2.3 (27.4)	A (E) A (D)	0.9 (31.4) 1.3 (21.6)	A (D) A (C)	2.3 (38.8) 2.3 (27.4)	A (E) A (D)
9	Westamerica Drive/ Suisun Valley Road	Signalized	AM PM	17.0 20.6	B C	17.0 20.8	B C	17.0 20.8	B C	17.0 20.8	B C

TABLE 16: CUMULATIVE CONDITIONS INTERSECTION LEVELS OF SERVICE – ALTERNATIVE 2

Intersection		Control Type[1]	Peak Hour[2]	Without Business Center Drive Extension				Plus Business Center Drive Extension			
				Cumulative without Project Conditions		Cumulative with Project Conditions		Cumulative without Project Conditions		Cumulative with Project Conditions	
				Delay[3]	LOS[4]	Delay[3]	LOS[4]	Delay[3]	LOS[4]	Delay[3]	LOS[4]
10	Business Center Drive/ Suisun Valley Road	Signalized	AM PM	32.5 **64.1**	C **E**	42.0 **73.0**	D **E**	32.5 **64.1**	C **E**	42.0 **73.0**	D **E**
11	I-80 westbound ramps- Neitzel Road/Suisun Valley Road	AWSC	AM PM	>120 **>120**	F **F**	>120 **>120**	F **F**	>120 **>120**	F **F**	>120 **>120**	F **F**
12	I-80 eastbound ramps/ Pittman Road	Signalized	AM PM	59.9 **59.6**	E **E**	72.9 **67.3**	E **E**	59.9 **59.6**	E **E**	72.9 **67.3**	E **E**
13	Central Way/ Pittman Road	Signalized	AM PM	19.0 24.2	B C	19.0 24.5	B C	19.0 24.2	B C	19.0 24.5	B C
14	Central Way/ Cordelia Road	SSSC	AM PM	11.0 (26.9) **>120 (>120)**	B (D) **F (F)**	11.4 (27.8) **>120 (>120)**	B (D) **F (F)**	11.0 (26.9) **>120 (>120)**	B (D) **F (F)**	11.4 (27.8) **>120 (>120)**	B (D) **F (F)**
15	Lopes Road/ Cordelia Road	SSSC[5]	AM PM	>120 (>120) **>120 (>120)**	F (F) **F (F)**	>120 (>120) **>120 (>120)**	F (F) **F (F)**	>120 (>120) **>120 (>120)**	F (F) **F (F)**	>120 (>120) **>120 (>120)**	F (F) **F (F)**
16	Lopes Road/ Bridgeport Avenue	SSSC	AM PM	>120 (>120) **>120 (>120)**	F (F) **F (F)**	>120 (>120) **>120 (>120)**	F (F) **F (F)**	>120 (>120) **>120 (>120)**	F (F) **F (F)**	>120 (>120) **>120 (>120)**	F (F) **F (F)**

Notes:
1. AWSC = All-Way Stop-Controlled, SSSC = Side-Street Stop-Controlled
2. AM = Weekday morning peak hour, PM = Weekday evening peak hour
3. Whole intersection average delay reported for signalized intersections and all-way stop-controlled intersections. Side-street stop-controlled delay presented as Whole Intersection Average Delay (Worst Movement Delay). Delay calculated per *HCM 2010* methodologies.
4. LOS designation per *HCM 2010*.
5. Analyzed as side-street stop-controlled after applying approximation process described in Section 2.5.3.
Bold indicates unacceptable operations. **Bold and highlighted** indicates a significant impact.
Source: Fehr & Peers, August 2019.

7.5 CUMULATIVE WITH PROJECT SIGNAL WARRANT ANALYSIS

The peak-hour signal warrants (Warrant 3A and Warrant 3B) from the *Manual on Uniform Traffic Control Devices* (MUTCD) were used to evaluate unsignalized intersections that operate unacceptably under Cumulative and Cumulative with Project conditions to determine if a traffic signal is warranted (see **Appendix C**). The following unsignalized intersections, which operate at unacceptable levels in the Cumulative without Project condition, also meet Peak Hour Signal Warrants in the Existing, EPAP and/or Cumulative condition:

- Intersection 11: I-80 westbound ramps-Neitzel Road/Suisun Valley Road
- Intersection 14: Central Way/Cordelia Road
- Intersection 15: Lopes Road/Cordelia Road
- Intersection 16: Lopes Road/Bridgeport Avenue

The above intersections would continue to meet the Peak Hour Signal Warrant under both project alternatives in the Cumulative condition.

7.6 CUMULATIVE WITH PROJECT INTERSECTION IMPACTS

The following subsection outlines the intersection operations impacts for both project alternatives.

7.6.1 ALTERNATIVE 1 (APARTMENTS AND RETAIL) SCENARIO

This section of the report evaluates the Cumulative with Project Alternative 1 Conditions PM peak hour intersection LOS results presented in **Table 15** against the City of Fairfield criteria for significant intersection impacts.

7.6.1.1 Cumulative with Project Alternative 1 Conditions

The proposed Alternative 1 project could result in a **significant impact** to intersection operations at the following intersections:

- Intersection 2: Business Center Drive/Green Valley Road
- Intersection 10: Business Center Drive/Suisun Valley Road

- Intersection 11: I-80 westbound ramps-Neitzel Road/Suisun Valley Road
- Intersection 12: I-80 eastbound ramps/Pittman Road
- Intersection 14: Central Way/Cordelia Road
- Intersection 15: Lopes Road/Cordelia Road
- Intersection 16: Lopes Road/Bridgeport Avenue

Intersection 2: Business Center Drive/Green Valley Road – The intersection is projected to operate at a deficient LOS F during the PM peak hour in the Cumulative without Project condition. The addition of project traffic would result in an increase in the whole-intersection average peak hour delay of less than 5.0 seconds. Therefore, based on the significance criteria in **Section 2.7.1.1**, this impact is considered ***less-than-significant*** and no mitigation is required.

Intersection 10: Business Center Drive/Suisun Valley Road – The addition of project trips to Business Center Drive/Suisun Valley Road in the PM peak hour would exacerbate LOS F operations in the PM peak hour by increasing the average control delay at the intersection by more than 5.0 seconds. Therefore, based on the significance criteria in **Section 2.7.1.1**, the impact to this intersection in the PM peak hour is a **significant impact**. Mitigation measures to alleviate this impact are presented in **Section 7.8.1.**

Intersection 11: I-80 westbound ramps-Neitzel Road/Suisun Valley Road – The addition of project trips to I-80 westbound ramps-Neitzel Road/Suisun Valley Road in the PM peak hour would exacerbate LOS F operations in the PM peak hour by increasing the average control delay at the intersection by more than 5.0 seconds. As noted in **Section 7.5**, the Peak Hour Signal Warrant is met at this location for the PM peak hour. Therefore, the impact to this intersection in the PM peak hour is a **significant impact**. Mitigation measures to alleviate this impact are presented in **Section 7.8.1.**

Intersection 12: I-80 eastbound ramps/Pittman Road - The addition of project trips to I-80 eastbound ramps/Pittman Road in the PM peak hour would exacerbate LOS E operations in the PM peak hour by increasing the average control delay at the intersection by more than 5.0 seconds. Therefore, based on the significance criteria in **Section 2.7.1.1**, the impact to this intersection in the PM peak hour is a **significant impact**. Mitigation measures to alleviate this impact are presented in **Section 7.8.1.**

Intersection 14: Central Way/Cordelia Road – Although this unsignalized intersection operates at an overall LOS F during the PM peak hour, the proposed project would add less than 10 trips to the southbound approach in the PM peak hour. Therefore the impact at this location in the PM peak hour is ***less-than-significant*** based on the 10 trips added threshold described in **Section 2.7.1.3**. Based on the significance criteria, no mitigation is required.

Intersection 15: Lopes Road/Cordelia Road – Although this intersection operates at an overall LOS F during the PM peak hour, and peak hour traffic signal warrants are met, the proposed project would add less than 10 trips to the westbound approach in the PM peak hour. Therefore the impact at this location in the PM peak hour is ***less-than-significant*** based on the 10 trips added threshold described in **Section 2.7.1.3**. Based on the significance criteria, no mitigation is required.

Intersection 16: Lopes Road/Bridgeport Avenue - The addition of project trips to Lopes Road/Bridgeport Avenue in the PM peak hour would exacerbate LOS F operations in the PM peak hour by adding more than 10 trips to the northbound through movement at the intersection. As noted in **Section 7.5**, the Peak Hour Signal Warrant is met at this location. Therefore, the impact to this intersection in the PM peak hour is a **significant impact**. Mitigation measures to alleviate this impact are presented in **Section 7.8.1.**

The results of the intersection operations analysis indicate that other study intersections would continue to operate at LOS D or better after the addition of project trips. Based on the impact criteria presented in **Section 2.7.1**, the project's impacts to these other study intersections under Cumulative with Project Conditions are ***less-than-significant***.

7.6.1.2 Cumulative plus Business Center Drive Extension with Project Alternative 1 Conditions

The impacts under the Cumulative plus Business Center Drive Extension with Project condition are largely identical to the impacts under the Cumulative (without Business Center Drive Extension) with Project condition. The proposed project could result in a **significant impact** to intersection operations at the following intersections:

- Intersection 2: Business Center Drive/Green Valley Road
- Intersection 10: Business Center Drive/Suisun Valley Road
- Intersection 11: I-80 westbound ramps-Neitzel Road/Suisun Valley Road
- Intersection 12: I-80 eastbound ramps/Pittman Road
- Intersection 14: Central Way/Cordelia Road
- Intersection 15: Lopes Road/Cordelia Road
- Intersection 16: Lopes Road/Bridgeport Avenue

Intersection 2: Business Center Drive/Green Valley Road – The intersection is projected to operate at a deficient LOS F during the PM peak hour in the Cumulative plus Business Center Drive Extension without Project condition. The addition of project traffic would result in an increase in the whole-intersection

average peak hour delay of less than 5.0 seconds. Therefore, based on the significance criteria in **Section 2.7.1.1**, this impact is considered ***less-than-significant*** and no mitigation is required.

Intersection 10: Business Center Drive/Suisun Valley Road – The addition of project trips to Business Center Drive/Suisun Valley Road in the PM peak hour would exacerbate LOS F operations in the PM peak hour by increasing the average control delay at the intersection by more than 5.0 seconds. Therefore, based on the significance criteria in **Section 2.7.1.1**, the impact to this intersection in the PM peak hour is a **significant impact**. Mitigation measures to alleviate this impact are presented in **Section 7.8.1.**

Intersection 11: I-80 westbound ramps-Neitzel Road/Suisun Valley Road – The addition of project trips to I-80 westbound ramps-Neitzel Road/Suisun Valley Road in the PM peak hour would exacerbate LOS F operations in the PM peak hour by increasing the average control delay at the intersection by more than 5.0 seconds. As noted in **Section 7.5**, the Peak Hour Signal Warrant is met at this location for the PM peak hour. Therefore, the impact to this intersection in the PM peak hour is a **significant impact**. Mitigation measures to alleviate this impact are presented in **Section 7.8.1.**

Intersection 12: I-80 eastbound ramps/Pittman Road - The addition of project trips to I-80 eastbound ramps/Pittman Road in the PM peak hour would exacerbate LOS E operations in the PM peak hour by increasing the average control delay at the intersection by more than 5.0 seconds. Therefore, based on the significance criteria in **Section 2.7.1.1**, the impact to this intersection in the PM peak hour is a **significant impact**. Mitigation measures to alleviate this impact are presented in **Section 7.8.1.**

Intersection 14: Central Way/Cordelia Road – Although this unsignalized intersection operates at an overall LOS F during the PM peak hour, the proposed project would add less than 10 trips to the southbound approach in the PM peak hour. Therefore the impact at this location in the PM peak hour is ***less-than-significant*** based on the 10 trips added threshold described in **Section 2.7.1.3**. Based on the significance criteria, no mitigation is required.

Intersection 15: Lopes Road/Cordelia Road – Although this intersection operates at an overall LOS F during the PM peak hour, and peak hour traffic signal warrants are met, the proposed project would add less than 10 trips to the westbound approach in the PM peak hour. Therefore the impact at this location in the PM peak hour is ***less-than-significant*** based on the 10 trips added threshold described in **Section 2.7.1.3**. Based on the significance criteria, no mitigation is required.

Intersection 16: Lopes Road/Bridgeport Avenue - The addition of project trips to Lopes Road/Bridgeport Avenue in the PM peak hour would exacerbate LOS F operations in the PM peak hour by adding more than 10 trips to the northbound through movement at the intersection. As noted in **Section 7.5**, the Peak Hour

Signal Warrant is met at this location. Therefore, the impact to this intersection in the PM peak hour is a **significant impact**. Mitigation measures to alleviate this impact are presented in **Section 7.8.1.**

The results of the intersection operations analysis indicate that other study intersections would continue to operate at LOS D or better after the addition of project trips. Based on the impact criteria presented in **Section 2.7.1**, the project's impacts to these other study intersections under Cumulative plus Business Center Drive Extension with Project Conditions are ***less-than-significant***.

7.6.2 ALTERNATIVE 2 (APARTMENTS AND FIRE STATION) SCENARIO

This section of the report evaluates the Cumulative with Project Alternative 2 Conditions PM peak hour intersection LOS results presented in **Table 16** against the City of Fairfield criteria for significant intersection impacts.

7.6.2.1 Cumulative with Project Alternative 2 Conditions

The proposed Alternative project could result in a **significant impact** to intersection operations at the following intersections:

- Intersection 2: Business Center Drive/Green Valley Road
- Intersection 10: Business Center Drive/Suisun Valley Road
- Intersection 11: I-80 westbound ramps-Neitzel Road/Suisun Valley Road
- Intersection 12: I-80 eastbound ramps/Pittman Road
- Intersection 14: Central Way/Cordelia Road
- Intersection 15: Lopes Road/Cordelia Road
- Intersection 16: Lopes Road/Bridgeport Avenue

Intersection 2: Business Center Drive/Green Valley Road – The intersection is also projected to operate at a deficient LOS F during the PM peak hour in the Cumulative without Project condition. The addition of project traffic would result in an increase in the whole-intersection average peak hour delay of less than 5.0 seconds. Therefore, based on the significance criteria in **Section 2.7.1.1**, this impact is considered ***less-than-significant*** and no mitigation is required.

Intersection 10: Business Center Drive/Suisun Valley Road - The addition of project trips to Business Center Drive/Suisun Valley Road in the PM peak hour would exacerbate LOS F operations in the PM peak hour by increasing the average control delay at the intersection by more than 5.0 seconds. Therefore, based on the

significance criteria in **Section 2.7.1.1**, the impact to this intersection in the PM peak hour is a **significant impact**. Mitigation measures to alleviate this impact are presented in **Section 7.8.2.**

Intersection 11: I-80 westbound ramps-Neitzel Road/Suisun Valley Road – The addition of project trips to I-80 westbound ramps-Neitzel Road/Suisun Valley Road in the PM peak hour would exacerbate LOS F operations in the PM peak hour by increasing the average control delay at the intersection by more than 5.0 seconds. As noted in **Section 7.5**, the Peak Hour Signal Warrant is met at this location for the PM peak hour. Therefore, the impact to this intersection in the PM peak hour is a **significant impact**. Mitigation measures to alleviate this impact are presented in **Section 7.8.2.**

Intersection 12: I-80 eastbound ramps/Pittman Road - The addition of project trips to I-80 eastbound ramps/Pittman Road in the PM peak hour would exacerbate LOS E operations in the PM peak hour by increasing the average control delay at the intersection by more than 5.0 seconds. Therefore, based on the significance criteria in **Section 2.7.1.1**, the impact to this intersection is a **significant impact**. Mitigation measures to alleviate this impact are presented in **Section 7.8.2.**

Intersection 14: Central Way/Cordelia Road – Although this unsignalized intersection operates at an overall LOS F during the PM peak hour, the proposed project would add less than 10 trips to the southbound approach in the PM peak hour. Therefore the impact at this location in the PM peak hour is ***less-than-significant*** based on the 10 trips added threshold described in **Section 2.7.1.3**. Based on the significance criteria, no mitigation is required.

Intersection 15: Lopes Road/Cordelia Road – Although this intersection operates at an overall LOS F during the PM peak hour, and peak hour traffic signal warrants are met, the proposed project would add less than 10 trips to the westbound approach in the PM peak hour. Therefore the impact at this location in the PM peak hour is ***less-than-significant*** based on the 10 trips added threshold described in **Section 2.7.1.3**. Based on the significance criteria, no mitigation is required.

Intersection 16: Lopes Road/Bridgeport Avenue - Although this intersection operates at an overall LOS F in the PM peak hour, and peak hour traffic signal warrants are met, the proposed project would add less than 10 trips to the northbound approach in the PM peak hour**.** Therefore the impact at this location in the PM peak hour is ***less-than-significant*** based on the 10 trips added threshold described in **Section 2.7.1.3**. Based on the significance criteria, no mitigation is required.

The results of the intersection operations analysis indicate that other study intersections would continue to operate at LOS D or better after the addition of project trips. Based on the impact criteria presented in **Section 2.7.1**, the project's impacts to these other study intersections under Cumulative with Project Conditions are ***less-than-significant***.

7.6.2.2 Cumulative plus Business Center Drive Extension with Project Alternative 2 Conditions

The impacts under the Cumulative plus Business Center Drive Extension with Project condition are largely identical to the impacts under the Cumulative (without Business Center Drive Extension) with Project condition. The proposed project could result in a **significant impact** to intersection operations at the following intersections:

- Intersection 2: Business Center Drive/Green Valley Road
- Intersection 10: Business Center Drive/Suisun Valley Road
- Intersection 11: I-80 westbound ramps-Neitzel Road/Suisun Valley Road
- Intersection 12: I-80 eastbound ramps/Pittman Road
- Intersection 14: Central Way/Cordelia Road
- Intersection 15: Lopes Road/Cordelia Road
- Intersection 16: Lopes Road/Bridgeport Avenue

Intersection 2: Business Center Drive/Green Valley Road – The intersection is also projected to operate at a deficient LOS F during the PM peak hour in the Cumulative plus Business Center Drive Extension without Project condition. The addition of project traffic would result in an increase in the whole-intersection average peak hour delay of less than 5.0 seconds. Therefore, based on the significance criteria in **Section 2.7.1.1**, this impact is considered ***less-than-significant*** and no mitigation is required.

Intersection 10: Business Center Drive/Suisun Valley Road - The addition of project trips to Business Center Drive/Suisun Valley Road in the PM peak hour would exacerbate LOS F operations in the PM peak hour by increasing the average control delay at the intersection by more than 5.0 seconds. Therefore, based on the significance criteria in **Section 2.7.1.1**, the impact to this intersection in the PM peak hour is a **significant impact**. Mitigation measures to alleviate this impact are presented in **Section 7.8.2.**

Intersection 11: I-80 westbound ramps-Neitzel Road/Suisun Valley Road – The addition of project trips to I-80 westbound ramps-Neitzel Road/Suisun Valley Road in the PM peak hour would exacerbate LOS F operations in the PM peak hour by increasing the average control delay at the intersection by more than 5.0 seconds. As noted in **Section 7.5**, the Peak Hour Signal Warrant is met at this location for the PM peak hour. Therefore, the impact to this intersection in the PM peak hour is a **significant impact**. Mitigation measures to alleviate this impact are presented in **Section 7.8.2.**

Intersection 12: I-80 eastbound ramps/Pittman Road - The addition of project trips to I-80 eastbound ramps/Pittman Road in the PM peak hour would exacerbate LOS E operations in the PM peak hour by

increasing the average control delay at the intersection by more than 5.0 seconds. Therefore, based on the significance criteria in **Section 2.7.1.1**, the impact to this intersection is a **significant impact**. Mitigation measures to alleviate this impact are presented in **Section 7.8.2.**

Intersection 14: Central Way/Cordelia Road – Although this unsignalized intersection operates at an overall LOS F during the PM peak hour, the proposed project would add less than 10 trips to the southbound approach in the PM peak hour. Therefore the impact at this location in the PM peak hour is ***less-than-significant*** based on the 10 trips added threshold described in **Section 2.7.1.3**. Based on the significance criteria, no mitigation is required.

Intersection 15: Lopes Road/Cordelia Road – Although this intersection operates at an overall LOS F during the PM peak hour, and peak hour traffic signal warrants are met, the proposed project would add less than 10 trips to the westbound approach in the PM peak hour. Therefore the impact at this location in the PM peak hour is ***less-than-significant*** based on the 10 trips added threshold described in **Section 2.7.1.3**. Based on the significance criteria, no mitigation is required.

Intersection 16: Lopes Road/Bridgeport Avenue - Although this intersection operates at an overall LOS F in the PM peak hour, and peak hour traffic signal warrants are met, the proposed project would add less than 10 trips to the northbound approach in the PM peak hour**.** Therefore the impact at this location in the PM peak hour is ***less-than-significant*** based on the 10 trips added threshold described in **Section 2.7.1.3**. Based on the significance criteria, no mitigation is required.

The results of the intersection operations analysis indicate that other study intersections would continue to operate at LOS D or better after the addition of project trips. Based on the impact criteria presented in **Section 2.7.1**, the project's impacts to these other study intersections under Cumulative plus Business Center Drive Extension with Project Conditions are ***less-than-significant***.

7.7 MULTIMODAL TRANSPORTATION IMPACTS

7.7.1 PEDESTRIAN, BICYCLE, PUBLIC TRANSIT, AND EMERGENCY VEHICLE IMPACTS

Cumulative without Project and Cumulative with Project conditions (without and with the Business Center Drive Extension) for pedestrian facilities, bicycle facilities, public transit facilities, and emergency vehicle access would generally be equivalent to Existing conditions and Existing with Project conditions. Discussion regarding project impacts to these modes of transportation under Existing with Project Conditions is provided in **Chapter 5**. Similar to Existing with Project conditions, the impacts to pedestrian, bicycle and transit modes are expected to be ***less-than-significant*** (for bicycles, public transit and emergency vehicles) or ***less-than-significant with mitigation*** (for pedestrians, assuming Mitigation Measure #2 is constructed) under Cumulative with Project conditions.

7.8 CUMULATIVE WITH PROJECT MITIGATION MEASURES

This section of the report outlines the mitigation measures required to reduce the project's Cumulative impacts to intersection operations to less-than-significant levels.

7.8.1 INTERSECTION OPERATIONS MITIGATION MEASURES – ALTERNATIVE 1

As noted in **Section 7.6.1** the project would result in a **significant impact** to PM peak hour intersection operations at the following four intersections:

- Intersection 10: Business Center Drive/Suisun Valley Road
- Intersection 11: I-80 westbound ramps-Neitzel Road/Suisun Valley Road
- Intersection 12: I-80 eastbound ramps/Pittman Road
- Intersection 16: Lopes Road/Bridgeport Avenue

Note that the significant impacts under Cumulative with Project Conditions and Cumulative plus Business Center Drive Extension with Project Conditions are identical, and thus the mitigation measures below mitigate impacts under both analysis scenarios.

7.8.1.1 Intersection 10: Business Center Drive/Suisun Valley Road

Mitigation Measure #6: Business Center Drive/Suisun Valley Road is a signalized intersection that operates unacceptably in the PM peak hour under both Cumulative conditions and Cumulative with Project

conditions (with and without the Business Center Drive extension). The mitigation measure is to fund (on a fair share basis) construction of the following improvements at the intersection:

- Restripe the eastbound approach to include two left turn lanes, two through lanes, and one right-turn only lane.
- Add a right turn overlap phase for the eastbound right turn movement

Constructing this improvements would result in a whole-intersection average delay of 53.0 seconds in the PM peak hour, which would reduce the impact to a less-than-significant level by returning the intersection to acceptable operations (LOS D or better). Benefits to AM peak hour operations would also occur, with the intersection operating at LOS D (38.6 seconds of delay).

Since the intersection operates unacceptably under Cumulative (without Project) Conditions, the project applicant shall pay a fair share contribution towards the construction the improvement at the intersection. Alternatively, improvements may be funded through payment into the City's Development Impact Fee (DIF) program. City staff have confirmed that the project is eligible for inclusion into the City's Capital Improvements Program (CIP), and thus the project impact is considered ***less-than-significant with mitigation***.

7.8.1.2 Intersection 11: I-80 westbound ramps-Neitzel Road/Suisun Valley Road

Mitigation Measure #7: Implement Mitigation Measure #3 (signalization of intersection with associated geometric improvements).

Constructing these improvements would result in acceptable PM peak hour traffic operations (LOS D or better) at the intersection (33.3 seconds of delay) under EPAP with Project Conditions. Benefits to AM peak hour operations would also occur, with the intersection operating at LOS D (44.6 seconds of delay).

Since the intersection operates unacceptably under Cumulative (without Project) Conditions and meets the Peak Hour signal warrant under Cumulative (without Project) Conditions, the project applicant shall pay a fair share contribution towards the construction of a signal and other improvements at the intersection. Alternatively, improvements may be funded through payment into the City's Development Impact Fee (DIF) program. City staff have confirmed that the project is eligible for inclusion into the City's Capital Improvements Program (CIP), and thus the project impact is considered ***less-than-significant with mitigation***.

It is noted that the mitigation measures will not preclude implementation of the Cumulative year I-80/I-680/SR 12 interchange improvement project associated with the I-80/Suisun Valley Road-Pittman Road

interchange. The Design Year analysis for the I-80/I-680/SR 12 interchange improvement project assumed that this intersection would be signalized.

7.8.1.3 Intersection 12: I-80 eastbound ramps/Pittman Road

Mitigation Measure #8: I-80 eastbound ramps/Pittman Road is a signalized intersection that operates unacceptably in the PM peak hour under both Cumulative conditions and Cumulative with Project conditions (with and without the Business Center Drive extension). The mitigation measure is to fund (on a fair share basis) construction of the following improvements at the intersection:

- Restripe the eastbound approach to include one left turn lane and one left turn-through-right turn shared lane
- Improve the northbound Pittman Road intersection exit to accommodate two receiving lanes to serve the two lanes turning left on the restriped eastbound approach (improvement may conform to existing infrastructure prior to the I-80/Suisun Valley Road-Pittman Road overcrossing).

Constructing these improvements would result in acceptable traffic operations (LOS D or better) at the intersection in the PM peak hour (53.7 seconds of delay). Benefits to AM peak hour operations would also occur, with the intersection operating at LOS D (38.9 seconds of delay).

Since the intersection operates unacceptably under Cumulative (without Project) Conditions, the project applicant shall pay a fair share contribution towards the construction the improvement at the intersection. Alternatively, improvements may be funded through payment into the City's Development Impact Fee (DIF) program. While the improvements would mitigate the impact, the construction of the improvements would require substantial additional funding and coordination with the Solano Transportation Authority and Caltrans, and thus the impact is considered ***significant and unavoidable***.

7.8.1.4 Intersection 16: Lopes Road/Bridgeport Avenue

Mitigation Measure #9: Implement Mitigation Measure #1 (signalization of Lopes Road/Bridgeport Avenue, signalization of Lopes Road/Cordelia Road, and associated geometric improvements).

PM peak hour operations at Lopes Road/Bridgeport Avenue after signalization would improve over "no project" conditions but would still remain at LOS F (217.7 seconds of delay). Similarly, operations at Lopes Road/Cordelia Road after signalization would improve over "no project" conditions but would still remain at LOS F (156.4 seconds of delay). Benefits to AM peak hour operations over "no project" conditions would also occur, with Lopes Road/Bridgeport Avenue operating at 317.7 seconds of delay and improved operations at Lopes Road/Cordelia Road operating at 154.6 seconds of delay.

Since the intersection operates unacceptably under Cumulative (without Project) Conditions and meets the Peak Hour signal warrant under Cumulative (without Project) Conditions, the project applicant shall pay a fair share contribution towards the construction of a signal and other improvements at the intersection. Alternatively, improvements may be funded through payment into the City's Development Impact Fee (DIF) program. While the improvements would mitigate the impact, the construction of the improvements would require substantial additional funding and coordination with the Union Pacific Railroad, and thus the impact is considered ***significant and unavoidable***.

It is noted that the mitigation measures will not preclude implementation of the Cumulative year I-80/I-680/SR 12 interchange improvement projects associated with the I-80/Suisun Valley Road-Pittman Road interchange. The Design Year analysis for the I-80/I-680/SR 12 interchange improvement project assumed that both the Lopes Road/Bridgeport Avenue and Lopes Road/Cordelia Road intersections would be signalized.

7.8.2 INTERSECTION OPERATIONS MITIGATION MEASURES – ALTERNATIVE 2

As noted in **Section 7.6.2** the project would result in a **significant impact** to PM peak hour intersection operations at the following four intersections:

- Intersection 10: Business Center Drive/Suisun Valley Road (PM peak hour)
- Intersection 11: I-80 westbound ramps-Neitzel Road/Suisun Valley Road (AM and PM peak hours)
- Intersection 12: I-80 eastbound ramps/Pittman Road (AM and PM peak hours)

Note that the significant impacts under Cumulative with Project Conditions and Cumulative plus Business Center Drive Extension with Project Conditions are identical, and thus the mitigation measures below mitigate impacts under both analysis scenarios.

7.8.2.1 Intersection 10: Business Center Drive/Suisun Valley Road

Mitigation Measure #10: Implement Mitigation Measure #6 (restripe eastbound approach to include a right turn pocket and install a right turn overlap phase for the eastbound right turn movement).

Constructing this improvements would result in a whole-intersection average delay of 52.7 seconds in the PM peak hour, which would reduce the impact to a less-than-significant level by returning the intersection to acceptable operations (LOS D or better). Benefits to AM peak hour operations would also occur, with the intersection operating at LOS D (40.5 seconds of delay).

Since the intersection operates unacceptably under Cumulative (without Project) Conditions, the project applicant shall pay a fair share contribution towards the construction the improvement at the intersection. Alternatively, improvements may be funded through payment into the City's Development Impact Fee (DIF) program. City staff have confirmed that the project is eligible for inclusion into the City's Capital Improvements Program (CIP), and thus the project impact is considered ***less-than-significant with mitigation***.

7.8.2.2 Intersection 11: I-80 westbound ramps-Neitzel Road/Suisun Valley Road

Mitigation Measure #11: Implement Mitigation Measure #3 (signalization of intersection with associated geometric improvements).

Constructing these improvements would result in acceptable PM peak hour traffic operations (LOS D or better) at the intersection (29.7 seconds of delay) under EPAP with Project Conditions. Benefits to AM peak hour operations would also occur, with the intersection operating at LOS D (50.8 seconds of delay).

Since the intersection operates unacceptably under Existing Conditions and meets the Peak Hour signal warrant under Existing Conditions, the project applicant shall pay a fair share contribution towards the construction of a signal and other improvements at the intersection. Alternatively, improvements may be funded through payment into the City's Development Impact Fee (DIF) program. City staff have confirmed that the project is eligible for inclusion into the City's Capital Improvements Program (CIP), and thus the project impact is considered ***less-than-significant with mitigation***.

It is noted that the mitigation measures will not preclude implementation of the Cumulative year I-80/I-680/SR 12 interchange improvement project associated with the I-80/Suisun Valley Road-Pittman Road interchange. The Design Year analysis for the I-80/I-680/SR 12 interchange improvement project assumed that this intersection would be signalized.

7.8.2.3 Intersection 12: I-80 eastbound ramps/Pittman Road

Mitigation Measure #12: Implement Mitigation Measure #8 (restripe eastbound approach and construct second northbound receiving lane exiting the intersection).

Constructing these improvements would result in acceptable traffic operations (LOS D or better) at the intersection in the PM peak hour (53.8 seconds of delay). Benefits to AM peak hour operations would also occur, with the intersection operating at LOS D (39.3 seconds of delay).

Since the intersection operates unacceptably under Cumulative (without Project) Conditions, the project applicant shall pay a fair share contribution towards the construction the improvement at the intersection. Alternatively, improvements may be funded through payment into the City's Development Impact Fee (DIF) program. While the improvements would mitigate the impact, the construction of the improvements would require substantial additional funding and coordination with the Solano Transportation Authority and Caltrans, and thus the impact is considered ***significant and unavoidable***.

8.0 FREEWAY ANALYSIS

Freeway segments in the vicinity of the project site were analyzed to determine the project's effect on freeway operations. The study area for the freeway analysis is described in **Section 2.3**. Freeway segments are defined as one of four types: Basic, Merge, Diverge and Weave. The freeway analysis was performed for similar horizon years and scenarios as the intersection operations analysis for consistency purposes.

8.1 EXISTING CONDITIONS FREEWAY OPERATIONS

The following section outlines the Existing Conditions count data and freeway operations for the study area.

8.1.1 EXISTING CONDITIONS FREEWAY COUNT DATA

The Caltrans Freeway Performance Measurement System (PeMS) database provides real-time and historical volume and speed data for the California freeway system using induction loop detectors imbedded in the freeway pavement. Several such detector locations are installed along I-80 and I-680 in the study area. These stations formed the basis of the freeway count data for the freeway operations analysis. PeMS data from May 2018 was summarized and used in conjunction with ramp volumes derived from the Existing Conditions intersection counts (presented on **Figure 6**) to derive Existing Conditions freeway mainline volumes.

8.1.2 EXISTING CONDITIONS FREEWAY OPERATIONS

Existing freeway operations were analyzed for the AM and PM peak hours. The Existing Conditions operations analysis is summarized below in **Table 17**. All study freeway segments operate at LOS E or better (the standard for peak hour freeway operations in the study area) under Existing Conditions. Freeway LOS worksheets are presented in **Appendix E**.

TABLE 17: EXISTING FREEWAY SEGMENT PEAK HOUR LEVELS OF SERVICE

	Segment	Lanes[1]	Segment Type	Peak Hour	Density	LOS[2]
Westbound I-80						
1	Truck Scales on-ramp to Suisun Valley Road off-ramp	5 GP + 1 HOV	Basic	AM PM	21.5 16.7	C B
2	Suisun Valley Road off-ramp	5 GP + 1 HOV	Diverge	AM PM	28.5 24.5	D C
3	Suisun Valley Road off-ramp to Southbound I-680 connector off-ramp	5 GP + 1 HOV	Basic	AM PM	19.6 14.8	C B
4	Southbound I-680 connector off-ramp	5 GP + 1 HOV	Major Diverge	AM PM	22.3 16.9	C B
5	Southbound I-680 connector off-ramp to Northbound I-680 connector on-ramp	4 GP + 1 HOV	Basic	AM PM	14.9 10.8	B A
Eastbound I-80						
6	Green Valley Road/Southbound I-680 connector off-ramp to Northbound I-680 connector/Green Valley Road on-ramp	4 GP + 1 HOV	Basic	AM PM	14.7 17.7	B B
7	Northbound I-680 connector/Green Valley on-ramp	5 GP + 1 HOV	Major Merge	AM PM	21.9 29.5	C D
8	Suisun Valley Road off-ramp	5 GP + 1 HOV	Diverge	AM PM	29.3 32.4	D D
9	Suisun Valley Road off-ramp to Suisun Valley Road on-ramp	5 GP + 1 HOV	Basic	AM PM	19.3 25.6	C C
10	Suisun Valley Road on-ramp	5 GP + 1 HOV	Merge	AM PM	24.0 29.5	C D
11	Suisun Valley Road on-ramp to Truck Scales off-ramp	5 GP + 1 HOV	Basic	AM PM	21.0 28.6	C D
Southbound I-680						
12	South of I-80	2 GP	Basic	AM PM	29.6 24.9	D C
13	South of Gold Hill Road	2 GP	Basic	AM PM	25.5 21.4	C C

TABLE 17: EXISTING FREEWAY SEGMENT PEAK HOUR LEVELS OF SERVICE

	Segment	Lanes[1]	Segment Type	Peak Hour	Density	LOS[2]
Northbound I-680						
14	South of Gold Hill Road	2 GP	Basic	AM PM	17.7 28.6	B D
15	South of I-80	2 GP	Basic	AM PM	23.5 34.4	C D

Notes: Results in **bold** denotes unacceptable operations.
1. GP = General Purpose Lane, HOV = High-Occupancy Vehicle Lane
2. LOS based on 2010 HCM
Source: Fehr & Peers, August 2019.

8.2 EXISTING WITH PROJECT CONDITIONS FREEWAY OPERATIONS

Existing with Project Conditions freeway operations are computed by adding project trips (previously presented on **Figures 10A and 11A**) to the roadway network. **Table 18** presents the results of the freeway operations analysis for both the Project Alternative 1 (Apartments and Retail) and Project Alternative 2 (Apartments and Fire Station) development scenarios. Freeway LOS worksheets are presented in **Appendix E**.

The result of the LOS calculations indicate that all freeway segments would continue to operate at an acceptable LOS (LOS E or better) after the addition of project generated trips. Therefore, the project impact to freeway operations is ***less-than-significant*** under Existing with Project Conditions for both project alternatives.

TABLE 18: EXISTING WITH PROJECT FREEWAY SEGMENT PEAK HOUR LEVELS OF SERVICE

	Segment	Lanes[1]	Segment Type	Peak Hour	Existing Conditions		Existing with Project Conditions			
							Alternative 1		Alternative 2	
					Density	LOS[2]	Density	LOS[2]	Density	LOS[2]
Westbound I-80										
1	Truck Scales on-ramp to Suisun Valley Road off-ramp	5 GP + 1 HOV	Basic	AM PM	21.5 16.7	C B	21.6 16.8	C B	21.6 16.8	C B
2	Suisun Valley Road off-ramp	5 GP + 1 HOV	Diverge	AM PM	28.5 24.5	D C	28.5 24.8	D C	28.5 24.8	D C
3	Suisun Valley Road off-ramp to Southbound I-680 connector off-ramp	5 GP + 1 HOV	Basic	AM PM	19.6 14.8	C B	19.6 18.8	C B	19.6 14.8	C B
4	Southbound I-680 connector off-ramp	5 GP + 1 HOV	Major Diverge	AM PM	22.3 16.9	C B	22.3 16.9	C B	22.3 16.9	C B
5	Southbound I-680 connector off-ramp to Northbound I-680 connector on-ramp	4 GP + 1 HOV	Basic	AM PM	14.9 10.8	B A	14.9 10.8	B A	14.9 10.8	B A
Eastbound I-80										
6	Green Valley Road/Southbound I-680 connector off-ramp to Northbound I-680 connector/Green Valley Road on-ramp	4 GP + 1 HOV	Basic	AM PM	14.7 17.7	B B	14.7 17.7	B B	14.7 17.7	B B
7	Northbound I-680 connector/Green Valley on-ramp	5 GP + 1 HOV	Major Merge	AM PM	21.9 29.5	C D	21.9 29.6	C D	21.9 29.6	C D
8	Suisun Valley Road off-ramp	5 GP + 1 HOV	Diverge	AM PM	29.3 32.4	D D	29.3 32.5	D D	29.4 32.5	D D
9	Suisun Valley Road off-ramp to Suisun Valley Road on-ramp	5 GP + 1 HOV	Basic	AM PM	19.3 25.6	C C	19.3 25.6	C C	19.3 25.6	C C

TABLE 18: EXISTING WITH PROJECT FREEWAY SEGMENT PEAK HOUR LEVELS OF SERVICE

Segment		Lanes[1]	Segment Type	Peak Hour	Existing Conditions		Existing with Project Conditions			
							Alternative 1		Alternative 2	
					Density	LOS[2]	Density	LOS[2]	Density	LOS[2]
10	Suisun Valley Road on-ramp	5 GP + 1 HOV	Merge	AM PM	24.0 29.5	C D	24.4 29.7	C D	24.5 29.7	C D
11	Suisun Valley Road on-ramp to Truck Scales off-ramp	5 GP + 1 HOV	Basic	AM PM	21.0 28.6	C D	21.2 28.7	C D	21.2 28.7	C D
Southbound I-680										
12	South of I-80	2 GP	Basic	AM PM	29.6 24.9	D C	29.8 25.1	D C	29.9 25.0	D C
13	South of Gold Hill Road	2 GP	Basic	AM PM	25.5 21.4	C C	25.7 21.5	C C	25.8 21.4	C C
Northbound I-680										
14	South of Gold Hill Road	2 GP	Basic	AM PM	17.7 28.6	B D	17.7 28.8	B D	17.7 28.8	B D
15	South of I-80	2 GP	Basic	AM PM	23.5 34.4	C D	23.6 34.7	C D	23.6 34.7	C D

Notes: Results in **bold** denotes unacceptable operations.
1. GP = General Purpose Lane, HOV = High-Occupancy Vehicle Lane
2. LOS based on 2010 HCM
Source: Fehr & Peers, August 2019.

8.3 EPAP CONDITIONS FREEWAY OPERATIONS

The EPAP Conditions freeway analysis includes traffic volume growth due to adjacent development as well as regional growth in traffic volumes. Similar to the intersection operations analysis, EPAP Conditions freeway volumes were forecast through a two-step method:

- **Step 1** – Increase the freeway count data by 5.0 percent to account for regional traffic volume growth
- **Step 2** – Use the EPAP Conditions intersection turning movement volumes to derive ramp volumes

The combination of Steps 1 and 2 above result in EPAP Conditions freeway segment volumes that reflect regional traffic volume growth and additional trips generated by approved projects in the vicinity (as the traffic volumes for the ramps include the trips generated by approved projects in the vicinity).

EPAP with Project Conditions freeway operations are computed by adding project trips (previously presented on **Figures 10A and 11A**) to the roadway network. **Table 19** presents the results of the freeway operations analysis for both the Project Alternative 1 (Apartments and Retail) and Project Alternative 2 (Apartments and Fire Station) development scenarios. Freeway LOS worksheets are presented in **Appendix E**.

The result of the LOS calculations indicate that all freeway segments will operate at an acceptable LOS (LOS E or better) after the addition of project generated trips. Therefore, the project impact to freeway operations are ***less-than-significant*** under EPAP with Project Conditions.

TABLE 19: EPAP CONDITIONS FREEWAY SEGMENT PEAK HOUR LEVELS OF SERVICE

	Segment	Lanes[1]	Segment Type	Peak Hour	EPAP Conditions		EPAP with Project Conditions			
							Alternative 1		Alternative 2	
					Density	LOS[2]	Density	LOS[2]	Density	LOS[2]
Westbound I-80										
1	Truck Scales on-ramp to Suisun Valley Road off-ramp	5 GP + 1 HOV	Basic	AM PM	22.6 17.6	C B	22.7 17.7	C B	22.7 17.7	C B
2	Suisun Valley Road off-ramp	5 GP + 1 HOV	Diverge	AM PM	28.5 24.8	D C	28.7 25.0	D C	28.7 25.1	D C
3	Suisun Valley Road off-ramp to Southbound I-680 connector off-ramp	5 GP + 1 HOV	Basic	AM PM	20.6 15.5	C B	20.6 15.5	C B	20.6 15.5	C B
4	Southbound I-680 connector off-ramp	5 GP + 1 HOV	Major Diverge	AM PM	23.4 17.6	C B	23.4 17.6	C B	23.4 17.6	C B
5	Southbound I-680 connector off-ramp to Northbound I-680 connector on-ramp	4 GP + 1 HOV	Basic	AM PM	15.6 11.1	B B	15.6 11.1	B B	15.6 11.1	B B
Eastbound I-80										
6	Green Valley Road/Southbound I-680 connector off-ramp to Northbound I-680 connector/Green Valley Road on-ramp	4 GP + 1 HOV	Basic	AM PM	15.4 18.4	B C	15.4 18.4	B C	15.4 18.4	B C
7	Northbound I-680 connector/Green Valley on-ramp	5 GP + 1 HOV	Major Merge	AM PM	23.2 31.9	C D	23.3 32.0	C D	23.3 32.0	C D
8	Suisun Valley Road off-ramp	5 GP + 1 HOV	Diverge	AM PM	29.6 34.2	D D	29.7 34.4	D D	29.7 34.4	D D
9	Suisun Valley Road off-ramp to Suisun Valley Road on-ramp	5 GP + 1 HOV	Basic	AM PM	20.2 27.2	C D	20.2 27.2	C D	20.2 27.2	C D

TABLE 19: EPAP CONDITIONS FREEWAY SEGMENT PEAK HOUR LEVELS OF SERVICE

Segment		Lanes[1]	Segment Type	Peak Hour	EPAP Conditions		EPAP with Project Conditions			
							Alternative 1		Alternative 2	
					Density	LOS[2]	Density	LOS[2]	Density	LOS[2]
10	Suisun Valley Road on-ramp	5 GP + 1 HOV	Merge	AM PM	25.0 31.2	C D	25.3 31.4	C D	25.5 31.4	C D
11	Suisun Valley Road on-ramp to Truck Scales off-ramp	5 GP + 1 HOV	Basic	AM PM	22.3 31.0	C D	22.5 31.1	C D	22.5 31.1	C D
Southbound I-680										
12	South of I-80	2 GP	Basic	AM PM	31.7 26.4	D D	32.0 26.6	D D	32.1 26.5	D D
13	South of Gold Hill Road	2 GP	Basic	AM PM	27.1 22.5	D C	27.3 22.6	D C	27.4 22.5	D C
Northbound I-680										
14	South of Gold Hill Road	2 GP	Basic	AM PM	18.6 30.6	C D	18.7 30.9	C D	18.7 30.8	C D
15	South of I-80	2 GP	Basic	AM PM	24.8 37.4	C E	24.9 37.7	C E	24.9 37.7	C E

Notes: Results in **bold** denotes unacceptable operations.
1. GP = General Purpose Lane, HOV = High-Occupancy Vehicle Lane
2. LOS based on 2010 HCM
Source: Fehr & Peers, August 2019.

8.4 CUMULATIVE CONDITIONS FREEWAY OPERATIONS

The Cumulative Conditions freeway analysis includes traffic volume growth due to adjacent development as well as regional growth in traffic volumes. The analysis also reflects the improvements to the freeway system proposed as part of the I-80/I-680/SR 12 interchange improvement project.

8.4.1 CUMULATIVE CONDITIONS FREEWAY VOLUMES

The current version of the Solano Transportation Authority travel demand model was reviewed to estimate the projected growth rate for freeway volumes in the study area. The STA model suggests a traffic volume growth rate of between 0.3 percent per year to 0.8 percent per year between 2010 and 2040. The *I-80/I-680/SR 12 Interchange PR/ED Design Year Demand Forecasts at Project Gateways (2006)* technical memorandum prepared for the I-80/I-680/SR 12 interchange project suggests a long-term traffic volume growth rate of between 1.9 percent to 2.6 percent per year through 2035. Based on this information, the Cumulative without Project conditions freeway volumes were forecast by applying a 2.0 percent per year straight-line growth rate between Year 2018 and Year 2035.

Cumulative with Project Conditions freeway operations are computed by adding project trips (previously presented on **Figures 10B and 11B**) to the roadway network.

8.4.2 CUMULATIVE CONDITIONS FREEWAY CONFIGURATIONS

As discussed previously in **Section 7.1.1**, the I-80/I-680/SR 12 interchange improvement project includes a suite of modifications to freeway access and lane configurations in the study area. The I-80/I-680/SR 12 interchange improvement project includes substantial widening along I-80 to accommodate future traffic volume demand growth, a realignment of I-680, and new on and off-ramps at the I-80/Suisun Valley Road and I-80/Green Valley Road interchanges. Similar to the intersection operations analysis, the freeway analysis assumes that a subset of the improvement packages (the first four of seven proposed) will be constructed. The freeway analysis does not reflect the construction of the Business Center Drive extension (Package 5), as this will divert traffic demand from I-80 in the study area, so an analysis without the Business Center Drive extension represents a more conservative scenario.

8.4.3 CUMULATIVE CONDITIONS FREEWAY OPERATIONS

Table 20 presents the results of the freeway operations analysis for both the Project Alternative 1 (Apartments and Retail) and Project Alternative 2 (Apartments and Fire Station) development scenarios. Freeway LOS worksheets are presented in **Appendix E**.

The result of the LOS calculations indicate that the majority of freeway segments will operate at an acceptable LOS (LOS E or better) after the addition of project generated trips. The following segment operates at LOS F during the indicated peak hour:

- Cumulative Segment 16 – Northbound I-680 south of Gold Hill Road (PM peak hour)

Cumulative Segment 16 is projected to operate at a volume-to-capacity ratio of 1.025 under Cumulative without Project Conditions. Under both project alternatives, the segment would operate at a volume-to-capacity ratio of 1.029. The proposed project, under both alternatives, is anticipated to add less than 40 trips to the segment in the PM peak hour. Based on the impact criteria in **Section 2.7.6**, the project impact on this segment is ***less-than-significant*** as the project adds trips in an amount less than 1.0 percent of the freeway's general purpose lane capacity[4].

All other segments continue to operate at LOS E or better after the addition of project trips. Therefore, the project impact to freeway operations are ***less-than-significant*** under Cumulative with Project Conditions.

[4] Cumulative Segment 16 includes two general purpose lanes. At a capacity of 2,000 vehicles per hour per lane, 1.0 percent of the general purpose lane capacity is 40 vehicles (1% x 2,000 vehicles per hour per lane x 2 lanes = 40 vehicles).

TABLE 20: CUMULATIVE CONDITIONS FREEWAY SEGMENT PEAK HOUR LEVELS OF SERVICE

	Segment	Lanes[1]	Segment Type	Peak Hour	Cumulative without Project Conditions		Cumulative with Project Conditions			
							Alternative 1		Alternative 2	
					Density	LOS[2]	Density	LOS[2]	Density	LOS[2]
Westbound I-80										
1	Truck Scales on-ramp to Suisun Valley Road off-ramp	8 GP + 1 EX	Basic	AM PM	18.0 14.0	C B	18.1 14.9	C B	18.1 14.1	C B
2	Suisun Valley Road off-ramp	8 GP + 1 EX	Diverge	AM PM	18.0 14.0	C B	18.1 14.9	C B	18.1 14.1	C B
3	Suisun Valley Road off-ramp to Suisun Valley Road on-ramp	7 GP + 1 EX	Basic	AM PM	17.8 13.8	B B	17.8 14.7	B B	17.8 13.8	B B
4	Suisun Valley Road on-ramp	8 GP + 1 EX	Merge	AM PM	17.6 14.2	B B	17.7 15.1	B B	17.7 14.3	B B
5	Green Valley Road off-ramp	8 GP + 1 EX	Diverge	AM PM	17.3 14.0	B B	17.4 14.9	B B	17.5 14.1	B B
6	Green Valley Road off-ramp to Southbound I-680 connector off-ramp	8 GP + 1 EX	Basic	AM PM	14.3 10.9	B A	14.4 11.7	B B	14.5 10.9	B A
Eastbound I-80										
7	Eastbound SR 12 on-ramp to Northbound I-680 connector on-ramp	6 GP + 1 EX	Basic	AM PM	12.2 15.2	B B	12.2 15.2	B B	12.2 15.2	B B
8	Northbound I-680 connector on-ramp	8 GP + 1 EX	Merge	AM PM	16.4 21.4	B C	16.4 21.5	B C	16.5 21.5	B C
9	Green Valley Road on-ramp	9 GP + 1 EX	Merge	AM PM	16.5 20.9	B C	16.5 21.0	B C	16.5 21.0	B C

TABLE 20: CUMULATIVE CONDITIONS FREEWAY SEGMENT PEAK HOUR LEVELS OF SERVICE

	Segment	Lanes[1]	Segment Type	Peak Hour	Cumulative without Project Conditions		Cumulative with Project Conditions			
							Alternative 1		Alternative 2	
					Density	LOS[2]	Density	LOS[2]	Density	LOS[2]
10	Suisun Valley Road off-ramp	9 GP + 1 EX	Diverge	AM PM	16.4 20.7	B C	16.4 20.8	B C	16.4 20.8	B C
11	Suisun Valley Road off-ramp to Suisun Valley Road on-ramp	8 GP + 1 EX	Basic	AM PM	16.1 21.2	B C	16.1 21.2	B C	16.1 21.2	B C
12	Suisun Valley Road on-ramp	9 GP + 1 EX	Merge	AM PM	15.7 21.0	B C	15.8 21.1	B C	15.8 21.1	B C
13	Suisun Valley Road on-ramp to Truck Scales off-ramp	9 GP + 1 EX	Basic	AM PM	15.7 20.8	B C	15.8 20.9	B C	15.8 20.9	B C
Southbound I-680										
14	South of I-80	3 GP	Basic	AM PM	25.7 22.1	C C	25.8 22.2	C C	25.9 22.1	C C
15	South of Gold Hill Road	2 GP	Basic	AM PM	39.2 30.1	E D	39.6 30.3	E D	39.7 30.2	E D
Northbound I-680										
16	South of Gold Hill Road	3 GP	Basic	AM PM	23.8 **v/c 1.025[3]**	C **F**	23.9 **v/c 1.029[3]**	C **F**	23.9 **v/c 1.029[3]**	C **F**
17	South of I-80	2 GP	Basic	AM PM	21.0 29.2	C D	21.0 29.4	C D	21.0 29.3	C D

Notes: Results in **bold** denotes unacceptable operations.
1. GP = General Purpose Lane, EX = HOV/Express Lane
2. LOS based on 2010 HCM
3. Volume-to-capacity ratio presented in lieu of Density as segment operates at LOS F. Calculated density above 45 pcpmpl.
Source: Fehr & Peers, August 2019.

9.0 INFORMATIONAL PROJECT VEHICLE-MILES TRAVELED ANALYSIS

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 adopted Guidelines in December 2018. The final proposed Guidelines include a new Section 15064.3 on VMT analysis and thresholds for land use developments. OPR also released a Technical Advisory on Evaluating Transportation Impacts in CEQA. 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 Fairfield nor the Solano Transportation Authority (STA) have established any standards or thresholds on VMT. Therefore, the new guidelines have not yet been adopted and are not in effect at this time.

The final guidelines may change based on the comments received during the Natural Resources Agency formal administrative rulemaking process for adoption under the Administrative Procedure Act. 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 information and disclosure purposes only. No determination on the significance of VMT impacts is made in this document since none is legally required.

9.1 UPDATED CEQA GUIDELINES

Proposed changes to Appendix G of the CEQA guidelines, as presented in *Proposed Updates to the CEQA Guidelines (November 2017)*[5] provides the potential basis for the evaluation of vehicle miles of travel generated by a project.

Text of Proposed 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)?

[5] Full document can be found here:
http://opr.ca.gov/docs/20171127_Comprehensive_CEQA_Guidelines_Package_Nov_2017.pdf

(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 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.

For office uses, developments that would result in VMT 15 percent below **existing** regional VMT per employee (work tour or home-based work) 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.

As neither the City of Fairfield nor the Solano Transportation Authority (STA) have established thresholds, and the new guidelines have not yet been adopted, this assessment is prepared for informational purposes only. This assessment focuses on the residential component of the project only as the proposed commercial uses are unknown and are expected to be locally-serving.

9.2 VMT ANALYSIS METHODS

To conduct the VMT assessment, Fehr & Peers used published data from the Metropolitan Transportation Commission (MTC), including data from the MTC travel demand model. The MTC published data[6] was used to establish average VMT per capita values for existing residential uses in Fairfield, Solano County and the nine-county Bay Area. The MTC travel demand model also provides average VMT per capita values for residential areas near the project site.

The existing average VMT per capita for residential uses and employment uses for the City of Fairfield, Solano County and the Bay Area based on the MTC data are presented in **Table 21.** Home based trips in Fairfield are similar to the Bay Area average, while slightly lower than the County-wide average. Work based

[6] http://analytics.mtc.ca.gov/foswiki/Main/PlanBayAreaVmtPerCapita

trips to jobs in Fairfield are slightly lower than regional averages, potentially indicating that jobs in Fairfield tend to be filled by more local residents.

TABLE 21: EXISTING VMT PER CAPITA

Land Use Type	Fairfield	Solano County	Bay Area
Residence-Based VMT	15.2	16.7	15.3
Work-Based VMT	20.0	22.2	22.7

Source: MTC, Fehr & Peers, August 2019.

9.3 VMT ANALYSIS RESULTS

Data from the MTC travel demand model indicate that the average VMT per capita for the lower Green Valley and lower Suisun Valley residential areas is about **25 VMT per capita per day.** This level of vehicle travel is higher than the City of Fairfield average as well as the Bay Area Average.

A VMT assessment was not prepared for the proposed commercial uses as the actual uses are unknown. Up to 50,000 square feet of retail uses may be considered to have a less-than-significant VMT impact as it is expected to be locally serving.

9.4 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 as the project adds a housing development that would require residents to travel longer-than-average distances to meet their daily needs. As there are no thresholds of significance, this analysis is being prepared for informational purposes only.

10.0 SITE PLAN EVALUATION AND RECOMMENDATIONS

This chapter analyzes site access and internal circulation for vehicles, pedestrians, bicycles, and transit vehicles. Recommendations are provided to address on-site vehicle circulation issues to improve wayfinding and reduce driver confusion. Active and transit mode recommendations include the provision of pedestrian and bicycle facilities and direct connections, and efficient linkages with existing and potential future transit stops external to the site. Ultimately, the final site plan should be reviewed to identify and mitigate potential impacts before the project is built. The recommendations provided in this chapter are summarized on the following figures:

- **Figure 23** – Project Alternative 1 Site Plan Recommendations
- **Figure 24** – Project Alternative 2 Site Plan Recommendations

10.1 PROJECT ALTERNATIVE 1 SITE PLAN RECOMMENDATIONS

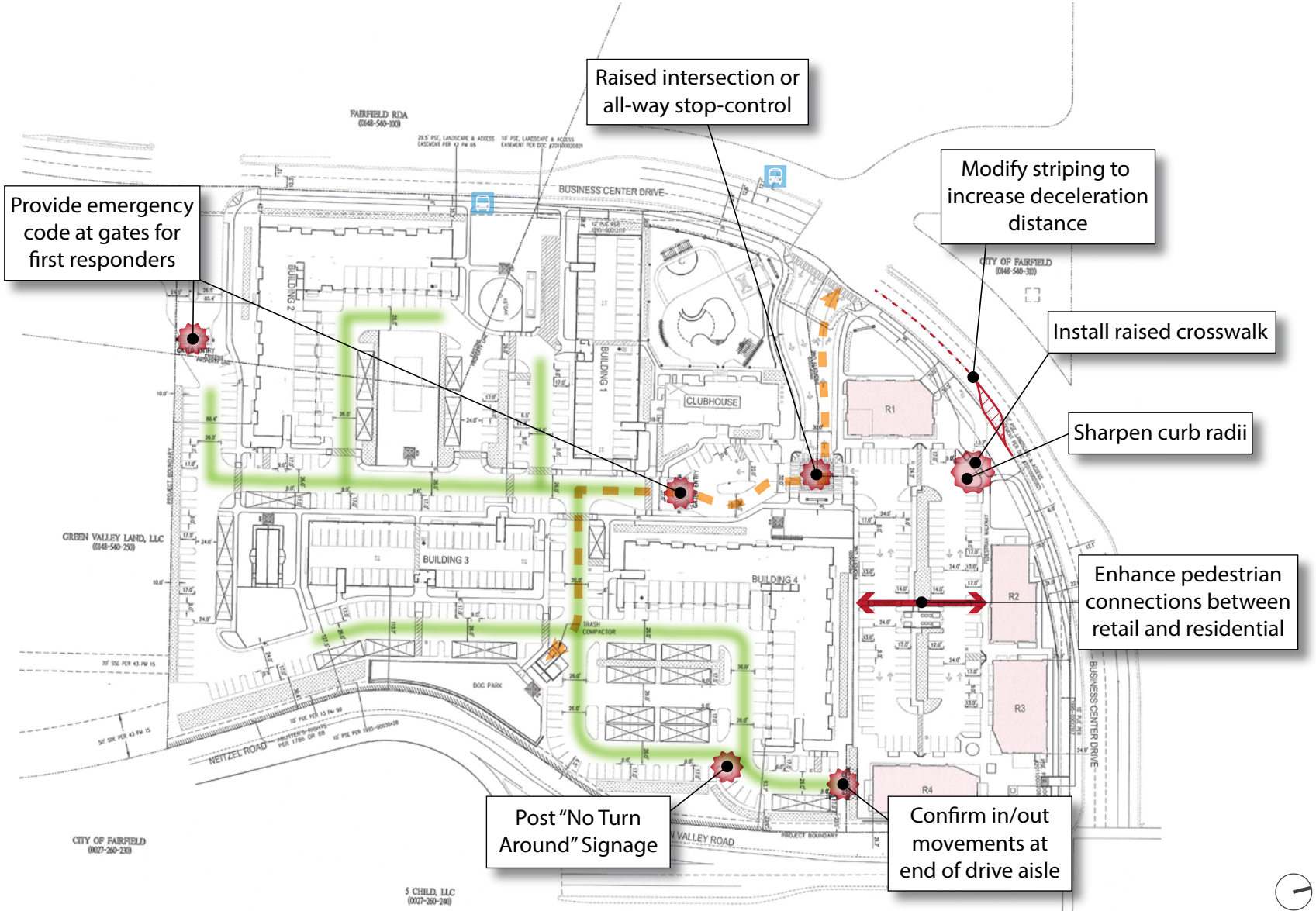
This subsection presents the evaluation of the site plan for Project Alternative 1 (Apartments and Retail). These recommendations are presented graphically on **Figure 23**.

10.1.1 NORTH (RIGHT-IN) DRIVEWAY DESIGN RECOMMENDATIONS

As noted in **Section 2.1**, the project proposes to construct a right-in driveway (the "North Driveway") along eastbound Business Center Drive approximately 125 feet downstream of the Business Center Drive/Westamerica Drive-Center Project Driveway intersection. City staff have indicated that they are concerned about the inclusion of this driveway into the site plan, and that recommendations must be developed to promote adherence to typical sight distance and deceleration lane length parameters.

The analysis of the proposed right-in driveway was focused on the following four parameters:

- Deceleration distance along Business Center Drive
- Sight distance along Business Center Drive
- Potential for vehicle-bicycle and vehicle-pedestrian conflicts on-site
- Potential for vehicle-vehicle conflicts at the driveway terminal intersection on-site



Site Plan Source: Kephart Architecture, Phillippi Engineering, SGPA, Omni-Means Ltd., Feb. 26, 2018.

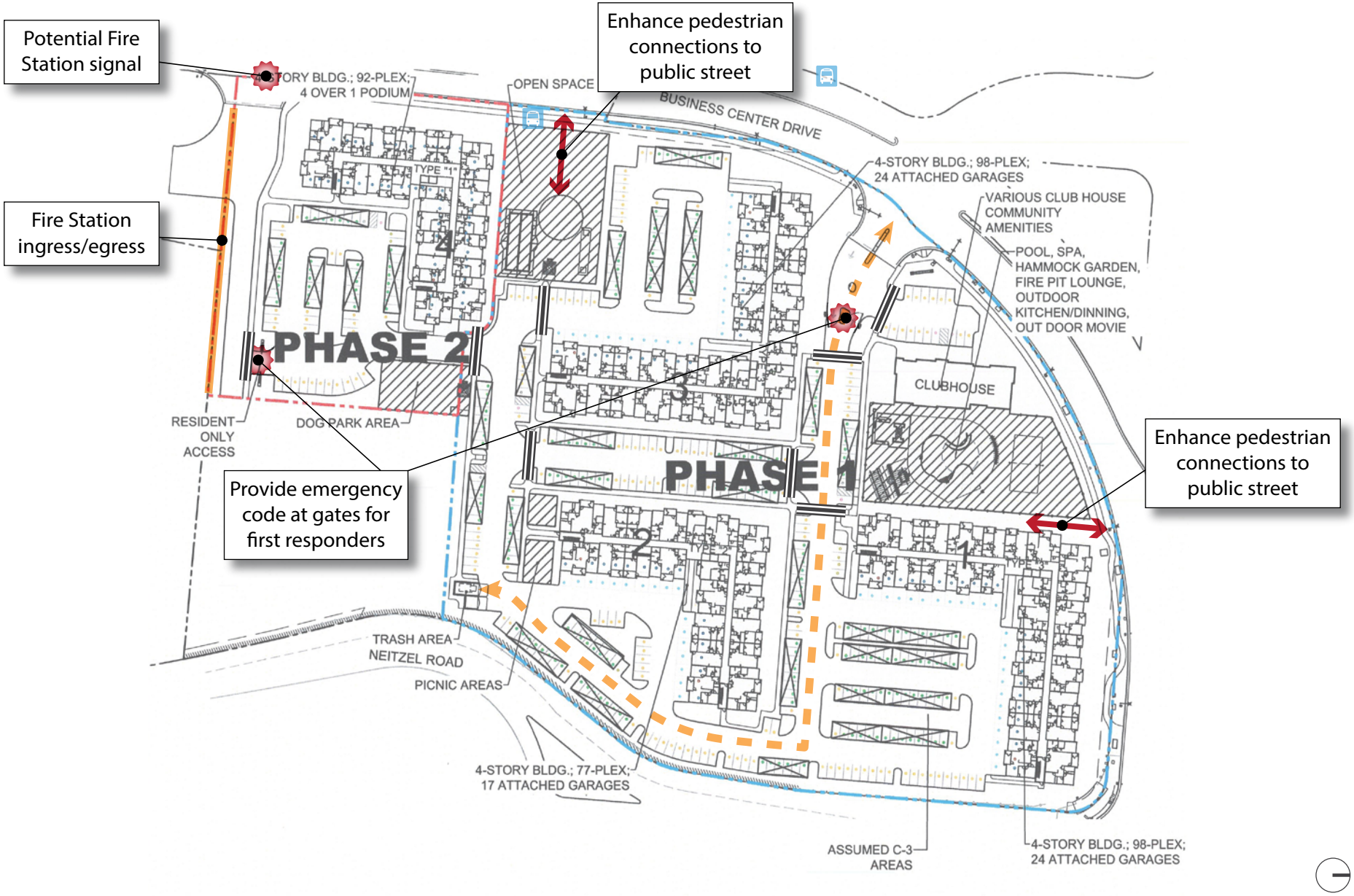
Consider Reducing Drive Aisle Width to 24'

Residential Trash Removal Ingress/Egress

Potential Transit Stop Location

Figure 23

Project Alternative 1 Site Plan Recommendations



Site Plan Source: GHD, December 10, 2018

Add Marked Crosswalk at Major Drive Aisle Crossings

Residential Trash Removal Ingress/Egress

Potential Transit Stop Location

Figure 24

Project Alternative 2 Site Plan Recommendations

10.1.1.1 Business Center Drive Analysis and Recommendations

Field observations of travel speed and sight distance were performed on February 27, 2018. Field observed travel speeds along Business Center Drive in the vicinity of the project site range between 35-45 miles per hour. This compares favorably to the posted speed limit of 40 miles per hour. Therefore, this analysis assumes that the deceleration distance and sight distance requirements for the proposed right-in driveway are based on a design speed of 40 miles per hour. Table 201.1 of the Caltrans Highway Design Manual (HDM) states that the stopping sight distance standard for a design speed of 40 miles per hour is 300 feet. Flat terrain and lack of tall structures immediately adjacent to Business Center Drive contribute to field observed existing conditions sight distance in excess of 400 feet at the proposed driveway location.

Recommendation 1: The site plan for the project should be analyzed by the project applicant's land development Civil Engineer to ensure that at least 300 feet of sight distance is maintained along eastbound Business Center Drive after completion of the project.

Table 405.2B of the Caltrans HDM states that the deceleration lane length for a design speed of 40 miles per hour is 315 feet. The deceleration lane length includes taper distance and striped lane length.

The current site plan suggests a deceleration distance (assuming a full stop at the proposed pedestrian crossing near the terminus of the driveway) of about 120 feet. Strategies should be explored to lengthen the deceleration distance to more closely meet HDM standards. One such strategy may include modifying the striping along eastbound Business Center Drive between Westamerica Drive and the proposed right-in driveway to convert the rightmost lane to a trap right turn lane for the proposed right-in driveway. Accounting for the taper distance in the Westamerica Drive/Business Center Drive intersection (where eastbound Business Center Drive widens from two lanes to three lanes), the total deceleration distance would be very close to 315 feet. Since all upstream segments flowing into eastbound Business Center Drive where the restriping would take place are two lanes or less, the restriping should not result in a new roadway capacity constraint.

Recommendation 2: Explore strategies to lengthen the deceleration distance for the proposed right-in driveway. Consider restriping the right lane along eastbound Business Center Drive between Westamerica Drive and the project driveway as a trap right turn lane for the proposed right-in driveway, as shown on **Figure 23.**

10.1.1.2 Driveway Terminal Analysis and Recommendations

After departing Business Center Drive, there are two primary potential conflict areas along the driveway. The first conflict area is the crossing of the pedestrian pathway between retail buildings R1 and R2. This pathway also carries pedestrian trips around the project site. Since this pedestrian crossing would be in a

transition zone between vehicles traveling at 40 miles per hour on eastbound Business Center Drive and a slower, retail environment, measures should be taken to better define the conflict area and provide a conduit for driver behavior transition. Additionally, the placement of trees or other foliage that may reduce sight distance should be reviewed.

Recommendation 3: Install a raised crosswalk or other enhanced crossing (including high-visibility pedestrian crossing signage) at the pedestrian crossing near the driveway terminus. Design the crossing to encourage a speed reduction as drivers enter the retail area. Ensure sight distance requirements are met by limiting trees and foliage around the driveway.

After the pedestrian crossing, the driveway terminates at a three-way intersection with the parking aisle serving the retail parking spaces. The driveway terminal intersection should provide adequate sight distance given the angles at which the parking aisle and driveway intersect one another. The design of curb returns at the driveway terminal intersections may encourage higher speed movements. Also, the presence of parking stalls immediately adjacent to the driveway terminal intersection may introduce a substantial amount of additional conflicts at this intersection.

Recommendation 4: Sharpen curb returns (decrease curb radius) at the driveway terminal intersection to reduce turning speeds at the intersection. Install signage and striping to better define the conflict area; consider installing stop signs as an intersection traffic control measure.

10.1.2 VEHICLE SITE ACCESS AND CIRCULATION

The project, as currently proposed, provides access to the public circulation system through the use of three driveways. The South Driveway is restricted to serving the residential portion of the project. The Center Driveway serves both the residential and retail portions of the project. The North Driveway serves inbound trips for the retail portion of the project. Parking for the residential and retail portions of the site will be separated, although it will be possible to walk between the residential and retail portions of the site.

The following recommendations have been provided to enhance vehicular access and circulation throughout the project site in addition to the recommendations provided in **Section 10.1**.

- Confirm that the dead-end parking aisle in the residential portion of the project (see **Figure 23**) can accommodate vehicles pulling in and out of the last parking spaces in the drive aisle. Post "No Turn Around" signage at the entrance to the dead-end parking aisle.
- Provide accessible paths of travel between accessible parking spaces and building entries

- Provide consistent and adequate drive aisle widths to accommodate necessary vehicle and truck maneuvers. Drive aisle widths vary between 24 and 26 feet in the residential area; the City's minimum drive aisle width is 24 feet in areas of 90-degree parking.
- Improve potential pedestrian-vehicle conflict points with high visibility crosswalks, corner bulbouts and signage to accommodate the increased pedestrian demand, especially near building entrances and main pathways.
- Provide an emergency code to local first responders to promote emergency vehicle ingress/egress
- Construct a raised intersection at the intersection of the Center Driveway and the residential and retail access roadways or provide all-way stop-control. This intersection is anticipated to operate at LOS B or better under all-way stop control. The 95th percentile queue from the intersection of the Center Driveway and the residential and retail access roadways is estimated at one vehicle, and the queues are not anticipated to spill back into the Business Center Drive/Center Project Driveway-Westamerica Drive intersection. Likewise, the 95th percentile queue for the Center Driveway approach to the Business Center Drive/Center Project Driveway-Westamerica Drive intersection is estimated to be less than 100 feet, and queues are not anticipated to spill back into the intersection of the Center Driveway and the residential and retail access roadways.
- Direct trash removal companies to use the Center Driveway to access the residential trash compactor area.

10.1.3 PEDESTRIAN, BICYCLE, AND TRANSIT ACCESS AND CIRCULATION

This section of the report addresses on-site facilities that provide pedestrian and bicycle access and circulation for the project.

10.1.3.1 On-Site Pedestrian and Bicycle Evaluation

Pedestrian and bicycle facilities on-site include a network of pathways and sidewalks around the buildings. Since the buildings proposed for the residential and retail components of the site will be in close proximity to the sidewalks and pathways, these connections should suffice in providing efficient pedestrian connections between buildings on-site. Bicycle trips will be accommodated by the parking aisle system. Recommendations for improving on-site bicycle and pedestrian access and circulation include:

- Provide options for bicyclists to bypass the residential entry gates
- Explore additional options to enhance the connections between the residential and retail portions of the site.
- Update the site plan to show the location and number of short-term and long-term bicycle parking spaces proposed to be provided.

10.1.3.2 Transit Access

The project is located adjacent to existing bus routes and stops operating along Suisun Valley Road and Business Center Drive. Although the expected increase in passenger demand is not projected to exceed available transit capacity, enhancements to existing service are recommended to encourage transit use. Recommendations for improving transit access include:

- Coordinate with the City, Fairfield and Suisun Transit (FAST) and Solano County Transit (SolTrans) to add a transit stop along eastbound and westbound Business Center Drive near the project site to further promote transit usage.
- Ensure bus stops include amenities such a bus shelters, benches and quality lighting at the bus stop.

Improvements to transit service may be accomplished and funded through a coordinated effort between the project applicant, the City and transit agencies.

10.2 PROJECT ALTERNATIVE 2 SITE PLAN RECOMMENDATIONS

This subsection presents the evaluation of the site plan for Project Alternative 2 (Apartments and Fire Station). These recommendations were previously presented on **Figure 24**.

10.2.1 VEHICLE SITE ACCESS AND CIRCULATION

Project Alternative 2 (Apartments and Fire Station), as currently proposed, provides access to the public circulation system through the use of two driveways. The South Driveway is proposed to serve the southern part of the residential portion of the project as well as the fire station. The Center Driveway exclusively serves the residential portion of the project. Unlike Project Alternative 1, a right-in North Driveway is not provided. Parking for the residential and fire station portions of the site will be separated, although it will be possible to walk between the residential and fire station portions of the site.

The following recommendations have been provided to enhance vehicular access and circulation throughout the project site.

- Provide accessible paths of travel between accessible parking spaces and building entries
- Provide consistent and adequate drive aisle widths to accommodate necessary vehicle and truck maneuvers. Drive aisle widths are not currently shown on the site plan for Project Alternative 2; the City's minimum drive aisle width is 24 feet in areas of 90-degree parking.

- Improve potential pedestrian-vehicle conflict points with high visibility crosswalks, corner bulbouts and signage to accommodate pedestrian demand, especially near building entrances and main pathways.
- Provide an emergency code to local first responders to promote emergency vehicle ingress/egress
- Direct trash removal companies to use the Center Driveway to access the residential trash compactor area.

10.2.2 PEDESTRIAN, BICYCLE, AND TRANSIT ACCESS AND CIRCULATION

This section of the report addresses on-site facilities that provide pedestrian and bicycle access and circulation for the project.

10.2.2.1 On-Site Pedestrian and Bicycle Evaluation

Pedestrian and bicycle facilities on-site include a network of pathways and sidewalks around the buildings. Since the buildings proposed for the residential and retail components of the site will be in close proximity to the sidewalks and pathways, these connections should suffice in providing efficient pedestrian connections between buildings on-site. Bicycle trips will be accommodated by the parking aisle system. Recommendations for improving on-site bicycle and pedestrian access and circulation include:

- Provide options for bicyclists to bypass the residential entry gates
- Explore additional options to enhance the connections between the residential portion of the site and the public sidewalk network.
- Update the site plan to show the location and number of short-term and long-term bicycle parking spaces proposed to be provided.

10.2.2.2 Transit Access

The project is located adjacent to existing bus routes and stops operating along Suisun Valley Road and Business Center Drive. Although the expected increase in passenger demand is not projected to exceed available transit capacity, enhancements to existing service are recommended to encourage transit use. Recommendations for improving transit access include:

- Coordinate with the City, Fairfield and Suisun Transit (FAST) and Solano County Transit (SolTrans) to add a transit stop along eastbound and westbound Business Center Drive near the project site to further promote transit usage.
- Ensure bus stops include amenities such a bus shelters, benches and quality lighting at the bus stop.

Improvements to transit service may be accomplished and funded through a coordinated effort between the project applicant, the City and transit agencies.

10.2.3 FIRE STATION EMERGENCY EGRESS

The proposed fire station would take access to the public roadway system via the South Driveway. The intersection of Business Center Drive/South Project Driveway-NorthBay Driveway is proposed to remain unsignalized. To facilitate outbound emergency movements, a fire station signal beacon should be installed after the fire station is built. The purpose of this signal beacon is to stop traffic on Business Center Drive so that fire vehicles may quickly access Business Center Drive. Alternatively, a full traffic signal could be installed, subject to further engineering study, including, but not limited to, a full traffic signal warrant analysis.

11.0 MODIFIED ALTERNATIVE 2 SCENARIO

A modified version of the Alternative 2 project has been proposed with 281 apartment units and a fire station constructed in lieu of a project with 365 apartment units and a fire station. This modified version of Alternative 2 (known in the remainder of this chapter as Modified Alternative 2) results in a lower trip generation than the original version of Alternative 2. The project's impacts to the transportation system under Modified Alternative 2 are discussed in this section. The site plan for Modified Alternative 2 is similar to the site plan for the original Alternative 2, with the key difference being the removal of one apartment building on the southwest corner of the site and a different on-site location of the proposed fire station.

11.1 MODIFIED ALTERNATIVE 2 TRIP GENERATION

As discussed in **Chapter 4**, trip generation estimates for the apartment portion of the project have been prepared using data from the Institute of Transportation Engineers' *Trip Generation Manual, 10th Edition*. The trips generated by the fire station portion of the project is based on assumptions regarding the size of the proposed fire station relative to other fire stations in Fairfield, data from the ITE *Trip Generation Manual, 10th Edition*, and trip generation data from fire stations in Contra Costa County. **Table 22** presents the trip generation estimates for Modified Alternative 2 and a comparison between the trip generation estimates between Modified Alternative 2 and original Alternative 2.

TABLE 22: PROJECT TRIP GENERATION – MODIFIED ALTERNATIVE 2

Land Use	Quantity[1]	Daily	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Apartments[2]	281 du	2,080	46	155	201	93	55	148
Fire Station[3]	N/A	100	5	5	10	5	5	10
Modified Alternative 2 Project Trips		***2,180***	***51***	***160***	***211***	***98***	***60***	***158***
Original Alternative 2 Project Trips		***2,820***	***64***	***204***	***268***	***123***	***74***	***197***
Delta (Modified – Original)		***-640***	***-13***	***-44***	***-57***	***-25***	***-14***	***-39***

Notes:

1. 1 du = 1 dwelling unit
2. Apartment trip generation based on ITE Trip Generation Manual, 10th Edition Land Use Code 220 (Low-Rise Multifamily Housing)
3. Fire Station trip generation based on assumptions described in **Section 4.1.1.1**.

Source: Fehr & Peers, August 2019.

As shown in **Table 22**, Modified Alternative 2 results in 57 fewer AM peak hour trips, 39 fewer PM peak hour trips and 640 fewer weekday daily trips versus original Alternative 2. This indicates that Modified Alternative 2 would generate about 20 percent fewer trips than under the original Alternative 2 project description. Therefore, Modified Alternative 2 would have a relatively lower level of impact to intersection operations versus original Alternative 2.

11.2 MODIFIED ALTERNATIVE 2 TRANSPORTATION IMPACTS

The following subsections qualitatively describe the impacts to the transportation system under Modified Alternative 2.

11.2.1 INTERSECTION AND FREEWAY OPERATIONS

The analysis for the original Alternative 2 presented in **Chapters 5-7** indicate that the project would result in significant intersection operations impacts at the following intersections:

- Intersection 10: Business Center Drive/Suisun Valley Road (significantly impacted under Cumulative conditions)
- Intersection 11: I-80 westbound ramps-Neitzel Road/Suisun Valley Road (significantly impacted under Existing plus Approved Projects and Cumulative conditions)
- Intersection 12: I-80 eastbound ramps/Pittman Road (significantly impacted under Cumulative conditions)

Based on the level of impact at these intersections, it is anticipated that these intersections would remain significantly impacted under the Modified Alternative 2 development proposal. However, the relative level of impact would be reduced under Modified Alternative 2, and all mitigation measures previously presented related to the impacts under the original Alternative 2 would remain the same. Similarly, the impacts at Business Center Drive/Suisun Valley Road (Intersection 10) and I-80 westbound ramps-Neitzel Road/Suisun Valley Road (Intersection 11) would remain ***less-than-significant with mitigation*** under Modified Alternative 2. The impact at I-80 eastbound ramps/Pittman Road would remain ***significant and unavoidable*** under Modified Alternative 2.

As presented in **Chapter 8**, the project impact to freeway operations are less-than-significant under the original Alternative 2. Similar to intersection operations impacts, the relative level of impact to freeway operations under Modified Alternative 2 would be reduced versus original Alternative 2. Therefore, the project impact to freeway operations would be ***less-than-significant*** under Alternative 2.

11.2.2 MULTIMODAL TRANSPORTATION IMPACTS

The level of impact for pedestrians, bicyclists, the transit system (and its users), and emergency vehicle access under Modified Alternative 2 is similar to the level of impact under original Alternative 2. As noted in **Chapter 5**, impacts to bicyclists, transit, and emergency vehicle access are ***less-than-significant***. If the pedestrian mitigation measure in **Section 5.4.1** (installation of a crosswalk along the southern approach at Business Center Drive/Westamerica Drive-Center Driveway) is constructed, then the project impact to the pedestrian system under Modified Alternative 2 would be ***less-than-significant with mitigation***.

11.3 MODIFIED ALTERNATIVE 2 SITE PLAN EVALUATION

The site plan for Modified Alternative 2 is substantially similar to the site plan for original Alternative 2, with the key differences being the removal of apartments along the southwest corner of the site and the placement of the fire station to the southwest corner of the site. The site plan retains two driveways onto Business Center Drive.

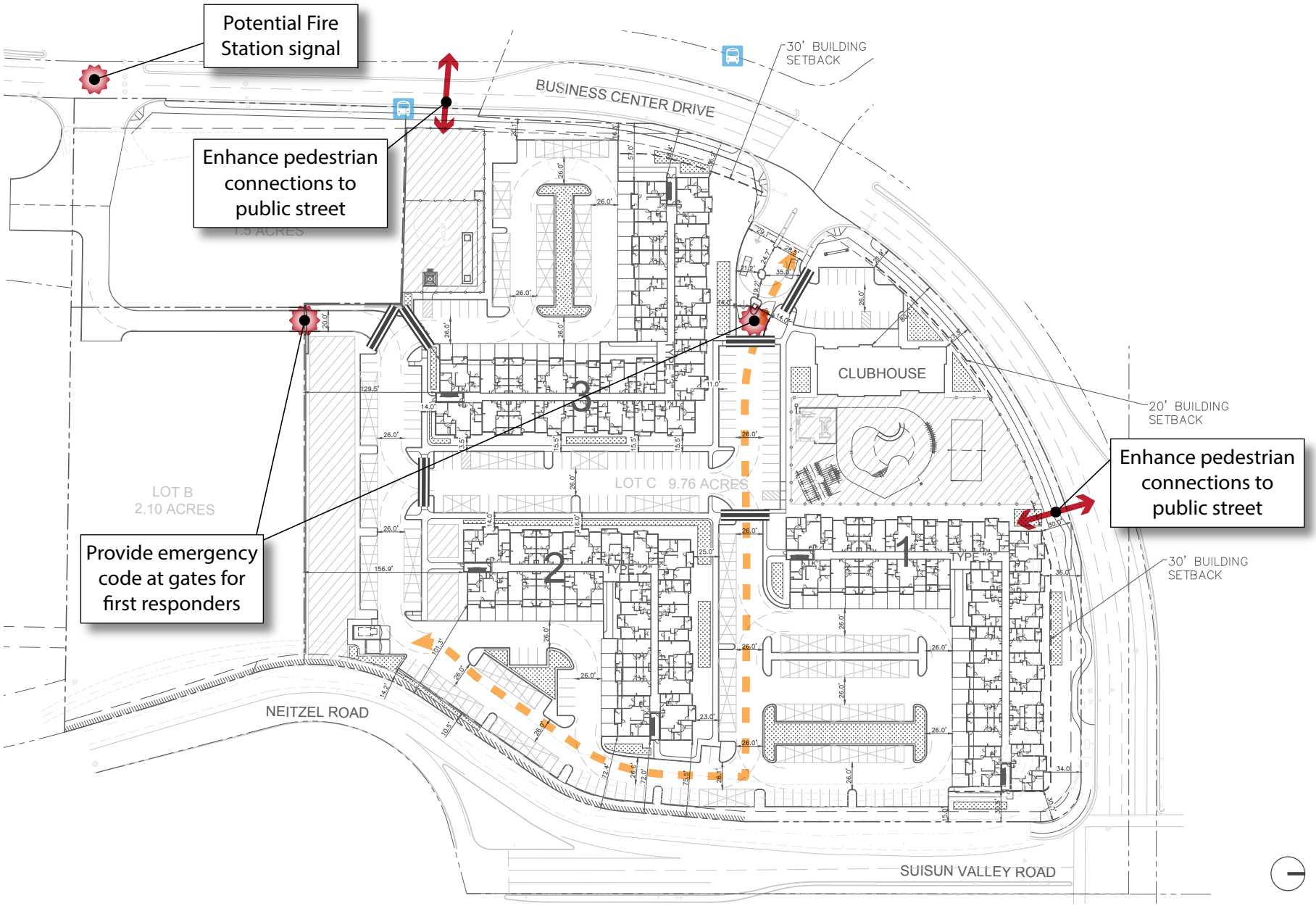
The recommendations to enhance multimodal site access and circulation are similar to those presented in **Section 10.2**. The recommendations are presented on **Figure 25**.

11.3.1 VEHICLE SITE ACCESS AND CIRCULATION

Modified Alternative 2 proposes access to the public circulation system through the use of two driveways. The South Driveway is proposed to serve the southern part of the residential portion of the project as well as the fire station. The Center Driveway exclusively serves the residential portion of the project. Unlike Project Alternative 1, a right-in North Driveway is not provided. Parking for the residential and fire station portions of the site would be separated, although it would be possible to walk between the residential and fire station portions of the site.

The following recommendations have been provided to enhance vehicular access and circulation throughout the project site.

- Provide accessible paths of travel between accessible parking spaces and building entries
- Improve potential pedestrian-vehicle conflict points with high visibility crosswalks, corner bulbouts and signage to accommodate pedestrian demand, especially near building entrances and main pathways.
- Provide an emergency code to local first responders to promote emergency vehicle ingress/egress



Site Plan Source: Phillippi Engineering, March 12, 2019

Add Marked Crosswalk at Major Drive Aisle Crossings

Residential Trash Removal Ingress/Egress

Potential Transit Stop Location

Figure 25

Modified Alternative 2 Site Plan Recommendations

- Direct trash removal companies to use the Center Driveway to access the residential trash compactor area.

11.3.2 PEDESTRIAN, BICYCLE, AND TRANSIT ACCESS AND CIRCULATION

This section of the report addresses on-site facilities that provide pedestrian and bicycle access and circulation for the Modified Alternative 2.

11.3.2.1 On-Site Pedestrian and Bicycle Evaluation

Pedestrian and bicycle facilities on-site include a network of pathways and sidewalks around the buildings. Since the buildings proposed for the residential component of the site will be in close proximity to the sidewalks and pathways, these connections should suffice in providing efficient pedestrian connections between buildings on-site. Bicycle trips will be accommodated by the parking aisle system. Recommendations for improving on-site bicycle and pedestrian access and circulation include:

- Provide options for bicyclists to bypass the residential entry gates
- Explore additional options to enhance the connections between the residential portion of the site and the public sidewalk network.
- Update the site plan to show the location and number of short-term and long-term bicycle parking spaces proposed to be provided.

11.3.2.2 Transit Access

The project is located adjacent to existing bus routes and stops operating along Suisun Valley Road and Business Center Drive. Although the expected increase in passenger demand is not projected to exceed available transit capacity, enhancements to existing service are recommended to encourage transit use. Recommendations for improving transit access include:

- Coordinate with the City, Fairfield and Suisun Transit (FAST) and Solano County Transit (SolTrans) to add a transit stop along eastbound and westbound Business Center Drive near the project site to further promote transit usage.
- Ensure bus stops include amenities such a bus shelters, benches and quality lighting at the bus stop.

Improvements to transit service may be accomplished and funded through a coordinated effort between the project applicant, the City and transit agencies.

11.3.3 FIRE STATION EMERGENCY EGRESS

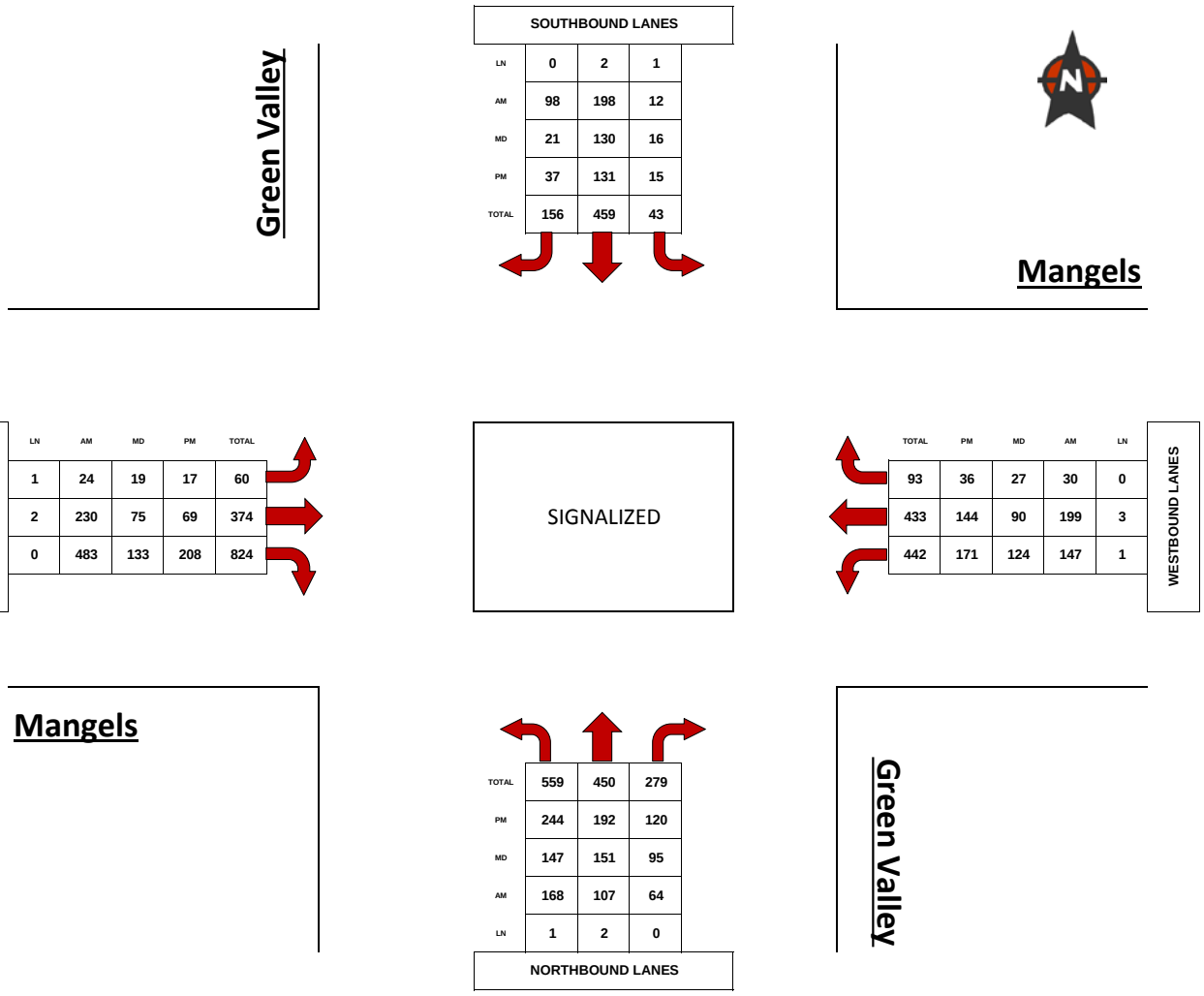
The proposed fire station would take access to the public roadway system via the South Driveway. The intersection of Business Center Drive/South Project Driveway-NorthBay Driveway is proposed to remain unsignalized. To facilitate outbound emergency movements, a fire station signal beacon should be installed after the fire station is built. The purpose of this signal beacon is to stop traffic on Business Center Drive so that fire vehicles may quickly access Business Center Drive. Alternatively, a full traffic signal could be installed, subject to further engineering study, including, but not limited to, a full traffic signal warrant analysis.

APPENDIX A: TRAFFIC COUNT DATA

PEAK HOUR ITM SUMMARY

#005 Green Valley & Mangels

LOCATION#:	005	QTD PROJ#:	2017294	AM PEAK:	730 AM
NORTH / SOUTH:	Green Valley	DATE:	Thursday, October 26, 2017	MD PEAK:	1215 PM
EAST / WEST:	Mangels	VICINITY:	FAR	PM PEAK:	445 PM



QUALITY TRAFFIC DATA, LLC
Phone: 877-852-4355 Fax: 877-877-3698 Info@QualityTrafficData.com

AM COUNT	6:30 AM	TO	8:30 AM
MD COUNT	11:30 AM	TO	1:30 PM
PM COUNT	4:30 PM	TO	6:30 PM

VEHICLE TURNING MOVEMENT COUNT

#005 Green Valley & Mangels - AM PEAK

LOCATION#:	**005**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Green Valley**	**DATE:**	**Thursday, October 26, 2017**
EAST / WEST:	**Mangels**	**VICINITY:**	**FAR**

DIRECTION:	**NL**	**NT**	**NR**	**SL**	**ST**	**SR**	**EL**	**ET**	**ER**	**WL**	**WT**	**WR**	**TOTALS**
LANES:	1	2	0	1	2	0	1	2	0	1	3	0	
6:30 AM	17	7	3	0	32	0	1	11	65	35	7	0	178
6:45 AM	11	19	7	3	35	0	2	9	53	31	4	2	176
7:00 AM	21	7	8	2	48	1	1	17	68	32	9	4	218
7:15 AM	18	18	6	3	49	2	2	18	71	40	8	0	235
7:30 AM	29	24	10	4	46	9	6	42	109	34	26	5	344
7:45 AM	52	27	13	3	57	29	3	49	115	50	70	12	480
8:00 AM	71	31	17	2	55	49	7	55	107	33	86	5	518
8:15 AM	16	25	24	3	40	11	8	84	152	30	17	8	418

VOLUME STATS:	**NL**	**NT**	**NR**	**SL**	**ST**	**SR**	**EL**	**ET**	**ER**	**WL**	**WT**	**WR**	
TOTAL:	235	158	88	20	362	101	30	285	740	285	227	36	2567
P.H.V: [1]	168	107	64	12	198	98	24	230	483	147	199	30	1760
P.H.F: [2]		0.712			0.726			0.755			0.712		0.849

(1) Peak Hour Volume (Peak Hour Begins At 730 AM)
(2) Peak Hour Factor (directional aggregate)

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VEHICLE TURNING MOVEMENT COUNT

#005 Green Valley & Mangels - MD PEAK

LOCATION#:	**005**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Green Valley**	**DATE:**	**Thursday, October 26, 2017**
EAST / WEST:	**Mangels**	**VICINITY:**	**FAR**

DIRECTION:	**NL**	**NT**	**NR**	**SL**	**ST**	**SR**	**EL**	**ET**	**ER**	**WL**	**WT**	**WR**	**TOTALS**
LANES:	1	2	0	1	2	0	1	2	0	1	3	0	
11:30 AM	43	26	19	6	27	4	6	28	66	30	25	3	283
11:45 AM	28	36	16	2	43	1	1	21	53	23	18	9	251
12:00 PM	29	25	17	4	39	3	4	11	36	28	8	7	211
12:15 PM	39	43	21	6	33	5	1	18	36	24	25	4	255
12:30 PM	36	34	25	3	34	7	4	14	35	21	23	6	242
12:45 PM	27	46	27	4	26	5	3	16	24	26	24	11	239
1:00 PM	45	28	22	3	37	4	11	27	38	53	18	6	292
1:15 PM	19	38	24	4	25	2	2	24	24	22	22	9	215

VOLUME STATS:	**NL**	**NT**	**NR**	**SL**	**ST**	**SR**	**EL**	**ET**	**ER**	**WL**	**WT**	**WR**	
TOTAL:	266	276	171	32	264	31	32	159	312	227	163	55	1988
P.H.V: [1]	147	151	95	16	130	21	19	75	133	124	90	27	1028
P.H.F: [2]		0.954			0.949			0.747			0.782		0.880

(1) Peak Hour Volume (Peak Hour Begins At 1215 PM)
(2) Peak Hour Factor (directional aggregate)

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VEHICLE TURNING MOVEMENT COUNT

#005 Green Valley & Mangels - PM PEAK

LOCATION#:	**005**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Green Valley**	**DATE:**	**Thursday, October 26, 2017**
EAST / WEST:	**Mangels**	**VICINITY:**	**FAR**

DIRECTION:	**NL**	**NT**	**NR**	**SL**	**ST**	**SR**	**EL**	**ET**	**ER**	**WL**	**WT**	**WR**	**TOTALS**
LANES:	1	2	0	1	2	0	1	2	0	1	3	0	
4:30 PM	44	36	27	4	36	5	0	20	40	41	27	10	290
4:45 PM	53	43	35	4	36	7	4	16	58	38	33	5	332
5:00 PM	97	37	29	3	34	12	3	13	46	68	45	10	397
5:15 PM	49	61	24	3	35	8	6	19	46	37	45	9	342
5:30 PM	45	51	32	5	26	10	4	21	58	28	21	12	313
5:45 PM	81	49	35	5	33	7	7	22	46	20	21	4	330
6:00 PM	46	48	44	1	27	5	7	24	53	27	25	7	314
6:15 PM	70	44	26	5	30	2	5	27	50	20	25	7	311

VOLUME STATS:	**NL**	**NT**	**NR**	**SL**	**ST**	**SR**	**EL**	**ET**	**ER**	**WL**	**WT**	**WR**	
TOTAL:	485	369	252	30	257	56	36	162	397	279	242	64	2629
P.H.V: (1)	244	192	120	15	131	37	17	69	208	171	144	36	1384
P.H.F: (2)		0.853			0.934			0.886			0.713		0.872

(1) Peak Hour Volume (Peak Hour Begins At 445 PM)
(2) Peak Hour Factor (directional aggregate)

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PEDESTRIAN CROSSWALK COUNTS

#005 Green Valley & Mangels - AM PEAK

LOCATION#:	**005**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Green Valley**	**DATE:**	**Thursday, October 26, 2017**
EAST / WEST:	**Mangels**	**VICINITY:**	**FAR**

DIRECTION:	NORTHERN CROSSWALK	SOUTHERN CROSSWALK	EASTERN CROSSWALK	WESTERN CROSSWALK	TOTALS
6:30 AM	0	0	0	0	
6:45 AM	0	0	0	0	
7:00 AM	2	0	1	0	3
7:15 AM	0	0	0	0	
7:30 AM	0	0	0	3	3
7:45 AM	0	0	0	3	3
8:00 AM	0	5	0	2	7
8:15 AM	0	0	0	0	

VOLUME STATS:	NORTHERN CROSSWALK	SOUTHERN CROSSWALK	EASTERN CROSSWALK	WESTERN CROSSWALK	
TOTAL:	2	5	1	8	16
P.H.V: [1]	0	5	0	8	13
P.H.F: [2]	0.000	0.250	0.000	0.667	0.464

(1) Peak Hour Volume (Peak hour begins at: 730 AM)
(2) Peak Hour Factor

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PEDESTRIAN CROSSWALK COUNTS

#005 Green Valley & Mangels - MD PEAK

LOCATION#:	**005**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Green Valley**	**DATE:**	**Thursday, October 26, 2017**
EAST / WEST:	**Mangels**	**VICINITY:**	**FAR**

DIRECTION:	NORTHERN CROSSWALK	SOUTHERN CROSSWALK	EASTERN CROSSWALK	WESTERN CROSSWALK	TOTALS
11:30 AM	2	0	0	2	4
11:45 AM	0	0	0	1	1
12:00 PM	0	0	0	0	
12:15 PM	0	0	0	0	
12:30 PM	0	0	0	0	
12:45 PM	0	0	3	0	3
1:00 PM	0	0	0	0	
1:15 PM	0	0	0	0	

VOLUME STATS:	NORTHERN CROSSWALK	SOUTHERN CROSSWALK	EASTERN CROSSWALK	WESTERN CROSSWALK	
TOTAL:	2	0	3	3	8
P.H.V: [1]	2	0	0	3	5
P.H.F: [2]	0.250	0.000	0.000	0.375	0.313

(1) Peak Hour Volume (Peak hour begins at: 1130 AM)
(2) Peak Hour Factor

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PEDESTRIAN CROSSWALK COUNTS

#005 Green Valley & Mangels - PM PEAK

LOCATION#:	**005**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Green Valley**	**DATE:**	**Thursday, October 26, 2017**
EAST / WEST:	**Mangels**	**VICINITY:**	**FAR**

DIRECTION:	NORTHERN CROSSWALK	SOUTHERN CROSSWALK	EASTERN CROSSWALK	WESTERN CROSSWALK	TOTALS
4:30 PM	0	0	0	0	
4:45 PM	2	0	0	0	2
5:00 PM	0	0	0	1	1
5:15 PM	0	0	0	0	
5:30 PM	1	0	0	3	4
5:45 PM	0	0	0	0	
6:00 PM	0	0	1	7	8
6:15 PM	0	0	0	0	

VOLUME STATS:	NORTHERN CROSSWALK	SOUTHERN CROSSWALK	EASTERN CROSSWALK	WESTERN CROSSWALK	
TOTAL:	3	0	1	11	15
P.H.V: [1]	1	0	1	10	12
P.H.F: [2]	0.250	0.000	0.250	0.357	0.375

(1) Peak Hour Volume (Peak hour begins at: 530 PM)
(2) Peak Hour Factor

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BICYCLE TURNING MOVEMENT COUNT

#005 Green Valley & Mangels - AM PEAK

LOCATION#:	**005**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Green Valley**	**DATE:**	**Thursday, October 26, 2017**
EAST / WEST:	**Mangels**	**VICINITY:**	**FAR**

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	1	2	0	1	2	0	1	2	0	1	3	0	
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	0	0	0	0	0	0	0	0	0	0	0	0	0
P.H.V: [1]	0	0	0	0	0	0	0	0	0	0	0	0	0
P.H.F: [2]		0.000			0.000			0.000			0.000		0.000

(1) Peak Hour Volume (Peak Hour Begins At 0 AM)
(2) Peak Hour Factor (directional aggregate)

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BICYCLE TURNING MOVEMENT COUNT

#005 Green Valley & Mangels - MD PEAK

LOCATION#:	**005**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Green Valley**	**DATE:**	**Thursday, October 26, 2017**
EAST / WEST:	**Mangels**	**VICINITY:**	**FAR**

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	1	2	0	1	2	0	1	2	0	1	3	0	
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	0	0	0	0	0	0	0	0	0	0	0	0	0
P.H.V: [1]	0	0	0	0	0	0	0	0	0	0	0	0	0
P.H.F: [2]		0.000			0.000			0.000			0.000		0.000

(1) Peak Hour Volume (Peak Hour Begins At 0 AM)
(2) Peak Hour Factor (directional aggregate)

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BICYCLE TURNING MOVEMENT COUNT

#005 Green Valley & Mangels - PM PEAK

LOCATION#:	**005**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Green Valley**	**DATE:**	**Thursday, October 26, 2017**
EAST / WEST:	**Mangels**	**VICINITY:**	**FAR**

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	1	2	0	1	2	0	1	2	0	1	3	0	
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	3	3
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	
5:30 PM	0	0	0	0	0	0	0	0	0	0	3	0	3
5:45 PM	0	4	0	0	0	0	0	0	0	0	0	0	4
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	0	4	0	0	0	0	0	0	0	0	3	3	10
P.H.V: [1]	0	4	0	0	0	0	0	0	0	0	3	0	7
P.H.F: [2]		0.250			0.000			0.000			0.250		0.438

(1) Peak Hour Volume (Peak Hour Begins At 530 PM)
(2) Peak Hour Factor (directional aggregate)

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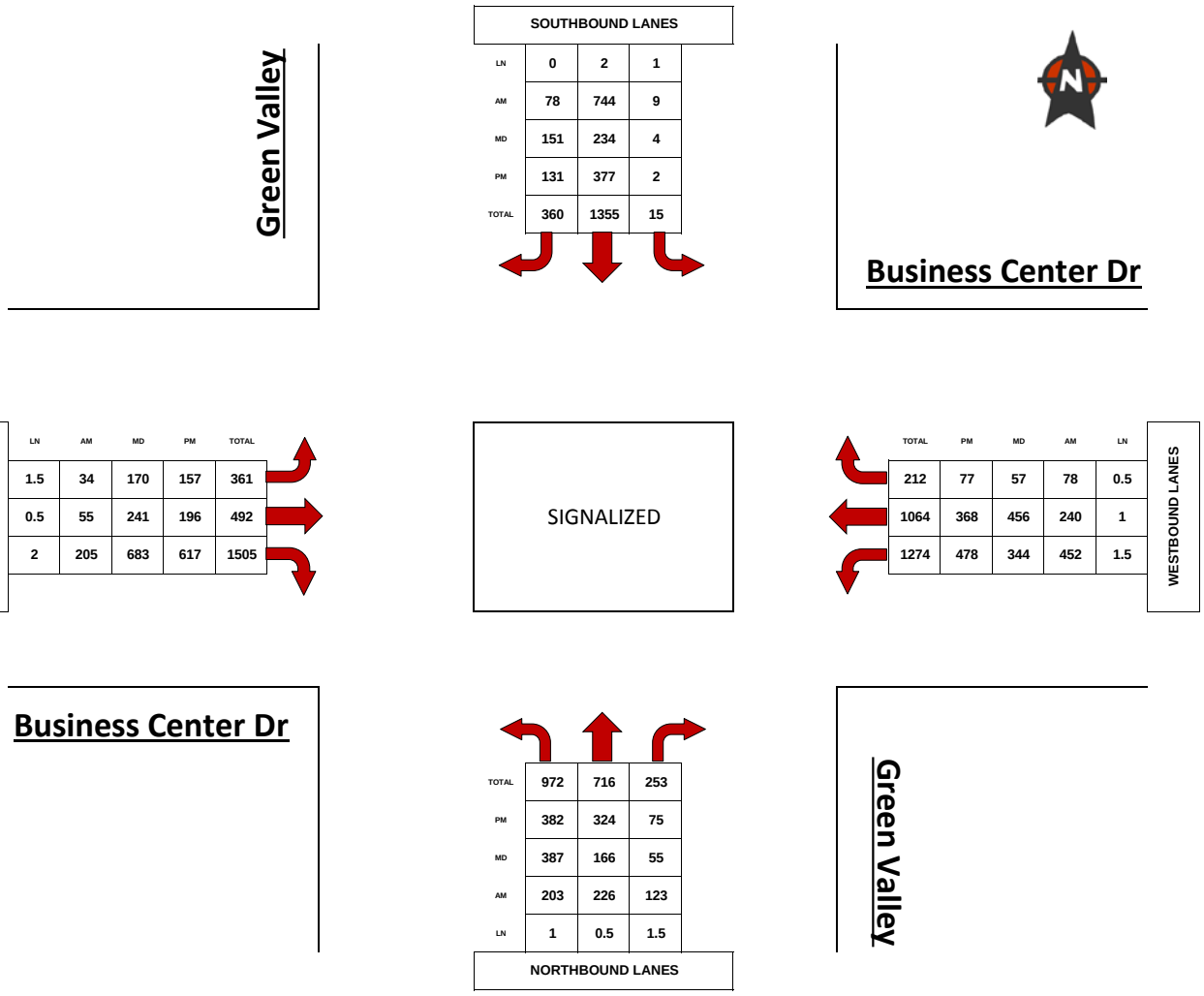
PEAK HOUR ITM SUMMARY

#004 Green Valley & Business Center Dr

LOCATION#:	004	QTD PROJ#:	2017294	AM PEAK:	730 AM
NORTH / SOUTH:	Green Valley	DATE:	Thursday, October 26, 2017	MD PEAK:	1215 PM
EAST / WEST:	Business Center Dr	VICINITY:	FAR	PM PEAK:	445 PM



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AM COUNT	6:30 AM	TO	8:30 AM
MD COUNT	11:30 AM	TO	1:30 PM
PM COUNT	4:30 PM	TO	6:30 PM

VEHICLE TURNING MOVEMENT COUNT

#004 Green Valley & Business Center Dr - AM PEAK

LOCATION#:	**004**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Green Valley**	**DATE:**	**Thursday, October 26, 2017**
EAST / WEST:	**Business Center Dr**	**VICINITY:**	**FAR**

DIRECTION:	**NL**	**NT**	**NR**	**SL**	**ST**	**SR**	**EL**	**ET**	**ER**	**WL**	**WT**	**WR**	**TOTALS**
LANES:	1	0.5	1.5	1	2	0	1.5	0.5	2	1.5	1	0.5	
6:30 AM	15	20	9	1	128	3	5	2	32	114	34	2	365
6:45 AM	36	25	18	1	105	12	5	3	33	101	48	7	394
7:00 AM	35	16	20	0	133	15	10	9	34	89	32	11	404
7:15 AM	22	20	22	3	136	21	12	8	47	108	29	11	439
7:30 AM	40	45	28	1	172	17	4	7	43	96	36	13	502
7:45 AM	42	60	41	0	207	15	10	25	30	131	61	21	643
8:00 AM	73	79	32	4	176	17	10	6	60	114	82	30	683
8:15 AM	48	42	22	4	189	29	10	17	72	111	61	14	619

VOLUME STATS:	**NL**	**NT**	**NR**	**SL**	**ST**	**SR**	**EL**	**ET**	**ER**	**WL**	**WT**	**WR**	
TOTAL:	311	307	192	14	1246	129	66	77	351	864	383	109	4049
P.H.V: [1]	203	226	123	9	744	78	34	55	205	452	240	78	2447
P.H.F: [2]		0.750			0.936			0.742			0.852		0.896

(1) Peak Hour Volume (Peak Hour Begins At 730 AM)
(2) Peak Hour Factor (directional aggregate)

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VEHICLE TURNING MOVEMENT COUNT

#004 Green Valley & Business Center Dr - MD PEAK

LOCATION#:	**004**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Green Valley**	**DATE:**	**Thursday, October 26, 2017**
EAST / WEST:	**Business Center Dr**	**VICINITY:**	**FAR**

DIRECTION:	**NL**	**NT**	**NR**	**SL**	**ST**	**SR**	**EL**	**ET**	**ER**	**WL**	**WT**	**WR**	**TOTALS**
LANES:	1	0.5	1.5	1	2	0	1.5	0.5	2	1.5	1	0.5	
11:30 AM	90	28	8	2	71	50	33	33	129	87	106	26	663
11:45 AM	81	21	16	0	67	51	40	31	147	98	129	18	699
12:00 PM	99	37	17	2	60	42	27	47	144	92	127	7	701
12:15 PM	98	51	11	1	57	36	41	68	174	85	105	9	736
12:30 PM	81	38	13	2	50	39	39	49	156	93	137	18	715
12:45 PM	105	48	13	1	45	29	39	42	157	93	122	13	707
1:00 PM	103	29	18	0	82	47	51	82	196	73	92	17	790
1:15 PM	91	27	12	1	31	40	44	42	153	96	116	10	663

VOLUME STATS:	**NL**	**NT**	**NR**	**SL**	**ST**	**SR**	**EL**	**ET**	**ER**	**WL**	**WT**	**WR**	
TOTAL:	748	279	108	9	463	334	314	394	1256	717	934	118	5674
P.H.V: [1]	387	166	55	4	234	151	170	241	683	344	456	57	2948
P.H.F: [2]		0.916			0.754			0.831			0.864		0.933

(1) Peak Hour Volume (Peak Hour Begins At 1215 PM)
(2) Peak Hour Factor (directional aggregate)

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VEHICLE TURNING MOVEMENT COUNT

#004 Green Valley & Business Center Dr - PM PEAK

LOCATION#:	**004**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Green Valley**	**DATE:**	**Thursday, October 26, 2017**
EAST / WEST:	**Business Center Dr**	**VICINITY:**	**FAR**

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	1	0.5	1.5	1	2	0	1.5	0.5	2	1.5	1	0.5	
4:30 PM	99	50	15	2	91	24	37	43	126	112	97	18	714
4:45 PM	97	83	25	0	113	20	28	35	139	119	97	20	776
5:00 PM	99	92	16	1	118	29	53	57	194	126	73	18	876
5:15 PM	100	81	21	1	65	53	35	47	146	119	111	20	799
5:30 PM	86	68	13	0	81	29	41	57	138	114	87	19	733
5:45 PM	113	90	20	1	73	26	58	35	114	78	69	18	695
6:00 PM	107	74	13	0	84	22	49	38	150	63	75	16	691
6:15 PM	76	80	16	1	71	28	41	40	142	76	58	20	649

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	777	618	139	6	696	231	342	352	1149	807	667	149	5933
P.H.V: [1]	382	324	75	2	377	131	157	196	617	478	368	77	3184
P.H.F: [2]		0.943			0.861			0.798			0.923		0.909

(1) Peak Hour Volume (Peak Hour Begins At 445 PM)
(2) Peak Hour Factor (directional aggregate)

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PEDESTRIAN CROSSWALK COUNTS

#004 Green Valley & Business Center Dr - AM PEAK

LOCATION#:	**004**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Green Valley**	**DATE:**	**Thursday, October 26, 2017**
EAST / WEST:	**Business Center Dr**	**VICINITY:**	**FAR**

DIRECTION:	NORTHERN CROSSWALK	SOUTHERN CROSSWALK	EASTERN CROSSWALK	WESTERN CROSSWALK	TOTALS
6:30 AM	0	0	0	0	
6:45 AM	0	0	0	0	
7:00 AM	0	3	0	0	3
7:15 AM	0	2	0	0	2
7:30 AM	0	0	0	0	
7:45 AM	0	0	0	0	
8:00 AM	0	0	0	0	
8:15 AM	0	1	0	0	1

VOLUME STATS:	NORTHERN CROSSWALK	SOUTHERN CROSSWALK	EASTERN CROSSWALK	WESTERN CROSSWALK	
TOTAL:	0	6	0	0	6
P.H.V: [1]	0	5	0	0	5
P.H.F: [2]	0.000	0.417	0.000	0.000	0.417

(1) Peak Hour Volume (Peak hour begins at: 700 AM)
(2) Peak Hour Factor

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PEDESTRIAN CROSSWALK COUNTS

#004 Green Valley & Business Center Dr - MD PEAK

LOCATION#:	**004**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Green Valley**	**DATE:**	**Thursday, October 26, 2017**
EAST / WEST:	**Business Center Dr**	**VICINITY:**	**FAR**

DIRECTION:	NORTHERN CROSSWALK	SOUTHERN CROSSWALK	EASTERN CROSSWALK	WESTERN CROSSWALK	TOTALS
11:30 AM	0	2	0	0	2
11:45 AM	0	0	0	0	
12:00 PM	0	2	0	0	2
12:15 PM	0	0	0	0	
12:30 PM	0	2	0	0	2
12:45 PM	0	0	0	0	
1:00 PM	0	1	0	0	1
1:15 PM	0	0	0	0	

VOLUME STATS:	NORTHERN CROSSWALK	SOUTHERN CROSSWALK	EASTERN CROSSWALK	WESTERN CROSSWALK	
TOTAL:	0	7	0	0	7
P.H.V: [1]	0	4	0	0	4
P.H.F: [2]	0.000	0.500	0.000	0.000	0.500

(1) Peak Hour Volume (Peak hour begins at: 1200 PM)
(2) Peak Hour Factor

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PEDESTRIAN CROSSWALK COUNTS

#004 Green Valley & Business Center Dr - PM PEAK

LOCATION#:	**004**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Green Valley**	**DATE:**	**Thursday, October 26, 2017**
EAST / WEST:	**Business Center Dr**	**VICINITY:**	**FAR**

DIRECTION:	NORTHERN CROSSWALK	SOUTHERN CROSSWALK	EASTERN CROSSWALK	WESTERN CROSSWALK	TOTALS
4:30 PM	0	1	0	0	1
4:45 PM	0	0	0	0	
5:00 PM	0	1	0	0	1
5:15 PM	0	0	0	0	
5:30 PM	0	0	0	0	
5:45 PM	0	0	0	0	
6:00 PM	0	0	0	0	
6:15 PM	0	1	0	0	1

VOLUME STATS:	NORTHERN CROSSWALK	SOUTHERN CROSSWALK	EASTERN CROSSWALK	WESTERN CROSSWALK	
TOTAL:	0	3	0	0	3
P.H.V: [1]	0	2	0	0	2
P.H.F: [2]	0.000	0.500	0.000	0.000	0.500

(1) Peak Hour Volume (Peak hour begins at: 430 PM)
(2) Peak Hour Factor

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BICYCLE TURNING MOVEMENT COUNT

#004 Green Valley & Business Center Dr - AM PEAK

LOCATION#:	**004**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Green Valley**	**DATE:**	**Thursday, October 26, 2017**
EAST / WEST:	**Business Center Dr**	**VICINITY:**	**FAR**

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	1	0.5	1.5	1	2	0	1.5	0.5	2	1.5	1	0.5	
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	0	0	0	0	0	0	0	0	0	0	0	0	0
P.H.V: [1]	0	0	0	0	0	0	0	0	0	0	0	0	0
P.H.F: [2]		0.000			0.000			0.000			0.000		0.000

(1) Peak Hour Volume (Peak Hour Begins At 0 AM)
(2) Peak Hour Factor (directional aggregate)

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BICYCLE TURNING MOVEMENT COUNT

#004 Green Valley & Business Center Dr - MD PEAK

LOCATION#:	**004**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Green Valley**	**DATE:**	**Thursday, October 26, 2017**
EAST / WEST:	**Business Center Dr**	**VICINITY:**	**FAR**

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	1	0.5	1.5	1	2	0	1.5	0.5	2	1.5	1	0.5	
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	
12:30 PM	1	0	1	0	0	0	0	0	0	0	0	0	2
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	
1:00 PM	1	0	1	0	0	0	0	0	0	0	0	0	2
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	2	0	2	0	0	0	0	0	0	0	0	0	4
P.H.V: [1]	2	0	2	0	0	0	0	0	0	0	0	0	4
P.H.F: [2]		0.500			0.000			0.000			0.000		0.500

(1) Peak Hour Volume (Peak Hour Begins At 1230 PM)
(2) Peak Hour Factor (directional aggregate)

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BICYCLE TURNING MOVEMENT COUNT

#004 Green Valley & Business Center Dr - PM PEAK

LOCATION#:	**004**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Green Valley**	**DATE:**	**Thursday, October 26, 2017**
EAST / WEST:	**Business Center Dr**	**VICINITY:**	**FAR**

DIRECTION:	**NL**	**NT**	**NR**	**SL**	**ST**	**SR**	**EL**	**ET**	**ER**	**WL**	**WT**	**WR**	**TOTALS**
LANES:	1	0.5	1.5	1	2	0	1.5	0.5	2	1.5	1	0.5	
4:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	
5:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	

VOLUME STATS:	**NL**	**NT**	**NR**	**SL**	**ST**	**SR**	**EL**	**ET**	**ER**	**WL**	**WT**	**WR**	
TOTAL:	0	3	0	0	0	0	0	0	0	0	0	0	3
P.H.V: [1]	0	3	0	0	0	0	0	0	0	0	0	0	3
P.H.F: [2]		0.750			0.000			0.000			0.000		0.750

(1) Peak Hour Volume (Peak Hour Begins At 430 PM)
(2) Peak Hour Factor (directional aggregate)

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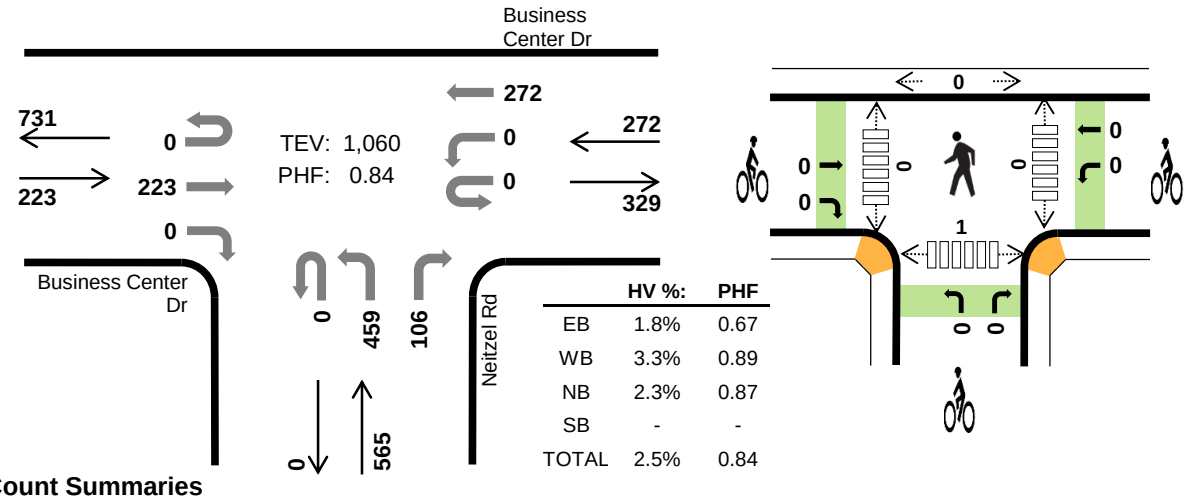
Neitzel Rd
Business Center Dr

N

Peak Hour

Date: 02-01-2018
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:30 AM to 8:30 AM



Two-Hour Count Summaries

Interval Start		Business Center Dr Eastbound				Business Center Dr Westbound				Neitzel Rd Northbound				0 Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	0	24	0	0	0	64	0	0	84	0	17	0	0	0	0	189	0
7:15 AM		0	0	40	0	0	0	72	0	0	96	0	13	0	0	0	0	221	0
7:30 AM		**0**	**0**	**52**	**0**	**0**	**0**	**76**	**0**	**0**	**111**	**0**	**23**	**0**	**0**	**0**	**0**	**262**	0
7:45 AM		**0**	**0**	**83**	**0**	**0**	**0**	**71**	**0**	**0**	**122**	**0**	**40**	**0**	**0**	**0**	**0**	**316**	988
8:00 AM		**0**	**0**	**44**	**0**	**0**	**0**	**62**	**0**	**0**	**110**	**0**	**26**	**0**	**0**	**0**	**0**	**242**	1,041
8:15 AM		**0**	**0**	**44**	**0**	**0**	**0**	**63**	**0**	**0**	**116**	**0**	**17**	**0**	**0**	**0**	**0**	**240**	**1,060**
8:30 AM		0	0	47	0	0	0	49	0	0	88	0	20	0	0	0	0	204	1,002
8:45 AM		0	0	36	0	0	0	52	0	0	107	0	9	0	0	0	0	204	890
Count Total		0	0	370	0	0	0	509	0	0	834	0	165	0	0	0	0	1,878	0
Peak Hour	**All**	**0**	**0**	**223**	**0**	**0**	**0**	**272**	**0**	**0**	**459**	**0**	**106**	**0**	**0**	**0**	**0**	**1,060**	**0**
	HV	**0**	**0**	**4**	**0**	**0**	**0**	**9**	**0**	**0**	**13**	**0**	**0**	**0**	**0**	**0**	**0**	**26**	**0**
	HV%	**-**	**-**	**2%**	**-**	**-**	**-**	**3%**	**-**	**-**	**3%**	**-**	**0%**	**-**	**-**	**-**	**-**	**2%**	**0**

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

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	3	0	2	0	*5*	0	0	0	0	*0*	0	0	0	0	*0*
7:15 AM	1	3	3	0	*7*	0	0	0	0	*0*	0	0	0	0	*0*
7:30 AM	**0**	**1**	**2**	**0**	***3***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:45 AM	**2**	**2**	**6**	**0**	***10***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
8:00 AM	**0**	**1**	**2**	**0**	***3***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**1**	*1*
8:15 AM	**2**	**5**	**3**	**0**	***10***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
8:30 AM	1	3	6	0	*10*	0	0	0	0	*0*	0	0	0	1	*1*
8:45 AM	1	4	10	0	*15*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	10	19	34	0	*63*	0	0	0	0	*0*	0	0	0	2	*2*
Peak Hr	**4**	**9**	**13**	**0**	***26***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**1**	***1***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Business Center Dr				Business Center Dr				Neitzel Rd				0				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	3	0	0	0	0	0	0	2	0	0	0	0	0	0	5	0
7:15 AM	0	0	1	0	0	0	3	0	0	3	0	0	0	0	0	0	7	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	0
7:45 AM	**0**	**0**	**2**	**0**	**0**	**0**	**2**	**0**	**0**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**10**	25
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	23
8:15 AM	**0**	**0**	**2**	**0**	**0**	**0**	**5**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**10**	**26**
8:30 AM	0	0	1	0	0	0	3	0	0	5	0	1	0	0	0	0	10	33
8:45 AM	0	0	1	0	0	0	4	0	0	10	0	0	0	0	0	0	15	38
Count Total	0	0	10	0	0	0	19	0	0	33	0	1	0	0	0	0	63	0
Peak Hour	**0**	**0**	**4**	**0**	**0**	**0**	**9**	**0**	**0**	**13**	**0**	**0**	**0**	**0**	**0**	**0**	**26**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	Business Center Dr			Business Center Dr			Neitzel Rd			0			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

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

PEAK HOUR ITM SUMMARY

#002 Lopes & I-80 EB On

LOCATION#:	002	QTD PROJ#:	2017294	AM PEAK:	730 AM
NORTH / SOUTH:	Lopes	DATE:	Thursday, October 26, 2017	MD PEAK:	1200 PM
EAST / WEST:	I-80 EB On	VICINITY:	FAR	PM PEAK:	500 PM

Lopes

SOUTHBOUND LANES

LN			
AM	477	386	0
MD	457	216	0
PM	434	315	0
TOTAL	1368	917	0

I-80 EB On

EASTBOUND LANES

LN	AM	MD	PM	TOTAL
1	315	333	368	1016
0	0	0	0	0
1	65	89	110	264

Signalized

WESTBOUND LANES

TOTAL	PM	MD	AM	LN
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

I-80 EB On

TOTAL			
PM	215	460	0
MD	137	338	0
AM	151	391	0
LN	0	2	0

NORTHBOUND LANES

Lopes

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AM COUNT	6:30 AM	TO	8:30 AM
MD COUNT	11:30 AM	TO	1:30 PM
PM COUNT	4:30 PM	TO	6:30 PM

VEHICLE TURNING MOVEMENT COUNT

#002 Lopes & I-80 EB On - AM PEAK

LOCATION#:	**002**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Lopes**	**DATE:**	**Thursday, October 26, 2017**
EAST / WEST:	**I-80 EB On**	**VICINITY:**	**FAR**

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	0	2	0	0	1	1	1	0	1	0	0	0	
6:30 AM	15	41	0	0	52	51	25	0	13	0	0	0	197
6:45 AM	28	76	0	0	80	60	35	0	19	0	0	0	298
7:00 AM	32	58	0	0	53	71	35	0	10	0	0	0	259
7:15 AM	35	61	0	0	66	91	36	0	17	0	0	0	306
7:30 AM	47	94	0	0	108	73	63	0	21	0	0	0	406
7:45 AM	47	98	0	0	124	95	106	0	20	0	0	0	490
8:00 AM	29	106	0	0	82	154	89	0	14	0	0	0	474
8:15 AM	28	93	0	0	72	155	57	0	10	0	0	0	415

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	261	627	0	0	637	750	446	0	124	0	0	0	2845
P.H.V: [1]	151	391	0	0	386	477	315	0	65	0	0	0	1785
P.H.F: [2]		0.934			0.914			0.754			0.000		0.911

(1) Peak Hour Volume (Peak Hour Begins At 730 AM)
(2) Peak Hour Factor (directional aggregate)

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VEHICLE TURNING MOVEMENT COUNT

#002 Lopes & I-80 EB On - MD PEAK

LOCATION#:	**002**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Lopes**	**DATE:**	**Thursday, October 26, 2017**
EAST / WEST:	**I-80 EB On**	**VICINITY:**	**FAR**

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	0	2	0	0	1	1	1	0	1	0	0	0	
11:30 AM	38	84	0	0	52	116	44	0	14	0	0	0	348
11:45 AM	32	94	0	0	43	95	75	0	25	0	0	0	364
12:00 PM	38	75	0	0	51	134	78	0	21	0	0	0	397
12:15 PM	34	86	0	0	48	118	84	0	19	0	0	0	389
12:30 PM	36	85	0	0	50	102	84	0	17	0	0	0	374
12:45 PM	29	92	0	0	67	103	87	0	32	0	0	0	410
1:00 PM	29	79	0	0	58	125	75	0	19	0	0	0	385
1:15 PM	49	80	0	0	49	119	79	0	22	0	0	0	398

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	285	675	0	0	418	912	606	0	169	0	0	0	3065
P.H.V: [1]	137	338	0	0	216	457	333	0	89	0	0	0	1570
P.H.F: [2]		0.981			0.909			0.887			0.000		0.957

(1) Peak Hour Volume (Peak Hour Begins At 1200 PM)
(2) Peak Hour Factor (directional aggregate)

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VEHICLE TURNING MOVEMENT COUNT

#002 Lopes & I-80 EB On - PM PEAK

LOCATION#:	**002**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Lopes**	**DATE:**	**Thursday, October 26, 2017**
EAST / WEST:	**I-80 EB On**	**VICINITY:**	**FAR**

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	0	2	0	0	1	1	1	0	1	0	0	0	
4:30 PM	39	114	0	0	67	125	83	0	31	0	0	0	459
4:45 PM	35	120	0	0	73	118	84	0	33	0	0	0	463
5:00 PM	54	110	0	0	83	127	99	0	21	0	0	0	494
5:15 PM	34	120	0	0	75	113	106	0	35	0	0	0	483
5:30 PM	37	115	0	0	83	93	91	0	28	0	0	0	447
5:45 PM	90	115	0	0	74	101	72	0	26	0	0	0	478
6:00 PM	99	112	0	0	61	98	81	0	21	0	0	0	472
6:15 PM	88	104	0	0	57	111	90	0	21	0	0	0	471

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	476	910	0	0	573	886	706	0	216	0	0	0	3767
P.H.V: [1]	215	460	0	0	315	434	368	0	110	0	0	0	1902
P.H.F: [2]		0.823			0.892			0.848			0.000		0.963

(1) Peak Hour Volume (Peak Hour Begins At 500 PM)
(2) Peak Hour Factor (directional aggregate)

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PEDESTRIAN CROSSWALK COUNTS

#002 Lopes & I-80 EB On - AM PEAK

LOCATION#:	**002**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Lopes**	**DATE:**	**Thursday, October 26, 2017**
EAST / WEST:	**I-80 EB On**	**VICINITY:**	**FAR**

DIRECTION:	NORTHERN CROSSWALK	SOUTHERN CROSSWALK	EASTERN CROSSWALK	WESTERN CROSSWALK	TOTALS
6:30 AM	0	0	0	0	
6:45 AM	0	0	0	1	1
7:00 AM	0	0	0	0	
7:15 AM	0	0	0	0	
7:30 AM	0	0	0	0	
7:45 AM	0	0	0	0	
8:00 AM	0	0	0	0	
8:15 AM	0	0	0	0	

VOLUME STATS:	NORTHERN CROSSWALK	SOUTHERN CROSSWALK	EASTERN CROSSWALK	WESTERN CROSSWALK	
TOTAL:	0	0	0	1	1
P.H.V: [1]	0	0	0	1	1
P.H.F: [2]	0.000	0.000	0.000	0.250	0.250

(1) Peak Hour Volume (Peak hour begins at: 645 AM)
(2) Peak Hour Factor

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PEDESTRIAN CROSSWALK COUNTS

#002 Lopes & I-80 EB On - MD PEAK

LOCATION#:	**002**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Lopes**	**DATE:**	**Thursday, October 26, 2017**
EAST / WEST:	**I-80 EB On**	**VICINITY:**	**FAR**

DIRECTION:	NORTHERN CROSSWALK	SOUTHERN CROSSWALK	EASTERN CROSSWALK	WESTERN CROSSWALK	TOTALS
11:30 AM	0	0	0	0	
11:45 AM	0	0	0	0	
12:00 PM	0	0	0	0	
12:15 PM	0	0	0	0	
12:30 PM	0	0	0	0	
12:45 PM	0	0	0	0	
1:00 PM	0	0	0	0	
1:15 PM	0	0	0	1	1

VOLUME STATS:	NORTHERN CROSSWALK	SOUTHERN CROSSWALK	EASTERN CROSSWALK	WESTERN CROSSWALK	
TOTAL:	0	0	0	1	1
P.H.V: [1]	0	0	0	1	1
P.H.F: [2]	0.000	0.000	0.000	0.250	0.250

(1) Peak Hour Volume (Peak hour begins at: 115 PM)
(2) Peak Hour Factor

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PEDESTRIAN CROSSWALK COUNTS

#002 Lopes & I-80 EB On - PM PEAK

LOCATION#:	**002**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Lopes**	**DATE:**	**Thursday, October 26, 2017**
EAST / WEST:	**I-80 EB On**	**VICINITY:**	**FAR**

DIRECTION:	NORTHERN CROSSWALK	SOUTHERN CROSSWALK	EASTERN CROSSWALK	WESTERN CROSSWALK	TOTALS
4:30 PM	0	0	0	0	
4:45 PM	0	0	0	1	1
5:00 PM	0	0	0	0	
5:15 PM	0	0	0	0	
5:30 PM	0	0	0	1	1
5:45 PM	0	0	0	0	
6:00 PM	0	0	0	0	
6:15 PM	0	0	0	0	

VOLUME STATS:	NORTHERN CROSSWALK	SOUTHERN CROSSWALK	EASTERN CROSSWALK	WESTERN CROSSWALK	
TOTAL:	0	0	0	2	2
P.H.V: [1]	0	0	0	2	2
P.H.F: [2]	0.000	0.000	0.000	0.500	0.500

(1) Peak Hour Volume (Peak hour begins at: 445 PM)
(2) Peak Hour Factor

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BICYCLE TURNING MOVEMENT COUNT

#002 Lopes & I-80 EB On - AM PEAK

LOCATION#:	**002**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Lopes**	**DATE:**	**Thursday, October 26, 2017**
EAST / WEST:	**I-80 EB On**	**VICINITY:**	**FAR**

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	0	2	0	0	1	1	1	0	1	0	0	0	
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	0	0	0	0	0	0	0	0	0	0	0	0	0
P.H.V: [1]	0	0	0	0	0	0	0	0	0	0	0	0	0
P.H.F: [2]		0.000			0.000			0.000			0.000		0.000

(1) Peak Hour Volume (Peak Hour Begins At 0 AM)
(2) Peak Hour Factor (directional aggregate)

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BICYCLE TURNING MOVEMENT COUNT

#002 Lopes & I-80 EB On - MD PEAK

LOCATION#:	**002**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Lopes**	**DATE:**	**Thursday, October 26, 2017**
EAST / WEST:	**I-80 EB On**	**VICINITY:**	**FAR**

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	0	2	0	0	1	1	1	0	1	0	0	0	
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	
12:45 PM	0	2	0	0	0	0	0	0	0	0	0	0	2
1:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	0	3	0	0	0	0	0	0	0	0	0	0	3
P.H.V: [1]	0	3	0	0	0	0	0	0	0	0	0	0	3
P.H.F: [2]		0.375			0.000			0.000			0.000		0.375

(1) Peak Hour Volume (Peak Hour Begins At 1245 PM)
(2) Peak Hour Factor (directional aggregate)

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BICYCLE TURNING MOVEMENT COUNT

#002 Lopes & I-80 EB On - PM PEAK

LOCATION#:	**002**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Lopes**	**DATE:**	**Thursday, October 26, 2017**
EAST / WEST:	**I-80 EB On**	**VICINITY:**	**FAR**

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	0	2	0	0	1	1	1	0	1	0	0	0	
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	
4:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	2	0	0	0	0	0	0	0	2
5:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	0	2	0	0	2	0	0	0	0	0	0	0	4
P.H.V: [1]	0	2	0	0	2	0	0	0	0	0	0	0	4
P.H.F: [2]		0.500			0.250			0.000			0.000		0.500

(1) Peak Hour Volume (Peak Hour Begins At 445 PM)
(2) Peak Hour Factor (directional aggregate)

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PEAK HOUR ITM SUMMARY

#003 Green Valley & I-80 WB On

LOCATION#:	003	QTD PROJ#:	2017294	AM PEAK:	730 AM
NORTH / SOUTH:	Green Valley	DATE:	Tuesday, October 31, 2017	MD PEAK:	1200 PM
EAST / WEST:	I-80 WB On	VICINITY:	FAR	PM PEAK:	500 PM

Green Valley

SOUTHBOUND LANES

LN			
AM	453	884	0
MD	519	698	0
PM	586	799	0
TOTAL	1558	2381	0

I-80 WB On

EASTBOUND LANES

LN	AM	MD	PM	TOTAL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

NO CONTROLS

WESTBOUND LANES

TOTAL	PM	MD	AM	LN
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

I-80 WB On

TOTAL			
PM	115	837	0
MD	65	486	0
AM	101	567	0
LN	1	1	0

NORTHBOUND LANES

Green Valley

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AM COUNT	6:30 AM	TO	8:30 AM
MD COUNT	11:30 AM	TO	1:30 PM
PM COUNT	4:30 PM	TO	6:30 PM

VEHICLE TURNING MOVEMENT COUNT

#003 Green Valley & I-80 WB On - AM PEAK

LOCATION#:	**003**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Green Valley**	**DATE:**	**Tuesday, October 31, 2017**
EAST / WEST:	**I-80 WB On**	**VICINITY:**	**FAR**

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	1	1	0	0	1	1	0	0	0	0	0	0	
6:30 AM	34	41	0	0	119	161	0	0	0	0	0	0	355
6:45 AM	30	83	0	0	166	132	0	0	0	0	0	0	411
7:00 AM	34	68	0	0	133	121	0	0	0	0	0	0	356
7:15 AM	45	75	0	0	153	134	0	0	0	0	0	0	407
7:30 AM	21	113	0	0	189	123	0	0	0	0	0	0	446
7:45 AM	29	166	0	0	237	115	0	0	0	0	0	0	547
8:00 AM	27	161	0	0	234	108	0	0	0	0	0	0	530
8:15 AM	24	127	0	0	224	107	0	0	0	0	0	0	482

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	244	834	0	0	1455	1001	0	0	0	0	0	0	3534
P.H.V: [1]	101	567	0	0	884	453	0	0	0	0	0	0	2005
P.H.F: [2]		0.856			0.950			0.000			0.000		0.916

(1) Peak Hour Volume (Peak Hour Begins At 730 AM)
(2) Peak Hour Factor (directional aggregate)

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VEHICLE TURNING MOVEMENT COUNT

#003 Green Valley & I-80 WB On - MD PEAK

LOCATION#:	**003**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Green Valley**	**DATE:**	**Tuesday, October 31, 2017**
EAST / WEST:	**I-80 WB On**	**VICINITY:**	**FAR**

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	1	1	0	0	1	1	0	0	0	0	0	0	
11:30 AM	25	110	0	0	158	104	0	0	0	0	0	0	397
11:45 AM	21	118	0	0	147	98	0	0	0	0	0	0	384
12:00 PM	16	128	0	0	157	115	0	0	0	0	0	0	416
12:15 PM	16	111	0	0	187	136	0	0	0	0	0	0	450
12:30 PM	18	113	0	0	181	148	0	0	0	0	0	0	460
12:45 PM	15	134	0	0	173	120	0	0	0	0	0	0	442
1:00 PM	17	103	0	0	157	113	0	0	0	0	0	0	390
1:15 PM	21	121	0	0	155	114	0	0	0	0	0	0	411

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	149	938	0	0	1315	948	0	0	0	0	0	0	3350
P.H.V: [1]	65	486	0	0	698	519	0	0	0	0	0	0	1768
P.H.F: [2]		0.924			0.925			0.000			0.000		0.961

(1) Peak Hour Volume (Peak Hour Begins At 1200 PM)
(2) Peak Hour Factor (directional aggregate)

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VEHICLE TURNING MOVEMENT COUNT

#003 Green Valley & I-80 WB On - PM PEAK

LOCATION#:	**003**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Green Valley**	**DATE:**	**Tuesday, October 31, 2017**
EAST / WEST:	**I-80 WB On**	**VICINITY:**	**FAR**

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	1	1	0	0	1	1	0	0	0	0	0	0	
4:30 PM	30	164	0	0	190	161	0	0	0	0	0	0	545
4:45 PM	23	172	0	0	204	125	0	0	0	0	0	0	524
5:00 PM	33	206	0	0	214	189	0	0	0	0	0	0	642
5:15 PM	29	216	0	0	203	166	0	0	0	0	0	0	614
5:30 PM	24	201	0	0	189	119	0	0	0	0	0	0	533
5:45 PM	29	214	0	0	193	112	0	0	0	0	0	0	548
6:00 PM	22	191	0	0	180	98	0	0	0	0	0	0	491
6:15 PM	20	216	0	0	185	115	0	0	0	0	0	0	536

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	210	1580	0	0	1558	1085	0	0	0	0	0	0	4433
P.H.V: [1]	115	837	0	0	799	586	0	0	0	0	0	0	2337
P.H.F: [2]		0.971			0.859			0.000			0.000		0.910

(1) Peak Hour Volume (Peak Hour Begins At 500 PM)
(2) Peak Hour Factor (directional aggregate)

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PEDESTRIAN CROSSWALK COUNTS

#003 Green Valley & I-80 WB On - AM PEAK

LOCATION#:	**003**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Green Valley**	**DATE:**	**Tuesday, October 31, 2017**
EAST / WEST:	**I-80 WB On**	**VICINITY:**	**FAR**

DIRECTION:	NORTHERN CROSSWALK	SOUTHERN CROSSWALK	EASTERN CROSSWALK	WESTERN CROSSWALK	TOTALS
6:30 AM	0	0	0	0	
6:45 AM	0	0	0	0	
7:00 AM	0	0	0	0	
7:15 AM	0	0	0	0	
7:30 AM	0	0	0	0	
7:45 AM	0	0	0	0	
8:00 AM	0	0	0	0	
8:15 AM	0	0	0	0	

VOLUME STATS:	NORTHERN CROSSWALK	SOUTHERN CROSSWALK	EASTERN CROSSWALK	WESTERN CROSSWALK	
TOTAL:	0	0	0	0	0
P.H.V: [1]	0	0	0	0	0
P.H.F: [2]	0.000	0.000	0.000	0.000	0.000

(1) Peak Hour Volume (Peak hour begins at: 0 AM)
(2) Peak Hour Factor

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PEDESTRIAN CROSSWALK COUNTS

#003 Green Valley & I-80 WB On - MD PEAK

LOCATION#:	**003**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Green Valley**	**DATE:**	**Tuesday, October 31, 2017**
EAST / WEST:	**I-80 WB On**	**VICINITY:**	**FAR**

DIRECTION:	NORTHERN CROSSWALK	SOUTHERN CROSSWALK	EASTERN CROSSWALK	WESTERN CROSSWALK	TOTALS
11:30 AM	0	0	0	1	1
11:45 AM	0	0	0	0	
12:00 PM	0	0	0	0	
12:15 PM	0	0	0	0	
12:30 PM	0	0	0	0	
12:45 PM	0	0	0	0	
1:00 PM	0	0	0	2	2
1:15 PM	0	0	0	0	

VOLUME STATS:	NORTHERN CROSSWALK	SOUTHERN CROSSWALK	EASTERN CROSSWALK	WESTERN CROSSWALK	
TOTAL:	0	0	0	3	3
P.H.V: [1]	0	0	0	2	2
P.H.F: [2]	0.000	0.000	0.000	0.250	0.250

(1) Peak Hour Volume (Peak hour begins at: 100 PM)
(2) Peak Hour Factor

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PEDESTRIAN CROSSWALK COUNTS

#003 Green Valley & I-80 WB On - PM PEAK

LOCATION#:	**003**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Green Valley**	**DATE:**	**Tuesday, October 31, 2017**
EAST / WEST:	**I-80 WB On**	**VICINITY:**	**FAR**

DIRECTION:	NORTHERN CROSSWALK	SOUTHERN CROSSWALK	EASTERN CROSSWALK	WESTERN CROSSWALK	TOTALS
4:30 PM	0	0	0	0	
4:45 PM	0	0	0	0	
5:00 PM	0	0	0	0	
5:15 PM	0	0	0	0	
5:30 PM	0	0	0	0	
5:45 PM	0	0	0	0	
6:00 PM	0	0	0	0	
6:15 PM	0	0	0	0	

VOLUME STATS:	NORTHERN CROSSWALK	SOUTHERN CROSSWALK	EASTERN CROSSWALK	WESTERN CROSSWALK	
TOTAL:	0	0	0	0	0
P.H.V: [1]	0	0	0	0	0
P.H.F: [2]	0.000	0.000	0.000	0.000	0.000

(1) Peak Hour Volume (Peak hour begins at: 0 AM)
(2) Peak Hour Factor

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BICYCLE TURNING MOVEMENT COUNT

#003 Green Valley & I-80 WB On - AM PEAK

LOCATION#:	**003**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Green Valley**	**DATE:**	**Tuesday, October 31, 2017**
EAST / WEST:	**I-80 WB On**	**VICINITY:**	**FAR**

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	1	1	0	0	1	1	0	0	0	0	0	0	
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	0	0	0	0	0	0	0	0	0	0	0	0	0
P.H.V: [1]	0	0	0	0	0	0	0	0	0	0	0	0	0
P.H.F: [2]		0.000			0.000			0.000			0.000		0.000

(1) Peak Hour Volume (Peak Hour Begins At 0 AM)
(2) Peak Hour Factor (directional aggregate)

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BICYCLE TURNING MOVEMENT COUNT

#003 Green Valley & I-80 WB On - MD PEAK

LOCATION#:	**003**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Green Valley**	**DATE:**	**Tuesday, October 31, 2017**
EAST / WEST:	**I-80 WB On**	**VICINITY:**	**FAR**

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	1	1	0	0	1	1	0	0	0	0	0	0	
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	0	0	0	0	0	0	0	0	0	0	0	0	0
P.H.V: [1]	0	0	0	0	0	0	0	0	0	0	0	0	0
P.H.F: [2]		0.000			0.000			0.000			0.000		0.000

(1) Peak Hour Volume (Peak Hour Begins At 0 AM)
(2) Peak Hour Factor (directional aggregate)

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BICYCLE TURNING MOVEMENT COUNT

#003 Green Valley & I-80 WB On - PM PEAK

LOCATION#:	**003**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Green Valley**	**DATE:**	**Tuesday, October 31, 2017**
EAST / WEST:	**I-80 WB On**	**VICINITY:**	**FAR**

DIRECTION:	**NL**	**NT**	**NR**	**SL**	**ST**	**SR**	**EL**	**ET**	**ER**	**WL**	**WT**	**WR**	**TOTALS**
LANES:	1	1	0	0	1	1	0	0	0	0	0	0	
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	
5:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	

VOLUME STATS:	**NL**	**NT**	**NR**	**SL**	**ST**	**SR**	**EL**	**ET**	**ER**	**WL**	**WT**	**WR**	
TOTAL:	0	0	0	0	1	0	0	0	0	0	0	0	1
P.H.V. [1]	0	0	0	0	1	0	0	0	0	0	0	0	1
P.H.F. [2]		0.000			0.250			0.000			0.000		0.250

(1) Peak Hour Volume (Peak Hour Begins At 545 PM)
(2) Peak Hour Factor (directional aggregate)

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PEAK HOUR ITM SUMMARY

#008 West America Dr & Mangels Dr

LOCATION#:	008	QTD PROJ#:	2017294	AM PEAK:	730 AM
NORTH / SOUTH:	West America Dr	DATE:	Thursday, October 26, 2017	MD PEAK:	1230 PM
EAST / WEST:	Mangels Dr	VICINITY:	FAR	PM PEAK:	430 PM

West America Dr

SOUTHBOUND LANES

LN	0.5	1.5	0
AM	110	52	0
MD	78	37	0
PM	116	67	0
TOTAL	304	156	0

Mangels Dr

EASTBOUND LANES

LN	AM	MD	PM	TOTAL
2	91	73	63	227
0	0	0	0	0
2	223	131	148	502

SIGNALIZED

WESTBOUND LANES

TOTAL	PM	MD	AM	LN
86	13	22	51	0
613	259	197	157	1
0	0	0	0	0

Mangels Dr

TOTAL	14	47	0
PM	9	13	0
MD	2	15	0
AM	3	19	0
LN	1.5	1.5	0

NORTHBOUND LANES

West America Dr

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AM COUNT	6:30 AM	TO	8:30 AM
MD COUNT	11:30 AM	TO	1:30 PM
PM COUNT	4:30 PM	TO	6:30 PM

VEHICLE TURNING MOVEMENT COUNT

#008 West America Dr & Mangels Dr - AM PEAK

LOCATION#:	**008**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**West America Dr**	**DATE:**	**Thursday, October 26, 2017**
EAST / WEST:	**Mangels Dr**	**VICINITY:**	**FAR**

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	1.5	1.5	0	0	1.5	0.5	2	0	2	0	1	0	
6:30 AM	0	3	0	0	13	8	4	0	22	0	10	3	63
6:45 AM	1	4	0	0	5	8	7	0	26	0	18	7	76
7:00 AM	0	3	0	0	9	5	6	0	31	0	16	4	74
7:15 AM	0	3	0	0	10	9	8	0	34	0	22	9	95
7:30 AM	0	3	0	0	14	14	17	0	53	0	24	9	134
7:45 AM	1	10	0	0	8	50	29	0	54	0	48	19	219
8:00 AM	0	2	0	0	15	32	15	0	50	0	50	20	184
8:15 AM	2	4	0	0	15	14	30	0	66	0	35	3	169

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	4	32	0	0	89	140	116	0	336	0	223	74	1014
P.H.V: [1]	3	19	0	0	52	110	91	0	223	0	157	51	706
P.H.F: [2]		0.500			0.698			0.818			0.743		0.806

(1) Peak Hour Volume (Peak Hour Begins At 730 AM)
(2) Peak Hour Factor (directional aggregate)

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VEHICLE TURNING MOVEMENT COUNT

#008 West America Dr & Mangels Dr - MD PEAK

LOCATION#:	**008**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**West America Dr**	**DATE:**	**Thursday, October 26, 2017**
EAST / WEST:	**Mangels Dr**	**VICINITY:**	**FAR**

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	1.5	1.5	0	0	1.5	0.5	2	0	2	0	1	0	
11:30 AM	1	2	0	0	21	18	25	0	42	0	38	5	152
11:45 AM	0	4	0	0	12	13	16	0	42	0	41	10	138
12:00 PM	2	3	0	0	14	21	10	0	33	0	29	5	117
12:15 PM	2	5	0	0	12	5	19	0	37	0	53	5	138
12:30 PM	0	8	0	0	5	19	11	0	31	0	42	4	120
12:45 PM	0	2	0	0	9	19	19	0	27	0	56	6	138
1:00 PM	1	2	0	0	14	28	22	0	37	0	49	6	159
1:15 PM	1	3	0	0	9	12	21	0	36	0	50	6	138

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	7	29	0	0	96	135	143	0	285	0	358	47	1100
P.H.V: [1]	2	15	0	0	37	78	73	0	131	0	197	22	555
P.H.F: [2]		0.531			0.685			0.864			0.883		0.873

(1) Peak Hour Volume (Peak Hour Begins At 1230 PM)
(2) Peak Hour Factor (directional aggregate)

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VEHICLE TURNING MOVEMENT COUNT

#008 West America Dr & Mangels Dr - PM PEAK

LOCATION#:	**008**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**West America Dr**	**DATE:**	**Thursday, October 26, 2017**
EAST / WEST:	**Mangels Dr**	**VICINITY:**	**FAR**

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	1.5	1.5	0	0	1.5	0.5	2	0	2	0	1	0	
4:30 PM	3	4	0	0	18	23	14	0	39	0	59	2	162
4:45 PM	1	4	0	0	14	20	16	0	37	0	62	4	158
5:00 PM	4	2	0	0	27	50	14	0	38	0	71	5	211
5:15 PM	1	3	0	0	8	23	19	0	34	0	67	2	157
5:30 PM	3	6	0	0	12	17	14	0	38	0	45	5	140
5:45 PM	0	1	0	0	6	15	18	0	36	0	40	4	120
6:00 PM	0	5	0	0	18	16	16	0	35	0	44	1	135
6:15 PM	0	6	0	0	13	15	9	0	27	0	44	4	118

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	12	31	0	0	116	179	120	0	284	0	432	27	1201
P.H.V: [1]	9	13	0	0	67	116	63	0	148	0	259	13	688
P.H.F: [2]		0.786			0.594			0.995			0.895		0.815

(1) Peak Hour Volume (Peak Hour Begins At 430 PM)
(2) Peak Hour Factor (directional aggregate)

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PEDESTRIAN CROSSWALK COUNTS

#008 West America Dr & Mangels Dr - AM PEAK

LOCATION#:	**008**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**West America Dr**	**DATE:**	**Thursday, October 26, 2017**
EAST / WEST:	**Mangels Dr**	**VICINITY:**	**FAR**

DIRECTION:	NORTHERN CROSSWALK	SOUTHERN CROSSWALK	EASTERN CROSSWALK	WESTERN CROSSWALK	TOTALS
6:30 AM	0	0	0	1	1
6:45 AM	0	0	0	0	
7:00 AM	0	0	0	2	2
7:15 AM	0	0	0	0	
7:30 AM	0	0	0	0	
7:45 AM	0	0	0	0	
8:00 AM	0	0	0	0	
8:15 AM	0	0	0	1	1

VOLUME STATS:	NORTHERN CROSSWALK	SOUTHERN CROSSWALK	EASTERN CROSSWALK	WESTERN CROSSWALK	
TOTAL:	0	0	0	4	4
P.H.V: [1]	0	0	0	3	3
P.H.F: [2]	0.000	0.000	0.000	0.375	0.375

(1) Peak Hour Volume (Peak hour begins at: 630 AM)
(2) Peak Hour Factor

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PEDESTRIAN CROSSWALK COUNTS

#008 West America Dr & Mangels Dr - MD PEAK

LOCATION#:	**008**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**West America Dr**	**DATE:**	**Thursday, October 26, 2017**
EAST / WEST:	**Mangels Dr**	**VICINITY:**	**FAR**

DIRECTION:	NORTHERN CROSSWALK	SOUTHERN CROSSWALK	EASTERN CROSSWALK	WESTERN CROSSWALK	TOTALS
11:30 AM	3	0	0	1	4
11:45 AM	1	0	0	1	2
12:00 PM	0	0	0	0	
12:15 PM	0	0	0	0	
12:30 PM	0	0	0	0	
12:45 PM	2	0	0	0	2
1:00 PM	0	0	0	0	
1:15 PM	0	0	0	0	

VOLUME STATS:	NORTHERN CROSSWALK	SOUTHERN CROSSWALK	EASTERN CROSSWALK	WESTERN CROSSWALK	
TOTAL:	6	0	0	2	8
P.H.V: [1]	4	0	0	2	6
P.H.F: [2]	0.333	0.000	0.000	0.500	0.375

(1) Peak Hour Volume (Peak hour begins at: 1130 AM)
(2) Peak Hour Factor

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PEDESTRIAN CROSSWALK COUNTS

#008 West America Dr & Mangels Dr - PM PEAK

LOCATION#:	**008**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**West America Dr**	**DATE:**	**Thursday, October 26, 2017**
EAST / WEST:	**Mangels Dr**	**VICINITY:**	**FAR**

DIRECTION:	NORTHERN CROSSWALK	SOUTHERN CROSSWALK	EASTERN CROSSWALK	WESTERN CROSSWALK	TOTALS
4:30 PM	1	0	0	0	1
4:45 PM	0	0	0	0	
5:00 PM	0	1	0	1	2
5:15 PM	0	0	0	0	
5:30 PM	0	0	0	0	
5:45 PM	1	0	0	0	1
6:00 PM	0	0	0	0	
6:15 PM	0	0	0	0	

VOLUME STATS:	NORTHERN CROSSWALK	SOUTHERN CROSSWALK	EASTERN CROSSWALK	WESTERN CROSSWALK	
TOTAL:	2	1	0	1	4
P.H.V: [1]	1	1	0	1	3
P.H.F: [2]	0.250	0.250	0.000	0.250	0.375

(1) Peak Hour Volume (Peak hour begins at: 500 PM)
(2) Peak Hour Factor

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BICYCLE TURNING MOVEMENT COUNT

#008 West America Dr & Mangels Dr - AM PEAK

LOCATION#:	**008**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**West America Dr**	**DATE:**	**Thursday, October 26, 2017**
EAST / WEST:	**Mangels Dr**	**VICINITY:**	**FAR**

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	1.5	1.5	0	0	1.5	0.5	2	0	2	0	1	0	
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	0	0	0	0	0	0	0	0	0	0	0	0	0
P.H.V: [1]	0	0	0	0	0	0	0	0	0	0	0	0	0
P.H.F: [2]		0.000			0.000			0.000			0.000		0.000

(1) Peak Hour Volume (Peak Hour Begins At 0 AM)
(2) Peak Hour Factor (directional aggregate)

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BICYCLE TURNING MOVEMENT COUNT

#008 West America Dr & Mangels Dr - MD PEAK

LOCATION#:	**008**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**West America Dr**	**DATE:**	**Thursday, October 26, 2017**
EAST / WEST:	**Mangels Dr**	**VICINITY:**	**FAR**

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	1.5	1.5	0	0	1.5	0.5	2	0	2	0	1	0	
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	0	0	0	0	0	0	0	0	0	0	0	0	0
P.H.V: [1]	0	0	0	0	0	0	0	0	0	0	0	0	0
P.H.F: [2]		0.000			0.000			0.000			0.000		0.000

(1) Peak Hour Volume (Peak Hour Begins At 0 AM)
(2) Peak Hour Factor (directional aggregate)

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BICYCLE TURNING MOVEMENT COUNT

#008 West America Dr & Mangels Dr - PM PEAK

LOCATION#:	**008**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**West America Dr**	**DATE:**	**Thursday, October 26, 2017**
EAST / WEST:	**Mangels Dr**	**VICINITY:**	**FAR**

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	1.5	1.5	0	0	1.5	0.5	2	0	2	0	1	0	
4:30 PM	0	0	0	0	0	0	1	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	2	0	2
5:00 PM	0	0	0	0	2	0	2	0	0	0	0	0	4
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	
5:45 PM	0	0	0	0	0	4	0	0	0	0	0	0	4
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	0	0	0	0	2	4	3	0	0	0	2	0	11
P.H.V: [1]	0	0	0	0	2	4	2	0	0	0	0	0	8
P.H.F: [2]		0.000			0.375			0.250			0.000		0.500

(1) Peak Hour Volume (Peak Hour Begins At 500 PM)
(2) Peak Hour Factor (directional aggregate)

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PEAK HOUR ITM SUMMARY

#009 West America Dr & Business Center Dr

LOCATION#:	009	QTD PROJ#:	2017294	AM PEAK:	730 AM
NORTH / SOUTH:	West America Dr	DATE:	Tuesday, October 31, 2017	MD PEAK:	1200 PM
EAST / WEST:	Business Center Dr	VICINITY:	FAR	PM PEAK:	430 PM

West America Dr

SOUTHBOUND LANES

LN			
AM	48	0	220
MD	39	0	142
PM	26	0	188
TOTAL	113	0	550

Business Center Dr

EASTBOUND LANES

LN	AM	MD	PM	TOTAL
2	31	20	34	85
2	99	297	432	828
0	0	0	0	0

SIGNALIZED

WESTBOUND LANES

TOTAL	PM	MD	AM	LN
6	1	3	2	0
1181	234	409	538	2
0	0	0	0	1

Business Center Dr

TOTAL			
PM	0	0	0
MD	0	0	0
AM	0	0	0
LN	0	0	0

NORTHBOUND LANES

West America Dr

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AM COUNT	6:30 AM	TO	8:30 AM
MD COUNT	11:30 AM	TO	1:30 PM
PM COUNT	4:30 PM	TO	6:30 PM

VEHICLE TURNING MOVEMENT COUNT

#009 West America Dr & Business Center Dr - AM PEAK

LOCATION#:	**009**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**West America Dr**	**DATE:**	**Tuesday, October 31, 2017**
EAST / WEST:	**Business Center Dr**	**VICINITY:**	**FAR**

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	0	0	0	1	0	1	2	2	0	1	2	0	
6:30 AM	0	0	0	17	0	8	5	5	0	0	128	0	163
6:45 AM	0	0	0	32	0	10	7	8	0	0	112	0	169
7:00 AM	0	0	0	21	0	4	3	13	0	0	86	1	128
7:15 AM	0	0	0	36	0	19	0	12	0	0	101	0	168
7:30 AM	0	0	0	65	0	16	5	22	0	0	152	1	261
7:45 AM	0	0	0	61	0	12	11	22	0	0	176	0	282
8:00 AM	0	0	0	36	0	11	8	27	0	0	123	1	206
8:15 AM	0	0	0	58	0	9	7	28	0	0	87	0	189

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	0	0	0	326	0	89	46	137	0	0	965	3	1566
P.H.V: [1]	0	0	0	220	0	48	31	99	0	0	538	2	938
P.H.F: [2]		0.000			0.827			0.929			0.767		0.832

(1) Peak Hour Volume (Peak Hour Begins At 730 AM)
(2) Peak Hour Factor (directional aggregate)

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VEHICLE TURNING MOVEMENT COUNT

#009 West America Dr & Business Center Dr - MD PEAK

LOCATION#:	**009**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**West America Dr**	**DATE:**	**Tuesday, October 31, 2017**
EAST / WEST:	**Business Center Dr**	**VICINITY:**	**FAR**

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	0	0	0	1	0	1	2	2	0	1	2	0	
11:30 AM	0	0	0	52	0	9	3	64	0	0	45	0	173
11:45 AM	0	0	0	38	0	4	8	65	0	0	61	0	176
12:00 PM	0	0	0	38	0	12	4	88	0	0	82	1	225
12:15 PM	0	0	0	31	0	5	3	75	0	0	114	0	228
12:30 PM	0	0	0	28	0	14	9	70	0	0	108	2	231
12:45 PM	0	0	0	45	0	8	4	64	0	0	105	0	226
1:00 PM	0	0	0	32	0	15	7	70	0	0	70	1	195
1:15 PM	0	0	0	43	0	6	4	62	0	0	96	0	211

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	0	0	0	307	0	73	42	558	0	0	681	4	1665
P.H.V: [1]	0	0	0	142	0	39	20	297	0	0	409	3	910
P.H.F: [2]		0.000			0.854			0.861			0.904		0.985

(1) Peak Hour Volume (Peak Hour Begins At 1200 PM)
(2) Peak Hour Factor (directional aggregate)

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VEHICLE TURNING MOVEMENT COUNT

#009 West America Dr & Business Center Dr - PM PEAK

LOCATION#:	**009**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**West America Dr**	**DATE:**	**Tuesday, October 31, 2017**
EAST / WEST:	**Business Center Dr**	**VICINITY:**	**FAR**

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	0	0	0	1	0	1	2	2	0	1	2	0	
4:30 PM	0	0	0	42	0	6	7	101	0	0	64	0	220
4:45 PM	0	0	0	47	0	5	4	81	0	0	55	0	192
5:00 PM	0	0	0	54	0	11	15	173	0	0	61	1	315
5:15 PM	0	0	0	45	0	4	8	77	0	0	54	0	188
5:30 PM	0	0	0	45	0	5	5	107	0	0	53	0	215
5:45 PM	0	0	0	43	0	2	3	64	0	0	59	1	172
6:00 PM	0	0	0	29	0	7	11	69	0	0	39	0	155
6:15 PM	0	0	0	40	0	4	4	49	0	0	51	0	148

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	0	0	0	345	0	44	57	721	0	0	436	2	1605
P.H.V: [1]	0	0	0	188	0	26	34	432	0	0	234	1	915
P.H.F: [2]		0.000			0.823			0.620			0.918		0.726

(1) Peak Hour Volume (Peak Hour Begins At 430 PM)
(2) Peak Hour Factor (directional aggregate)

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PEDESTRIAN CROSSWALK COUNTS

#009 West America Dr & Business Center Dr - AM PEAK

LOCATION#:	**009**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**West America Dr**	**DATE:**	**Tuesday, October 31, 2017**
EAST / WEST:	**Business Center Dr**	**VICINITY:**	**FAR**

DIRECTION:	NORTHERN CROSSWALK	SOUTHERN CROSSWALK	EASTERN CROSSWALK	WESTERN CROSSWALK	TOTALS
6:30 AM	0	0	0	0	
6:45 AM	0	0	0	0	
7:00 AM	0	0	0	0	
7:15 AM	0	0	0	0	
7:30 AM	0	0	0	0	
7:45 AM	0	0	0	0	
8:00 AM	0	0	0	0	
8:15 AM	0	0	0	0	

VOLUME STATS:	NORTHERN CROSSWALK	SOUTHERN CROSSWALK	EASTERN CROSSWALK	WESTERN CROSSWALK	
TOTAL:	0	0	0	0	0
P.H.V: [1]	0	0	0	0	0
P.H.F: [2]	0.000	0.000	0.000	0.000	0.000

(1) Peak Hour Volume (Peak hour begins at: 0 AM)
(2) Peak Hour Factor

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PEDESTRIAN CROSSWALK COUNTS

#009 West America Dr & Business Center Dr - MD PEAK

LOCATION#:	**009**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**West America Dr**	**DATE:**	**Tuesday, October 31, 2017**
EAST / WEST:	**Business Center Dr**	**VICINITY:**	**FAR**

DIRECTION:	NORTHERN CROSSWALK	SOUTHERN CROSSWALK	EASTERN CROSSWALK	WESTERN CROSSWALK	TOTALS
11:30 AM	0	0	0	0	
11:45 AM	0	0	0	0	
12:00 PM	0	0	0	0	
12:15 PM	0	0	0	0	
12:30 PM	0	0	0	0	
12:45 PM	0	0	0	0	
1:00 PM	0	0	0	0	
1:15 PM	0	0	0	0	

VOLUME STATS:	NORTHERN CROSSWALK	SOUTHERN CROSSWALK	EASTERN CROSSWALK	WESTERN CROSSWALK	
TOTAL:	0	0	0	0	0
P.H.V: [1]	0	0	0	0	0
P.H.F: [2]	0.000	0.000	0.000	0.000	0.000

(1) Peak Hour Volume (Peak hour begins at: 0 AM)
(2) Peak Hour Factor

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PEDESTRIAN CROSSWALK COUNTS

#009 West America Dr & Business Center Dr - PM PEAK

LOCATION#:	**009**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**West America Dr**	**DATE:**	**Tuesday, October 31, 2017**
EAST / WEST:	**Business Center Dr**	**VICINITY:**	**FAR**

DIRECTION:	NORTHERN CROSSWALK	SOUTHERN CROSSWALK	EASTERN CROSSWALK	WESTERN CROSSWALK	TOTALS
4:30 PM	0	0	0	0	
4:45 PM	0	0	0	0	
5:00 PM	0	0	0	0	
5:15 PM	0	0	0	0	
5:30 PM	0	0	0	0	
5:45 PM	0	0	0	0	
6:00 PM	0	0	0	0	
6:15 PM	0	0	0	0	

VOLUME STATS:	NORTHERN CROSSWALK	SOUTHERN CROSSWALK	EASTERN CROSSWALK	WESTERN CROSSWALK	
TOTAL:	0	0	0	0	0
P.H.V: [1]	0	0	0	0	0
P.H.F: [2]	0.000	0.000	0.000	0.000	0.000

(1) Peak Hour Volume (Peak hour begins at: 0 AM)
(2) Peak Hour Factor

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BICYCLE TURNING MOVEMENT COUNT

#009 West America Dr & Business Center Dr - AM PEAK

LOCATION#:	**009**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**West America Dr**	**DATE:**	**Tuesday, October 31, 2017**
EAST / WEST:	**Business Center Dr**	**VICINITY:**	**FAR**

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	0	0	0	1	0	1	2	2	0	1	2	0	
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	0	0	0	0	0	0	0	0	0	0	0	0	0
P.H.V: [1]	0	0	0	0	0	0	0	0	0	0	0	0	0
P.H.F: [2]		0.000			0.000			0.000			0.000		0.000

(1) Peak Hour Volume (Peak Hour Begins At 0 AM)
(2) Peak Hour Factor (directional aggregate)

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BICYCLE TURNING MOVEMENT COUNT

#009 West America Dr & Business Center Dr - MD PEAK

LOCATION#:	**009**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**West America Dr**	**DATE:**	**Tuesday, October 31, 2017**
EAST / WEST:	**Business Center Dr**	**VICINITY:**	**FAR**

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	0	0	0	1	0	1	2	2	0	1	2	0	
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	
12:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	0	0	0	0	0	0	0	0	0	0	1	0	1
P.H.V: [1]	0	0	0	0	0	0	0	0	0	0	1	0	1
P.H.F: [2]		0.000			0.000			0.000			0.250		0.250

(1) Peak Hour Volume (Peak Hour Begins At 1245 PM)
(2) Peak Hour Factor (directional aggregate)

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BICYCLE TURNING MOVEMENT COUNT

#009 West America Dr & Business Center Dr - PM PEAK

LOCATION#:	**009**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**West America Dr**	**DATE:**	**Tuesday, October 31, 2017**
EAST / WEST:	**Business Center Dr**	**VICINITY:**	**FAR**

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	0	0	0	1	0	1	2	2	0	1	2	0	
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	
5:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	0	0	0	0	0	0	0	0	0	0	1	0	1
P.H.V: [1]	0	0	0	0	0	0	0	0	0	0	1	0	1
P.H.F: [2]		0.000			0.000			0.000			0.250		0.250

(1) Peak Hour Volume (Peak Hour Begins At 545 PM)
(2) Peak Hour Factor (directional aggregate)

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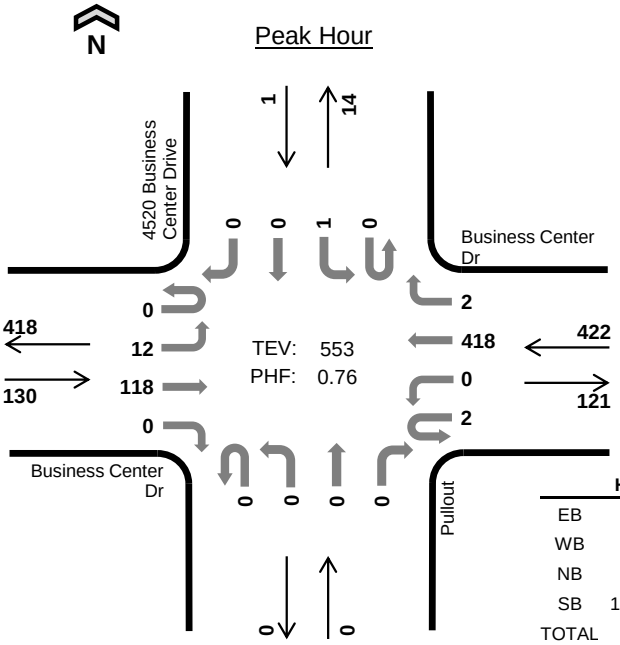
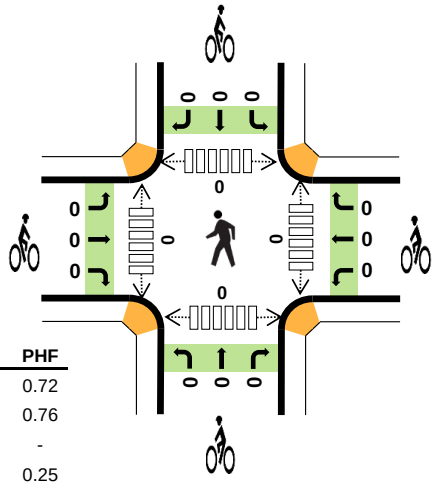
4520 Business Center Drive
Business Center Dr

Date: 02-01-2018
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:15 AM to 8:15 AM





	HV %:	PHF
EB	3.1%	0.72
WB	1.4%	0.76
NB	-	-
SB	100.0%	0.25
TOTAL	2.0%	0.76

Two-Hour Count Summaries

Interval Start		Business Center Dr Eastbound				Business Center Dr Westbound				Pullout Northbound				4520 Business Center Drive Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	1	18	0	0	0	97	0	0	0	0	0	0	0	0	0	116	0
7:15 AM		**0**	**2**	**15**	**0**	**0**	**0**	**102**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**119**	0
7:30 AM		**0**	**3**	**26**	**0**	**1**	**0**	**101**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**131**	0
7:45 AM		**0**	**3**	**42**	**0**	**0**	**0**	**138**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**183**	549
8:00 AM		**0**	**4**	**35**	**0**	**1**	**0**	**77**	**2**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**120**	**553**
8:15 AM		1	3	20	0	0	0	81	0	0	0	0	0	0	0	0	1	106	540
8:30 AM		0	5	24	0	0	0	57	0	0	0	0	0	0	0	0	0	86	495
8:45 AM		0	2	24	0	2	0	50	2	0	0	0	0	0	4	0	1	85	397
Count Total		1	23	204	0	4	0	703	4	0	0	0	0	0	5	0	2	946	0
Peak Hour	**All**	**0**	**12**	**118**	**0**	**2**	**0**	**418**	**2**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**553**	**0**
	HV	**0**	**0**	**4**	**0**	**0**	**0**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**11**	**0**
	HV%	**-**	**0%**	**3%**	**-**	**0%**	**-**	**1%**	**0%**	**-**	**-**	**-**	**-**	**-**	**100%**	**-**	**-**	**2%**	**0**

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

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

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Business Center Dr Eastbound				Business Center Dr Westbound				Pullout Northbound				4520 Business Center Drive Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	3	0	0	0	1	0	0	0	0	0	0	0	0	0	4	0
7:15 AM	**0**	**0**	**1**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	0
7:30 AM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	0
7:45 AM	**0**	**0**	**2**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	13
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**2**	**11**
8:15 AM	0	0	2	0	0	0	6	0	0	0	0	0	0	0	0	0	8	15
8:30 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	15
8:45 AM	0	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0	4	15
Count Total	0	0	10	0	0	0	17	0	0	0	0	0	0	1	0	0	28	0
Peak Hour	**0**	**0**	**4**	**0**	**0**	**0**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**11**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	Business Center Dr Eastbound			Business Center Dr Westbound			Pullout Northbound			4520 Business Center Drive Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

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

PEAK HOUR ITM SUMMARY

#011 Suisun Valley Rd & West America / Kaiser

LOCATION#:	011	QTD PROJ#:	2017294	AM PEAK:	730 AM
NORTH / SOUTH:	Suisun Valley Rd	DATE:	Tuesday, October 31, 2017	MD PEAK:	1145 AM
EAST / WEST:	West America / Kaiser	VICINITY:	FAR	PM PEAK:	500 PM

Suisun Valley Rd

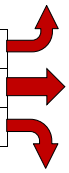
SOUTHBOUND LANES

LN			
AM	64	303	42
MD	95	621	42
PM	65	340	19
TOTAL	224	1264	103

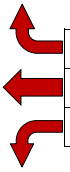
West America / Kaiser

EASTBOUND LANES

LN	AM	MD	PM	TOTAL
1	93	72	63	228
1	10	15	33	58
0	48	43	47	138



SIGNALIZED



WESTBOUND LANES

TOTAL	PM	MD	AM	LN
219	37	73	109	0
90	34	21	35	2
80	19	41	20	0

West America / Kaiser

NORTHBOUND LANES

TOTAL	117	1602	65
PM	42	479	27
MD	34	543	22
AM	41	580	16
LN	1	3	0

Suisun Valley Rd

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AM COUNT	6:30 AM	TO	8:30 AM
MD COUNT	11:30 AM	TO	1:30 PM
PM COUNT	4:30 PM	TO	6:30 PM

VEHICLE TURNING MOVEMENT COUNT

#011 Suisun Valley Rd & West America / Kaiser - AM PEAK

LOCATION#:	**011**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Suisun Valley Rd**	**DATE:**	**Tuesday, October 31, 2017**
EAST / WEST:	**West America / Kaiser**	**VICINITY:**	**FAR**

DIRECTION:	**NL**	**NT**	**NR**	**SL**	**ST**	**SR**	**EL**	**ET**	**ER**	**WL**	**WT**	**WR**	**TOTALS**
LANES:	1	3	0	1	3	0	1	1	0	0	2	0	
6:30 AM	5	25	2	1	57	4	5	1	6	4	0	3	113
6:45 AM	11	27	4	3	51	9	5	3	6	4	5	1	129
7:00 AM	7	36	8	2	43	5	4	2	11	5	5	6	134
7:15 AM	2	72	4	4	50	9	8	2	15	11	9	8	194
7:30 AM	7	122	3	3	66	8	17	5	17	7	8	20	283
7:45 AM	19	213	5	18	98	25	35	3	12	3	12	48	491
8:00 AM	6	141	1	9	84	18	24	1	10	7	11	29	341
8:15 AM	9	104	7	12	55	13	17	1	9	3	4	12	246

VOLUME STATS:	**NL**	**NT**	**NR**	**SL**	**ST**	**SR**	**EL**	**ET**	**ER**	**WL**	**WT**	**WR**	
TOTAL:	66	740	34	52	504	91	115	18	86	44	54	127	1931
P.H.V: [1]	41	580	16	42	303	64	93	10	48	20	35	109	1361
P.H.F: [2]		0.672			0.725			0.755			0.651		0.693

(1) Peak Hour Volume (Peak Hour Begins At 730 AM)
(2) Peak Hour Factor (directional aggregate)

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VEHICLE TURNING MOVEMENT COUNT

#011 Suisun Valley Rd & West America / Kaiser - MD PEAK

LOCATION#:	**011**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Suisun Valley Rd**	**DATE:**	**Tuesday, October 31, 2017**
EAST / WEST:	**West America / Kaiser**	**VICINITY:**	**FAR**

DIRECTION:	**NL**	**NT**	**NR**	**SL**	**ST**	**SR**	**EL**	**ET**	**ER**	**WL**	**WT**	**WR**	**TOTALS**
LANES:	1	3	0	1	3	0	1	1	0	0	2	0	
11:30 AM	11	106	9	5	89	20	14	0	9	8	3	12	286
11:45 AM	3	119	7	11	89	18	25	7	7	10	5	21	322
12:00 PM	11	136	7	10	178	24	14	3	13	15	7	20	438
12:15 PM	11	178	5	12	226	30	19	3	15	6	5	14	524
12:30 PM	9	110	3	9	128	23	14	2	8	10	4	18	338
12:45 PM	6	124	3	8	88	25	25	0	7	4	6	13	309
1:00 PM	12	94	8	5	118	29	17	7	14	9	4	5	322
1:15 PM	11	94	4	8	98	23	10	3	7	7	6	7	278

VOLUME STATS:	**NL**	**NT**	**NR**	**SL**	**ST**	**SR**	**EL**	**ET**	**ER**	**WL**	**WT**	**WR**	
TOTAL:	74	961	46	68	1014	192	138	25	80	69	40	110	2817
P.H.V: [1]	34	543	22	42	621	95	72	15	43	41	21	73	1622
P.H.F: [2]		0.772			0.707			0.833			0.804		0.774

(1) Peak Hour Volume (Peak Hour Begins At 1145 AM)
(2) Peak Hour Factor (directional aggregate)

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VEHICLE TURNING MOVEMENT COUNT

#011 Suisun Valley Rd & West America / Kaiser - PM PEAK

LOCATION#:	**011**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Suisun Valley Rd**	**DATE:**	**Tuesday, October 31, 2017**
EAST / WEST:	**West America / Kaiser**	**VICINITY:**	**FAR**

DIRECTION:	**NL**	**NT**	**NR**	**SL**	**ST**	**SR**	**EL**	**ET**	**ER**	**WL**	**WT**	**WR**	**TOTALS**
LANES:	1	3	0	1	3	0	1	1	0	0	2	0	
4:30 PM	7	86	4	4	106	14	15	11	7	14	8	9	285
4:45 PM	11	81	3	5	108	20	19	3	4	6	4	7	271
5:00 PM	10	84	6	8	107	17	24	8	9	7	8	6	294
5:15 PM	12	95	5	3	93	21	13	9	15	3	8	8	285
5:30 PM	10	126	9	4	68	13	15	9	6	7	6	6	279
5:45 PM	10	174	7	4	72	14	11	7	17	2	12	17	347
6:00 PM	15	76	10	5	59	10	9	6	7	6	3	5	211
6:15 PM	8	78	1	3	63	10	13	5	7	6	4	4	202

VOLUME STATS:	**NL**	**NT**	**NR**	**SL**	**ST**	**SR**	**EL**	**ET**	**ER**	**WL**	**WT**	**WR**	
TOTAL:	83	800	45	36	676	119	119	58	72	51	53	62	2174
P.H.V: [1]	42	479	27	19	340	65	63	33	47	19	34	37	1205
P.H.F: [2]		0.717			0.803			0.872			0.726		0.868

(1) Peak Hour Volume (Peak Hour Begins At 500 PM)
(2) Peak Hour Factor (directional aggregate)

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PEDESTRIAN CROSSWALK COUNTS

#011 Suisun Valley Rd & West America / Kaiser - AM PEAK

LOCATION#:	**011**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Suisun Valley Rd**	**DATE:**	**Tuesday, October 31, 2017**
EAST / WEST:	**West America / Kaiser**	**VICINITY:**	**FAR**

DIRECTION:	NORTHERN CROSSWALK	SOUTHERN CROSSWALK	EASTERN CROSSWALK	WESTERN CROSSWALK	TOTALS
6:30 AM	0	0	0	1	1
6:45 AM	0	0	0	0	
7:00 AM	1	0	0	0	1
7:15 AM	3	0	0	1	4
7:30 AM	1	0	1	0	2
7:45 AM	0	2	0	0	2
8:00 AM	0	0	0	0	
8:15 AM	0	0	0	0	

VOLUME STATS:	NORTHERN CROSSWALK	SOUTHERN CROSSWALK	EASTERN CROSSWALK	WESTERN CROSSWALK	
TOTAL:	5	2	1	2	10
P.H.V: [1]	5	2	1	1	9
P.H.F: [2]	0.417	0.250	0.250	0.250	0.563

(1) Peak Hour Volume (Peak hour begins at: 700 AM)
(2) Peak Hour Factor

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PEDESTRIAN CROSSWALK COUNTS

#011 Suisun Valley Rd & West America / Kaiser - MD PEAK

LOCATION#:	**011**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Suisun Valley Rd**	**DATE:**	**Tuesday, October 31, 2017**
EAST / WEST:	**West America / Kaiser**	**VICINITY:**	**FAR**

DIRECTION:	NORTHERN CROSSWALK	SOUTHERN CROSSWALK	EASTERN CROSSWALK	WESTERN CROSSWALK	TOTALS
11:30 AM	0	0	0	0	
11:45 AM	0	0	0	0	
12:00 PM	0	0	0	0	
12:15 PM	1	0	0	1	2
12:30 PM	0	0	4	0	4
12:45 PM	2	0	1	0	3
1:00 PM	0	0	4	0	4
1:15 PM	2	0	0	1	3

VOLUME STATS:	NORTHERN CROSSWALK	SOUTHERN CROSSWALK	EASTERN CROSSWALK	WESTERN CROSSWALK	
TOTAL:	5	0	9	2	16
P.H.V: [1]	4	0	9	1	14
P.H.F: [2]	0.500	0.000	0.563	0.250	0.875

(1) Peak Hour Volume (Peak hour begins at: 1230 PM)
(2) Peak Hour Factor

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PEDESTRIAN CROSSWALK COUNTS

#011 Suisun Valley Rd & West America / Kaiser - PM PEAK

LOCATION#:	**011**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Suisun Valley Rd**	**DATE:**	**Tuesday, October 31, 2017**
EAST / WEST:	**West America / Kaiser**	**VICINITY:**	**FAR**

DIRECTION:	NORTHERN CROSSWALK	SOUTHERN CROSSWALK	EASTERN CROSSWALK	WESTERN CROSSWALK	TOTALS
4:30 PM	0	0	0	0	
4:45 PM	0	0	0	0	
5:00 PM	0	0	0	0	
5:15 PM	1	0	0	0	1
5:30 PM	1	0	0	0	1
5:45 PM	0	0	0	0	
6:00 PM	1	0	0	0	1
6:15 PM	0	0	0	0	

VOLUME STATS:	NORTHERN CROSSWALK	SOUTHERN CROSSWALK	EASTERN CROSSWALK	WESTERN CROSSWALK	
TOTAL:	3	0	0	0	3
P.H.V: [1]	3	0	0	0	3
P.H.F: [2]	0.750	0.000	0.000	0.000	0.750

(1) Peak Hour Volume (Peak hour begins at: 515 PM)
(2) Peak Hour Factor

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BICYCLE TURNING MOVEMENT COUNT

#011 Suisun Valley Rd & West America / Kaiser - AM PEAK

LOCATION#:	**011**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Suisun Valley Rd**	**DATE:**	**Tuesday, October 31, 2017**
EAST / WEST:	**West America / Kaiser**	**VICINITY:**	**FAR**

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	1	3	0	1	3	0	1	1	0	0	2	0	
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	
7:15 AM	0	0	0	0	0	0	0	1	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	
8:00 AM	0	0	0	0	0	0	2	0	0	0	0	0	2
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	0	0	0	0	0	0	2	1	0	0	0	0	3
P.H.V: [1]	0	0	0	0	0	0	2	1	0	0	0	0	3
P.H.F: [2]		0.000			0.000			0.375			0.000		0.375

(1) Peak Hour Volume (Peak Hour Begins At 715 AM)
(2) Peak Hour Factor (directional aggregate)

QUALITY TRAFFIC DATA, LLC
Phone: 877-852-4355 Fax: 877-877-3698 Info@QualityTrafficData.com

BICYCLE TURNING MOVEMENT COUNT

#011 Suisun Valley Rd & West America / Kaiser - MD PEAK

LOCATION#:	**011**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Suisun Valley Rd**	**DATE:**	**Tuesday, October 31, 2017**
EAST / WEST:	**West America / Kaiser**	**VICINITY:**	**FAR**

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	1	3	0	1	3	0	1	1	0	0	2	0	
11:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	
1:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	1

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	0	0	0	0	0	1	0	0	0	0	1	0	2
P.H.V: [1]	0	0	0	0	0	1	0	0	0	0	0	0	1
P.H.F: [2]		0.000			0.250			0.000			0.000		0.250

(1) Peak Hour Volume (Peak Hour Begins At 115 PM)
(2) Peak Hour Factor (directional aggregate)

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BICYCLE TURNING MOVEMENT COUNT

#011 Suisun Valley Rd & West America / Kaiser - PM PEAK

LOCATION#:	**011**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Suisun Valley Rd**	**DATE:**	**Tuesday, October 31, 2017**
EAST / WEST:	**West America / Kaiser**	**VICINITY:**	**FAR**

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	1	3	0	1	3	0	1	1	0	0	2	0	
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	
4:45 PM	0	0	0	0	1	0	1	0	0	0	0	0	2
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	
5:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
6:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	1
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	0	0	0	0	2	1	1	0	0	0	0	0	4
P.H.V: [1]	0	0	0	0	1	1	0	0	0	0	0	0	2
P.H.F: [2]		0.000			0.500			0.000			0.000		0.500

(1) Peak Hour Volume (Peak Hour Begins At 545 PM)
(2) Peak Hour Factor (directional aggregate)

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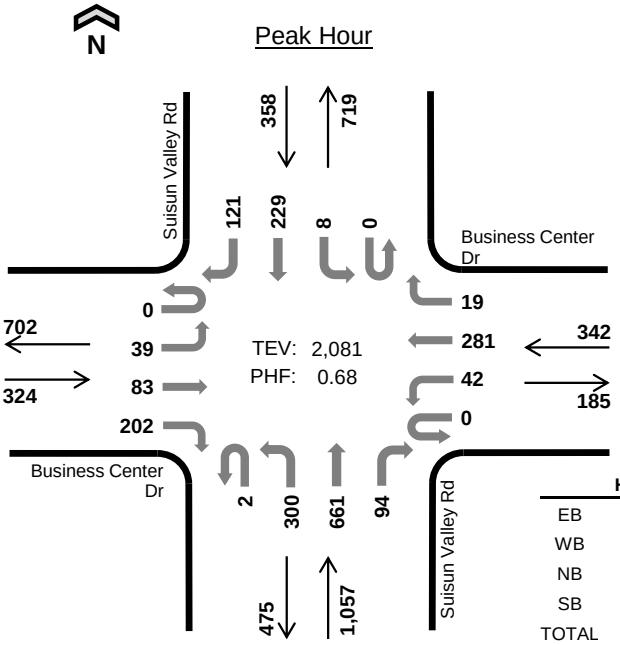
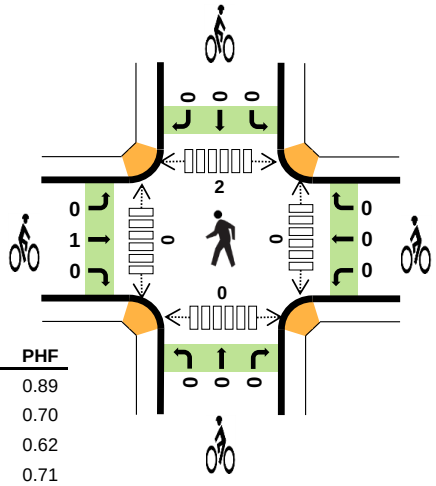
Suisun Valley Rd
Business Center Dr

Date: 02-01-2018
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:30 AM to 8:30 AM





	HV %:	PHF
EB	1.9%	0.89
WB	0.3%	0.70
NB	2.2%	0.62
SB	3.4%	0.71
TOTAL	2.0%	0.68

Two-Hour Count Summaries

Interval Start	Business Center Dr Eastbound				Business Center Dr Westbound				Suisun Valley Rd Northbound				Suisun Valley Rd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	7	8	28	1	13	54	0	0	37	50	12	0	1	21	18	250	0
7:15 AM	0	7	10	35	0	13	79	2	0	42	80	14	1	0	43	21	347	0
7:30 AM	**0**	**7**	**19**	**44**	**0**	**16**	**65**	**1**	**1**	**59**	**133**	**22**	**0**	**1**	**55**	**22**	**445**	0
7:45 AM	**0**	**15**	**21**	**55**	**0**	**16**	**98**	**8**	**0**	**117**	**279**	**29**	**0**	**4**	**81**	**41**	**764**	1,806
8:00 AM	**0**	**14**	**21**	**50**	**0**	**6**	**66**	**8**	**0**	**65**	**130**	**19**	**0**	**2**	**59**	**31**	**471**	2,027
8:15 AM	**0**	**3**	**22**	**53**	**0**	**4**	**52**	**2**	**1**	**59**	**119**	**24**	**0**	**1**	**34**	**27**	**401**	**2,081**
8:30 AM	0	10	13	33	0	9	34	3	0	58	100	16	1	2	30	19	328	1,964
8:45 AM	0	11	14	32	0	11	33	1	0	41	152	17	0	1	40	9	362	1,562
Count Total	0	74	128	330	1	88	481	25	2	478	1,043	153	2	12	363	188	3,368	0
Peak Hour All	**0**	**39**	**83**	**202**	**0**	**42**	**281**	**19**	**2**	**300**	**661**	**94**	**0**	**8**	**229**	**121**	**2,081**	**0**
Peak Hour HV	**0**	**2**	**2**	**2**	**0**	**0**	**1**	**0**	**0**	**4**	**17**	**2**	**0**	**0**	**4**	**8**	**42**	**0**
Peak Hour HV%	**-**	**5%**	**2%**	**1%**	**-**	**0%**	**0%**	**0%**	**0%**	**1%**	**3%**	**2%**	**-**	**0%**	**2%**	**7%**	**2%**	**0**

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

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	3	2	3	2	*10*	0	0	0	0	*0*	0	0	0	0	*0*
7:15 AM	0	2	3	0	*5*	0	0	0	0	*0*	1	0	0	0	*1*
7:30 AM	**3**	**0**	**7**	**2**	***12***	**1**	**0**	**0**	**0**	***1***	**0**	**0**	**2**	**0**	*2*
7:45 AM	**1**	**0**	**9**	**1**	***11***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
8:00 AM	**1**	**1**	**4**	**2**	***8***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
8:15 AM	**1**	**0**	**3**	**7**	***11***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
8:30 AM	4	0	4	3	*11*	0	0	0	0	*0*	0	0	0	0	*0*
8:45 AM	0	0	3	4	*7*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	13	5	36	21	*75*	1	0	0	0	*1*	1	0	2	0	*3*
Peak Hour	**6**	**1**	**23**	**12**	***42***	**1**	**0**	**0**	**0**	***1***	**0**	**0**	**2**	**0**	***2***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Business Center Dr				Business Center Dr				Suisun Valley Rd				Suisun Valley Rd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	3	0	0	0	1	1	0	0	0	3	0	0	0	2	0	10	0
7:15 AM	0	0	0	0	0	0	2	0	0	0	3	0	0	0	0	0	5	0
7:30 AM	**0**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**6**	**0**	**0**	**0**	**2**	**0**	**12**	0
7:45 AM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**7**	**0**	**0**	**0**	**0**	**1**	**11**	38
8:00 AM	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**2**	**1**	**0**	**0**	**1**	**1**	**8**	36
8:15 AM	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**1**	**0**	**0**	**1**	**6**	**11**	**42**
8:30 AM	0	2	1	1	0	0	0	0	0	0	3	1	0	0	2	1	11	41
8:45 AM	0	0	0	0	0	0	0	0	0	1	2	0	0	0	2	2	7	37
Count Total	0	7	3	3	0	1	4	0	0	5	28	3	0	0	10	11	75	0
Peak Hour	**0**	**2**	**2**	**2**	**0**	**0**	**1**	**0**	**0**	**4**	**17**	**2**	**0**	**0**	**4**	**8**	**42**	**0**

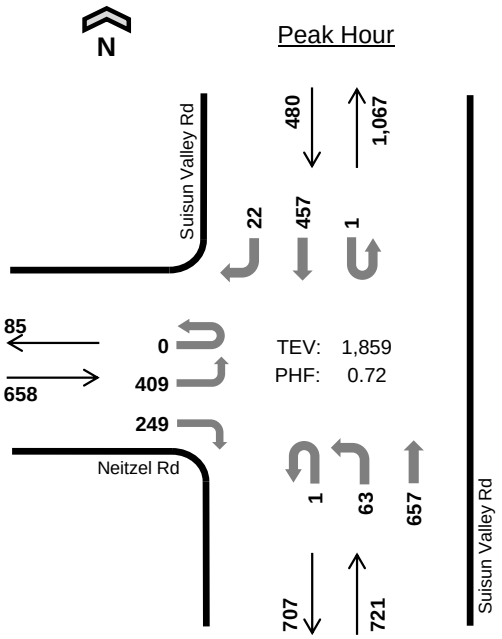
Two-Hour Count Summaries - Bikes

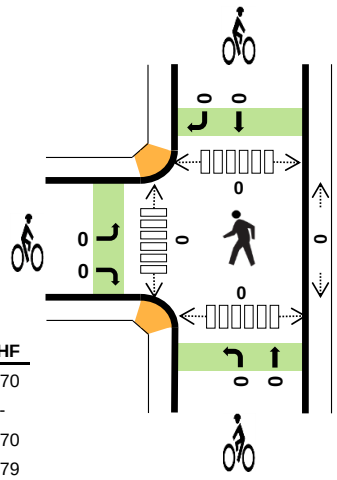
Interval Start	Business Center Dr			Business Center Dr			Suisun Valley Rd			Suisun Valley Rd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	1	0	0	0	0	0	0	0	0	0	0	1	0
Peak Hour	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**

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

Suisun Valley Rd
Neitzel Rd

Date: 02-01-2018
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:30 AM to 8:30 AM





	HV %:	PHF
EB	2.4%	0.70
WB	-	-
NB	2.4%	0.70
SB	1.3%	0.79
TOTAL	2.1%	0.72

Two-Hour Count Summaries

Interval Start	Neitzel Rd Eastbound				0 Westbound				Suisun Valley Rd Northbound				Suisun Valley Rd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	29	0	41	0	0	0	0	0	13	71	0	0	0	58	3	215	0
7:15 AM	0	40	0	40	0	0	0	0	0	15	94	0	0	0	84	6	279	0
7:30 AM	**0**	**91**	**0**	**73**	**0**	**0**	**0**	**0**	**0**	**16**	**142**	**0**	**0**	**0**	**114**	**5**	**441**	0
7:45 AM	**0**	**169**	**0**	**66**	**0**	**0**	**0**	**0**	**0**	**14**	**245**	**0**	**0**	**0**	**140**	**11**	**645**	1,580
8:00 AM	**0**	**71**	**0**	**56**	**0**	**0**	**0**	**0**	**1**	**15**	**144**	**0**	**1**	**0**	**113**	**3**	**404**	1,769
8:15 AM	**0**	**78**	**0**	**54**	**0**	**0**	**0**	**0**	**0**	**18**	**126**	**0**	**0**	**0**	**90**	**3**	**369**	**1,859**
8:30 AM	0	63	0	51	0	0	0	0	0	12	122	0	0	0	67	1	316	1,734
8:45 AM	0	81	0	74	0	0	0	0	0	15	110	0	0	0	78	8	366	1,455
Count Total	0	622	0	455	0	0	0	0	1	118	1,054	0	1	0	744	40	3,035	0
Peak Hour All	**0**	**409**	**0**	**249**	**0**	**0**	**0**	**0**	**1**	**63**	**657**	**0**	**1**	**0**	**457**	**22**	**1,859**	**0**
Peak Hour HV	**0**	**13**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**4**	**13**	**0**	**0**	**0**	**6**	**0**	**39**	**0**
Peak Hour HV%	**-**	**3%**	**-**	**1%**	**-**	**-**	**-**	**-**	**0%**	**6%**	**2%**	**-**	**0%**	**-**	**1%**	**0%**	**2%**	**0**

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

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	4	0	1	3	*8*	0	0	0	0	*0*	0	0	0	0	*0*
7:15 AM	3	0	1	0	*4*	0	0	0	0	*0*	0	0	0	0	*0*
7:30 AM	**5**	**0**	**4**	**2**	***11***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:45 AM	**4**	**0**	**8**	**1**	***13***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
8:00 AM	**4**	**0**	**4**	**1**	***9***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
8:15 AM	**3**	**0**	**1**	**2**	***6***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
8:30 AM	3	0	5	3	*11*	0	0	0	0	*0*	0	0	0	0	*0*
8:45 AM	2	0	3	2	*7*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	28	0	27	14	*69*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hr	**16**	**0**	**17**	**6**	***39***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Neitzel Rd				0				Suisun Valley Rd				Suisun Valley Rd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	4	0	0	0	0	0	0	0	1	0	0	0	0	3	0	8	0
7:15 AM	0	1	0	2	0	0	0	0	0	0	1	0	0	0	0	0	4	0
7:30 AM	**0**	**3**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**2**	**0**	**11**	0
7:45 AM	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**4**	**0**	**0**	**0**	**1**	**0**	**13**	36
8:00 AM	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**1**	**0**	**9**	37
8:15 AM	**0**	**2**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**2**	**0**	**6**	**39**
8:30 AM	0	0	0	3	0	0	0	0	0	1	4	0	0	0	3	0	11	39
8:45 AM	0	2	0	0	0	0	0	0	0	2	1	0	0	0	2	0	7	33
Count Total	0	20	0	8	0	0	0	0	0	8	19	0	0	0	14	0	69	0
Peak Hour	**0**	**13**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**4**	**13**	**0**	**0**	**0**	**6**	**0**	**39**	**0**

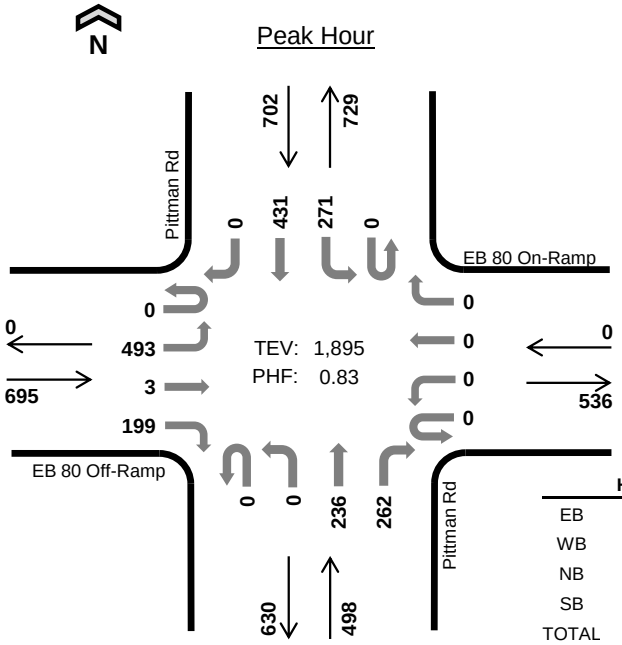
Two-Hour Count Summaries - Bikes

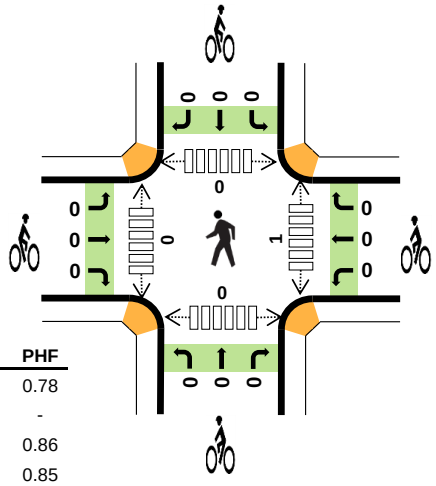
Interval Start	Neitzel Rd			0			Suisun Valley Rd			Suisun Valley Rd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

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

Pittman Rd
EB 80 On-Ramp

Date: 02-01-2018
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:30 AM to 8:30 AM





	HV %:	PHF
EB	2.4%	0.78
WB	-	-
NB	2.6%	0.86
SB	1.4%	0.85
TOTAL	2.1%	0.83

Two-Hour Count Summaries

Interval Start		EB 80 Off-Ramp Eastbound				EB 80 On-Ramp Westbound				Pittman Rd Northbound				Pittman Rd Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	51	0	47	0	0	0	0	0	0	35	54	0	27	69	0	283	0
7:15 AM		0	72	0	48	0	0	0	0	0	0	38	75	0	46	77	0	356	0
7:30 AM		**0**	**115**	**1**	**60**	**0**	**0**	**0**	**0**	**0**	**0**	**57**	**60**	**0**	**58**	**120**	**0**	**471**	0
7:45 AM		**0**	**182**	**0**	**41**	**0**	**0**	**0**	**0**	**0**	**0**	**70**	**74**	**0**	**93**	**113**	**0**	**573**	1,683
8:00 AM		**0**	**96**	**0**	**51**	**0**	**0**	**0**	**0**	**0**	**0**	**57**	**65**	**0**	**70**	**102**	**0**	**441**	1,841
8:15 AM		**0**	**100**	**2**	**47**	**0**	**0**	**0**	**0**	**0**	**0**	**52**	**63**	**0**	**50**	**96**	**0**	**410**	**1,895**
8:30 AM		0	81	0	69	0	0	0	0	0	0	48	59	0	45	76	0	378	1,802
8:45 AM		0	77	1	66	0	0	0	0	0	0	44	66	0	58	96	0	408	1,637
Count Total		0	774	4	429	0	0	0	0	0	0	401	516	0	447	749	0	3,320	0
Peak Hour	**All**	**0**	**493**	**3**	**199**	**0**	**0**	**0**	**0**	**0**	**0**	**236**	**262**	**0**	**271**	**431**	**0**	**1,895**	**0**
	HV	**0**	**10**	**0**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**9**	**4**	**0**	**9**	**1**	**0**	**40**	**0**
	HV%	**-**	**2%**	**0%**	**4%**	**-**	**-**	**-**	**-**	**-**	**-**	**4%**	**2%**	**-**	**3%**	**0%**	**-**	**2%**	**0**

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

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	2	0	6	3	*11*	0	0	0	0	*0*	0	0	0	0	*0*
7:15 AM	1	0	1	2	*4*	0	0	0	0	*0*	0	0	0	0	*0*
7:30 AM	**4**	**0**	**4**	**5**	***13***	**0**	**0**	**0**	**0**	***0***	**1**	**0**	**0**	**0**	*1*
7:45 AM	**2**	**0**	**6**	**1**	***9***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
8:00 AM	**6**	**0**	**2**	**1**	***9***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
8:15 AM	**5**	**0**	**1**	**3**	***9***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
8:30 AM	6	0	3	6	*15*	0	0	0	0	*0*	0	0	0	0	*0*
8:45 AM	1	0	5	3	*9*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	27	0	28	24	*79*	0	0	0	0	*0*	1	0	0	0	*1*
Peak Hour	**17**	**0**	**13**	**10**	***40***	**0**	**0**	**0**	**0**	***0***	**1**	**0**	**0**	**0**	***1***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	EB 80 Off-Ramp				EB 80 On-Ramp				Pittman Rd				Pittman Rd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	2	0	0	0	0	0	0	1	5	0	1	2	0	11	0
7:15 AM	0	1	0	0	0	0	0	0	0	0	0	1	0	0	2	0	4	0
7:30 AM	**0**	**3**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**2**	**0**	**5**	**0**	**0**	**13**	0
7:45 AM	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**1**	**0**	**1**	**0**	**0**	**9**	37
8:00 AM	**0**	**3**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**1**	**0**	**0**	**9**	35
8:15 AM	**0**	**2**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**2**	**1**	**0**	**9**	**40**
8:30 AM	0	4	0	2	0	0	0	0	0	0	1	2	0	3	3	0	15	42
8:45 AM	0	0	1	0	0	0	0	0	0	0	3	2	0	1	2	0	9	42
Count Total	0	15	1	11	0	0	0	0	0	0	14	14	0	14	10	0	79	0
Peak Hour	**0**	**10**	**0**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**9**	**4**	**0**	**9**	**1**	**0**	**40**	**0**

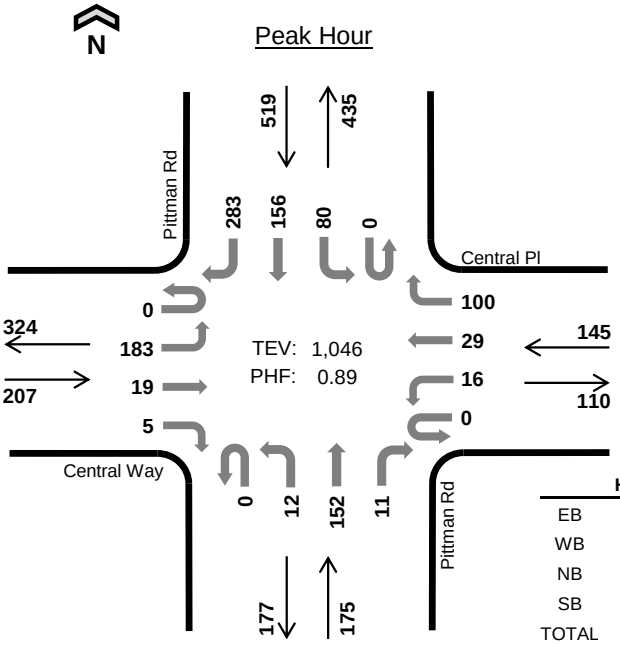
Two-Hour Count Summaries - Bikes

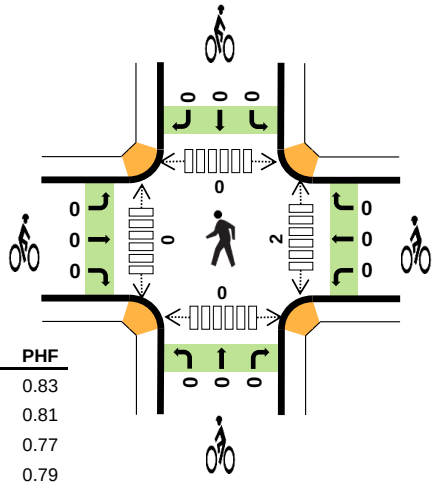
Interval Start	EB 80 Off-Ramp			EB 80 On-Ramp			Pittman Rd			Pittman Rd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

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

Pittman Rd
Central Way

Date: 02-01-2018
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:30 AM to 8:30 AM





	HV %:	PHF
EB	1.4%	0.83
WB	4.1%	0.81
NB	4.6%	0.77
SB	1.5%	0.79
TOTAL	2.4%	0.89

Two-Hour Count Summaries

Interval Start	Central Way Eastbound				Central Pl Westbound				Pittman Rd Northbound				Pittman Rd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	21	0	0	0	4	4	22	0	2	28	3	0	14	19	42	159	0
7:15 AM	0	47	2	1	0	5	4	19	0	1	27	3	0	18	25	61	213	0
7:30 AM	**0**	**32**	**6**	**0**	**0**	**5**	**7**	**28**	**0**	**3**	**46**	**2**	**0**	**24**	**47**	**94**	**294**	0
7:45 AM	**0**	**57**	**5**	**0**	**0**	**2**	**2**	**21**	**0**	**2**	**49**	**6**	**0**	**10**	**41**	**68**	**263**	929
8:00 AM	**0**	**43**	**2**	**2**	**0**	**4**	**6**	**25**	**0**	**4**	**33**	**3**	**0**	**23**	**35**	**60**	**240**	1,010
8:15 AM	**0**	**51**	**6**	**3**	**0**	**5**	**14**	**26**	**0**	**3**	**24**	**0**	**0**	**23**	**33**	**61**	**249**	**1,046**
8:30 AM	0	43	8	3	0	6	5	23	0	3	32	0	0	19	36	58	236	988
8:45 AM	0	40	3	0	0	8	4	22	0	1	34	4	0	24	52	67	259	984
Count Total	0	334	32	9	0	39	46	186	0	19	273	21	0	155	288	511	1,913	0
Peak Hour All	**0**	**183**	**19**	**5**	**0**	**16**	**29**	**100**	**0**	**12**	**152**	**11**	**0**	**80**	**156**	**283**	**1,046**	**0**
Peak Hour HV	**0**	**2**	**1**	**0**	**0**	**0**	**1**	**5**	**0**	**3**	**5**	**0**	**0**	**3**	**3**	**2**	**25**	**0**
Peak Hour HV%	**-**	**1%**	**5%**	**0%**	**-**	**0%**	**3%**	**5%**	**-**	**25%**	**3%**	**0%**	**-**	**4%**	**2%**	**1%**	**2%**	**0**

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

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	1	3	4	2	*10*	0	0	0	0	*0*	0	0	0	0	*0*
7:15 AM	1	0	1	1	*3*	0	0	0	0	*0*	0	0	0	0	*0*
7:30 AM	**0**	**4**	**3**	**2**	***9***	**0**	**0**	**0**	**0**	***0***	**1**	**0**	**0**	**0**	*1*
7:45 AM	**2**	**0**	**2**	**0**	***4***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
8:00 AM	**0**	**1**	**1**	**2**	***4***	**0**	**0**	**0**	**0**	***0***	**1**	**0**	**0**	**0**	*1*
8:15 AM	**1**	**1**	**2**	**4**	***8***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
8:30 AM	1	0	2	2	*5*	0	0	0	0	*0*	0	0	0	0	*0*
8:45 AM	1	2	2	3	*8*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	7	11	17	16	*51*	0	0	0	0	*0*	2	0	0	0	*2*
Peak Hour	**3**	**6**	**8**	**8**	***25***	**0**	**0**	**0**	**0**	***0***	**2**	**0**	**0**	**0**	***2***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Central Way Eastbound				Central Pl Westbound				Pittman Rd Northbound				Pittman Rd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	1	0	0	0	1	0	2	0	1	2	1	0	0	1	1	10	0
7:15 AM	0	0	1	0	0	0	0	0	0	1	0	0	0	1	0	0	3	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**1**	**2**	**0**	**0**	**1**	**1**	**0**	**9**	0
7:45 AM	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**4**	26
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**2**	**4**	20
8:15 AM	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**2**	**0**	**0**	**0**	**2**	**2**	**0**	**8**	**25**
8:30 AM	0	1	0	0	0	0	0	0	0	1	1	0	0	1	0	1	5	21
8:45 AM	0	1	0	0	0	0	0	2	0	0	2	0	0	0	2	1	8	25
Count Total	0	5	2	0	0	1	1	9	0	6	10	1	0	5	6	5	51	0
Peak Hour	**0**	**2**	**1**	**0**	**0**	**0**	**1**	**5**	**0**	**3**	**5**	**0**	**0**	**3**	**3**	**2**	**25**	**0**

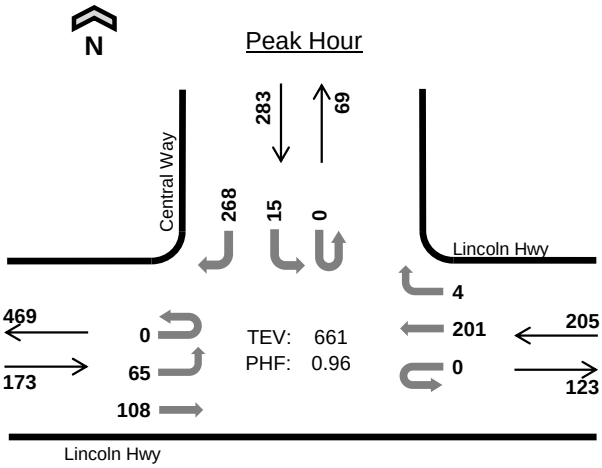
Two-Hour Count Summaries - Bikes

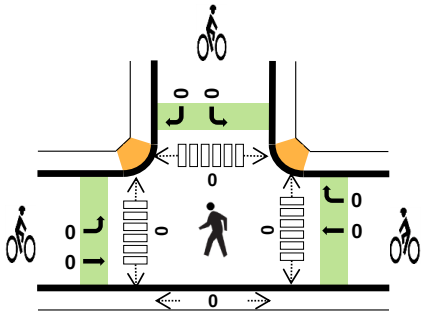
Interval Start	Central Way Eastbound			Central Pl Westbound			Pittman Rd Northbound			Pittman Rd Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

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

Central Way
Lincoln Hwy

Date: 02-01-2018
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:30 AM to 8:30 AM





	HV %:	PHF
EB	6.4%	0.73
WB	2.4%	0.81
NB	-	-
SB	4.6%	0.82
TOTAL	4.4%	0.96

Two-Hour Count Summaries

Interval Start	Lincoln Hwy Eastbound				Lincoln Hwy Westbound				0 Northbound				Central Way Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	6	14	0	0	0	44	2	0	0	0	0	0	0	0	44	110	0
7:15 AM	0	10	20	0	0	0	54	1	0	0	0	0	0	3	0	48	136	0
7:30 AM	**0**	**8**	**17**	**0**	**0**	**0**	**63**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**62**	**150**	0
7:45 AM	**0**	**21**	**20**	**0**	**0**	**0**	**57**	**1**	**0**	**0**	**0**	**0**	**0**	**7**	**0**	**62**	**168**	564
8:00 AM	**0**	**21**	**38**	**0**	**0**	**0**	**46**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**61**	**171**	625
8:15 AM	**0**	**15**	**33**	**0**	**0**	**0**	**35**	**3**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**83**	**172**	**661**
8:30 AM	0	10	11	0	0	0	34	2	0	0	0	0	0	4	0	59	120	631
8:45 AM	0	11	14	0	0	0	26	1	0	0	0	0	0	3	0	55	110	573
Count Total	0	102	167	0	0	0	359	10	0	0	0	0	0	25	0	474	1,137	0
Peak Hour All	**0**	**65**	**108**	**0**	**0**	**0**	**201**	**4**	**0**	**0**	**0**	**0**	**0**	**15**	**0**	**268**	**661**	**0**
Peak Hour HV	**0**	**4**	**7**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**11**	**29**	**0**
Peak Hour HV%	**-**	**6%**	**6%**	**-**	**-**	**-**	**2%**	**0%**	**-**	**-**	**-**	**-**	**-**	**13%**	**-**	**4%**	**4%**	**0**

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

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	2	0	0	3	*5*	0	0	0	0	*0*	0	0	2	0	*2*
7:15 AM	1	2	0	6	*9*	0	0	0	0	*0*	0	0	0	0	*0*
7:30 AM	**5**	**0**	**0**	**2**	***7***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:45 AM	**0**	**0**	**0**	**1**	***1***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
8:00 AM	**4**	**3**	**0**	**3**	***10***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
8:15 AM	**2**	**2**	**0**	**7**	***11***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
8:30 AM	2	3	0	1	*6*	0	0	0	0	*0*	0	0	0	0	*0*
8:45 AM	6	4	0	5	*15*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	22	14	0	28	*64*	0	0	0	0	*0*	0	0	2	0	*2*
Peak Hr	**11**	**5**	**0**	**13**	***29***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Lincoln Hwy				Lincoln Hwy				0				Central Way				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	3	5	0
7:15 AM	0	0	1	0	0	0	2	0	0	0	0	0	0	1	0	5	9	0
7:30 AM	**0**	**2**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**7**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	22
8:00 AM	**0**	**0**	**4**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	**10**	27
8:15 AM	**0**	**2**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**11**	**29**
8:30 AM	0	1	1	0	0	0	3	0	0	0	0	0	0	0	0	1	6	28
8:45 AM	0	1	5	0	0	0	4	0	0	0	0	0	0	0	0	5	15	42
Count Total	0	7	15	0	0	0	14	0	0	0	0	0	0	3	0	25	64	0
Peak Hour	**0**	**4**	**7**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**11**	**29**	**0**

Two-Hour Count Summaries - Bikes

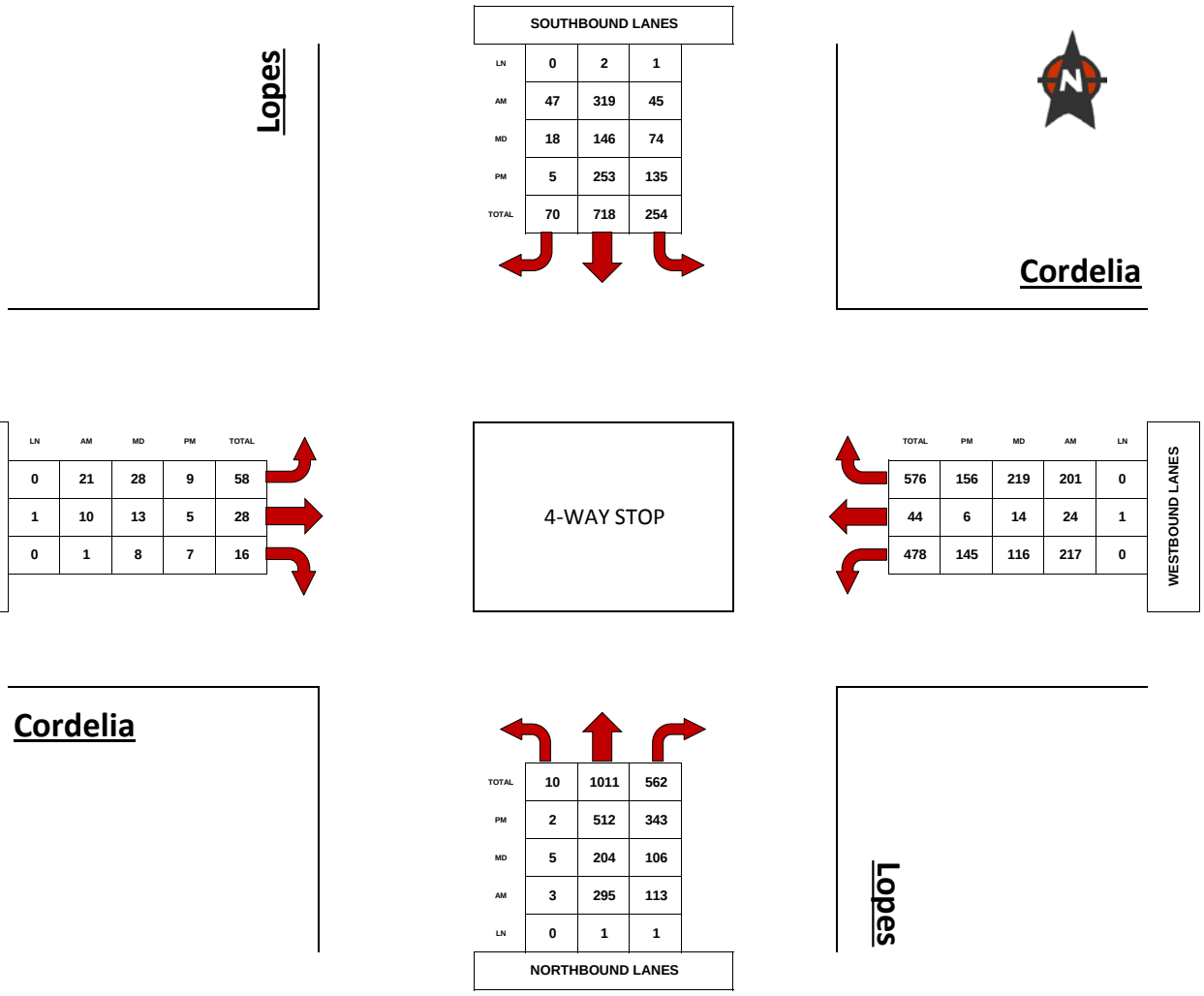
Interval Start	Lincoln Hwy			Lincoln Hwy			0			Central Way			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

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

PEAK HOUR ITM SUMMARY

#001A Lopes & Cordelia

LOCATION#:	001A	QTD PROJ#:	2017294	AM PEAK:	730 AM
NORTH / SOUTH:	Lopes	DATE:	Thursday, October 26, 2017	MD PEAK:	1130 AM
EAST / WEST:	Cordelia	VICINITY:	FAR	PM PEAK:	515 PM



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AM COUNT	6:30 AM	TO	8:30 AM
MD COUNT	11:30 AM	TO	1:30 PM
PM COUNT	4:30 PM	TO	6:30 PM

VEHICLE TURNING MOVEMENT COUNT

#001A Lopes & Cordelia - AM PEAK

LOCATION#:	**001A**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Lopes**	**DATE:**	**Thursday, October 26, 2017**
EAST / WEST:	**Cordelia**	**VICINITY:**	**FAR**

DIRECTION:	**NL**	**NT**	**NR**	**SL**	**ST**	**SR**	**EL**	**ET**	**ER**	**WL**	**WT**	**WR**	**TOTALS**
LANES:	0	1	1	1	2	0	0	1	0	0	1	0	
6:30 AM	0	20	8	12	45	3	5	2	1	51	2	33	182
6:45 AM	0	54	13	9	65	5	3	2	1	56	3	38	249
7:00 AM	0	34	14	8	43	5	2	1	2	48	3	40	200
7:15 AM	1	56	13	6	52	7	2	2	0	60	1	40	240
7:30 AM	0	84	20	9	96	5	10	3	0	67	6	39	339
7:45 AM	0	88	23	15	118	11	1	3	0	67	7	42	375
8:00 AM	1	78	46	8	59	16	2	2	0	38	8	57	315
8:15 AM	2	45	24	13	46	15	8	2	1	45	3	63	267

VOLUME STATS:	**NL**	**NT**	**NR**	**SL**	**ST**	**SR**	**EL**	**ET**	**ER**	**WL**	**WT**	**WR**	
TOTAL:	4	459	161	80	524	67	33	17	5	432	33	352	2167
P.H.V: [1]	3	295	113	45	319	47	21	10	1	217	24	201	1296
P.H.F: [2]		0.822			0.714			0.615			0.953		0.864

(1) Peak Hour Volume (Peak Hour Begins At 730 AM)
(2) Peak Hour Factor (directional aggregate)

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VEHICLE TURNING MOVEMENT COUNT

#001A Lopes & Cordelia - MD PEAK

LOCATION#:	**001A**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Lopes**	**DATE:**	**Thursday, October 26, 2017**
EAST / WEST:	**Cordelia**	**VICINITY:**	**FAR**

DIRECTION:	**NL**	**NT**	**NR**	**SL**	**ST**	**SR**	**EL**	**ET**	**ER**	**WL**	**WT**	**WR**	**TOTALS**
LANES:	0	1	1	1	2	0	0	1	0	0	1	0	
11:30 AM	0	55	23	19	39	6	11	1	2	27	3	48	234
11:45 AM	1	51	21	24	32	3	5	3	1	33	1	63	238
12:00 PM	2	46	29	9	42	5	6	6	2	18	2	51	218
12:15 PM	2	52	33	22	33	4	6	3	3	38	8	57	261
12:30 PM	1	43	20	22	26	1	4	1	1	39	3	51	212
12:45 PM	1	47	13	30	40	7	0	0	2	22	3	59	224
1:00 PM	0	48	21	20	39	5	5	2	1	31	2	50	224
1:15 PM	3	56	12	26	32	5	6	6	2	29	3	39	219

VOLUME STATS:	**NL**	**NT**	**NR**	**SL**	**ST**	**SR**	**EL**	**ET**	**ER**	**WL**	**WT**	**WR**	
TOTAL:	10	398	172	172	283	36	43	22	14	237	25	418	1830
P.H.V: [1]	5	204	106	74	146	18	28	13	8	116	14	219	951
P.H.F: [2]		0.905			0.930			0.875			0.847		0.911

(1) Peak Hour Volume (Peak Hour Begins At 1130 AM)
(2) Peak Hour Factor (directional aggregate)

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VEHICLE TURNING MOVEMENT COUNT

#001A Lopes & Cordelia - PM PEAK

LOCATION#:	**001A**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Lopes**	**DATE:**	**Thursday, October 26, 2017**
EAST / WEST:	**Cordelia**	**VICINITY:**	**FAR**

DIRECTION:	**NL**	**NT**	**NR**	**SL**	**ST**	**SR**	**EL**	**ET**	**ER**	**WL**	**WT**	**WR**	**TOTALS**
LANES:	0	1	1	1	2	0	0	1	0	0	1	0	
4:30 PM	2	89	73	26	62	2	7	3	0	40	4	51	359
4:45 PM	2	85	61	43	62	5	6	0	1	34	1	60	360
5:00 PM	0	95	43	26	68	2	11	4	2	36	3	57	347
5:15 PM	1	87	71	42	66	1	3	1	1	30	1	48	352
5:30 PM	0	96	84	37	63	1	2	3	2	47	2	46	383
5:45 PM	0	175	87	32	67	2	3	1	3	43	2	29	444
6:00 PM	1	154	101	24	57	1	1	0	1	25	1	33	399
6:15 PM	1	143	72	21	44	5	0	0	0	21	3	37	347

VOLUME STATS:	**NL**	**NT**	**NR**	**SL**	**ST**	**SR**	**EL**	**ET**	**ER**	**WL**	**WT**	**WR**	
TOTAL:	7	924	592	251	489	19	33	12	10	276	17	361	2991
P.H.V: [1]	2	512	343	135	253	5	9	5	7	145	6	156	1578
P.H.F: [2]		0.818			0.901			0.750			0.808		0.889

(1) Peak Hour Volume (Peak Hour Begins At 515 PM)
(2) Peak Hour Factor (directional aggregate)

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PEDESTRIAN CROSSWALK COUNTS

#001A Lopes & Cordelia - AM PEAK

LOCATION#:	**001A**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Lopes**	**DATE:**	**Thursday, October 26, 2017**
EAST / WEST:	**Cordelia**	**VICINITY:**	**FAR**

DIRECTION:	NORTHERN CROSSWALK	SOUTHERN CROSSWALK	EASTERN CROSSWALK	WESTERN CROSSWALK	TOTALS
6:30 AM	0	0	0	0	
6:45 AM	0	0	0	0	
7:00 AM	2	0	0	3	5
7:15 AM	0	0	0	0	
7:30 AM	1	0	0	1	2
7:45 AM	1	0	0	1	2
8:00 AM	0	0	0	0	
8:15 AM	0	0	0	0	

VOLUME STATS:	NORTHERN CROSSWALK	SOUTHERN CROSSWALK	EASTERN CROSSWALK	WESTERN CROSSWALK	
TOTAL:	4	0	0	5	9
P.H.V: [1]	4	0	0	5	9
P.H.F: [2]	0.500	0.000	0.000	0.417	0.450

(1) Peak Hour Volume (Peak hour begins at: 700 AM)
(2) Peak Hour Factor

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PEDESTRIAN CROSSWALK COUNTS

#001A Lopes & Cordelia - MD PEAK

LOCATION#:	**001A**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Lopes**	**DATE:**	**Thursday, October 26, 2017**
EAST / WEST:	**Cordelia**	**VICINITY:**	**FAR**

DIRECTION:	NORTHERN CROSSWALK	SOUTHERN CROSSWALK	EASTERN CROSSWALK	WESTERN CROSSWALK	TOTALS
11:30 AM	0	0	0	0	
11:45 AM	0	0	0	0	
12:00 PM	0	0	0	0	
12:15 PM	0	0	0	0	
12:30 PM	0	0	0	0	
12:45 PM	0	0	0	0	
1:00 PM	0	0	0	0	
1:15 PM	0	0	0	0	

VOLUME STATS:	NORTHERN CROSSWALK	SOUTHERN CROSSWALK	EASTERN CROSSWALK	WESTERN CROSSWALK	
TOTAL:	0	0	0	0	0
P.H.V: [1]	0	0	0	0	0
P.H.F: [2]	0.000	0.000	0.000	0.000	0.000

(1) Peak Hour Volume (Peak hour begins at: 0 AM)
(2) Peak Hour Factor

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PEDESTRIAN CROSSWALK COUNTS

#001A Lopes & Cordelia - PM PEAK

LOCATION#:	**001A**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Lopes**	**DATE:**	**Thursday, October 26, 2017**
EAST / WEST:	**Cordelia**	**VICINITY:**	**FAR**

DIRECTION:	NORTHERN CROSSWALK	SOUTHERN CROSSWALK	EASTERN CROSSWALK	WESTERN CROSSWALK	TOTALS
4:30 PM	2	0	0	2	4
4:45 PM	0	0	0	0	
5:00 PM	0	0	0	0	
5:15 PM	0	0	0	0	
5:30 PM	0	0	0	0	
5:45 PM	0	0	0	0	
6:00 PM	0	0	0	0	
6:15 PM	0	0	0	0	

VOLUME STATS:	NORTHERN CROSSWALK	SOUTHERN CROSSWALK	EASTERN CROSSWALK	WESTERN CROSSWALK	
TOTAL:	2	0	0	2	4
P.H.V: [1]	2	0	0	2	4
P.H.F: [2]	0.250	0.000	0.000	0.250	0.250

(1) Peak Hour Volume (Peak hour begins at: 430 PM)
(2) Peak Hour Factor

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BICYCLE TURNING MOVEMENT COUNT

#001A Lopes & Cordelia - AM PEAK

LOCATION#:	**001A**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Lopes**	**DATE:**	**Thursday, October 26, 2017**
EAST / WEST:	**Cordelia**	**VICINITY:**	**FAR**

DIRECTION:	**NL**	**NT**	**NR**	**SL**	**ST**	**SR**	**EL**	**ET**	**ER**	**WL**	**WT**	**WR**	**TOTALS**
LANES:	0	1	1	1	2	0	0	1	0	0	1	0	
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	

VOLUME STATS:	**NL**	**NT**	**NR**	**SL**	**ST**	**SR**	**EL**	**ET**	**ER**	**WL**	**WT**	**WR**	
TOTAL:	0	0	0	0	0	0	0	0	0	0	0	0	0
P.H.V: [1]	0	0	0	0	0	0	0	0	0	0	0	0	0
P.H.F: [2]		0.000			0.000			0.000			0.000		0.000

(1) Peak Hour Volume (Peak Hour Begins At 0 AM)
(2) Peak Hour Factor (directional aggregate)

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BICYCLE TURNING MOVEMENT COUNT

#001A Lopes & Cordelia - MD PEAK

LOCATION#:	**001A**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Lopes**	**DATE:**	**Thursday, October 26, 2017**
EAST / WEST:	**Cordelia**	**VICINITY:**	**FAR**

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	0	1	1	1	2	0	0	1	0	0	1	0	
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	
12:30 PM	0	1	0	0	0	0	0	0	0	0	0	1	2
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	
1:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	0	2	0	0	0	0	0	0	0	0	0	1	3
P.H.V: [1]	0	2	0	0	0	0	0	0	0	0	0	1	3
P.H.F: [2]		0.500			0.000			0.000			0.250		0.375

(1) Peak Hour Volume (Peak Hour Begins At 1230 PM)
(2) Peak Hour Factor (directional aggregate)

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BICYCLE TURNING MOVEMENT COUNT

#001A Lopes & Cordelia - PM PEAK

LOCATION#:	**001A**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Lopes**	**DATE:**	**Thursday, October 26, 2017**
EAST / WEST:	**Cordelia**	**VICINITY:**	**FAR**

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	0	1	1	1	2	0	0	1	0	0	1	0	
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	1
5:00 PM	0	0	0	0	2	0	0	0	0	0	0	0	2
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	0	0	0	0	2	0	0	0	0	0	0	1	3
P.H.V: [1]	0	0	0	0	2	0	0	0	0	0	0	1	3
P.H.F: [2]		0.000			0.250			0.000			0.250		0.375

(1) Peak Hour Volume (Peak Hour Begins At 445 PM)
(2) Peak Hour Factor (directional aggregate)

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PEAK HOUR ITM SUMMARY

#001B Lopes & Bridgeport

LOCATION#:	001B	QTD PROJ#:	2017294	AM PEAK:	715 AM
NORTH / SOUTH:	Lopes	DATE:	Thursday, October 26, 2017	MD PEAK:	1130 AM
EAST / WEST:	Bridgeport	VICINITY:	FAR	PM PEAK:	530 PM

Lopes

SOUTHBOUND LANES

LN			
AM	0	514	42
MD	0	243	26
PM	0	354	20
TOTAL	0	1111	88

Bridgeport

EASTBOUND LANES

LN	AM	MD	PM	TOTAL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

4-WAY STOP

WESTBOUND LANES

TOTAL	PM	MD	AM	LN
382	332	29	21	0.5
0	0	0	0	0
86	9	5	72	0.5

Bridgeport

NORTHBOUND LANES

TOTAL			
PM	0	581	3
MD	0	287	7
AM	0	390	9
LN	0	1	0

Lopes

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AM COUNT	6:30 AM	TO	8:30 AM
MD COUNT	11:30 AM	TO	1:30 PM
PM COUNT	4:30 PM	TO	6:30 PM

VEHICLE TURNING MOVEMENT COUNT

#001B Lopes & Bridgeport - AM PEAK

LOCATION#:	**001B**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Lopes**	**DATE:**	**Thursday, October 26, 2017**
EAST / WEST:	**Bridgeport**	**VICINITY:**	**FAR**

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	0	1	0	0	2	0	0	0	0	0.5	0	0.5	
6:30 AM	0	26	3	24	73	0	0	0	0	0	0	2	128
6:45 AM	0	66	2	11	111	0	0	0	0	5	0	1	196
7:00 AM	0	48	2	10	84	0	0	0	0	0	0	1	145
7:15 AM	0	68	1	9	103	0	0	0	0	3	0	2	186
7:30 AM	0	97	3	8	155	0	0	0	0	17	0	7	287
7:45 AM	0	107	3	10	174	0	0	0	0	44	0	5	343
8:00 AM	0	118	2	15	82	0	0	0	0	8	0	7	232
8:15 AM	0	61	3	19	73	0	0	0	0	3	0	10	169

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	0	591	19	106	855	0	0	0	0	80	0	35	1686
P.H.V: [1]	0	390	9	42	514	0	0	0	0	72	0	21	1048
P.H.F: [2]		0.831			0.755			0.000			0.474		0.764

(1) Peak Hour Volume (Peak Hour Begins At 715 AM)
(2) Peak Hour Factor (directional aggregate)

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VEHICLE TURNING MOVEMENT COUNT

#001B Lopes & Bridgeport - MD PEAK

LOCATION#:	**001B**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Lopes**	**DATE:**	**Thursday, October 26, 2017**
EAST / WEST:	**Bridgeport**	**VICINITY:**	**FAR**

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	0	1	0	0	2	0	0	0	0	0.5	0	0.5	
11:30 AM	0	70	0	6	62	0	0	0	0	3	0	8	149
11:45 AM	0	69	1	10	56	0	0	0	0	1	0	4	141
12:00 PM	0	68	2	4	57	0	0	0	0	0	0	10	141
12:15 PM	0	80	4	6	68	0	0	0	0	1	0	7	166
12:30 PM	0	58	0	8	58	0	0	0	0	2	0	6	132
12:45 PM	0	56	1	3	60	0	0	0	0	2	0	5	127
1:00 PM	0	60	1	6	65	0	0	0	0	2	0	8	142
1:15 PM	0	62	1	8	55	0	0	0	0	1	0	9	136

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	0	523	10	51	481	0	0	0	0	12	0	57	1134
P.H.V: [1]	0	287	7	26	243	0	0	0	0	5	0	29	597
P.H.F: [2]		0.875			0.909			0.000			0.773		0.899

(1) Peak Hour Volume (Peak Hour Begins At 1130 AM)
(2) Peak Hour Factor (directional aggregate)

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VEHICLE TURNING MOVEMENT COUNT

#001B Lopes & Bridgeport - PM PEAK

LOCATION#:	**001B**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Lopes**	**DATE:**	**Thursday, October 26, 2017**
EAST / WEST:	**Bridgeport**	**VICINITY:**	**FAR**

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	0	1	0	0	2	0	0	0	0	0.5	0	0.5	
4:30 PM	0	130	0	10	92	0	0	0	0	2	0	34	268
4:45 PM	0	130	2	5	92	0	0	0	0	1	0	18	248
5:00 PM	0	130	6	10	97	0	0	0	0	1	0	8	252
5:15 PM	0	136	0	6	92	0	0	0	0	1	0	22	257
5:30 PM	0	125	0	4	108	0	0	0	0	2	0	54	293
5:45 PM	0	151	0	6	108	0	0	0	0	3	0	111	379
6:00 PM	0	160	0	5	78	0	0	0	0	1	0	96	340
6:15 PM	0	145	3	5	60	0	0	0	0	3	0	71	287

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	0	1107	11	51	727	0	0	0	0	14	0	414	2324
P.H.V: [1]	0	581	3	20	354	0	0	0	0	9	0	332	1299
P.H.F: [2]		0.913			0.820			0.000			0.748		0.857

(1) Peak Hour Volume (Peak Hour Begins At 530 PM)
(2) Peak Hour Factor (directional aggregate)

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PEDESTRIAN CROSSWALK COUNTS

#001B Lopes & Bridgeport - AM PEAK

LOCATION#:	**001B**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Lopes**	**DATE:**	**Thursday, October 26, 2017**
EAST / WEST:	**Bridgeport**	**VICINITY:**	**FAR**

DIRECTION:	NORTHERN CROSSWALK	SOUTHERN CROSSWALK	EASTERN CROSSWALK	WESTERN CROSSWALK	TOTALS
6:30 AM	0	0	0	0	
6:45 AM	0	0	0	0	
7:00 AM	0	0	0	0	
7:15 AM	0	0	0	0	
7:30 AM	0	0	0	0	
7:45 AM	0	0	0	0	
8:00 AM	0	0	0	0	
8:15 AM	0	0	0	0	

VOLUME STATS:	NORTHERN CROSSWALK	SOUTHERN CROSSWALK	EASTERN CROSSWALK	WESTERN CROSSWALK	
TOTAL:	0	0	0	0	0
P.H.V: [1]	0	0	0	0	0
P.H.F: [2]	0.000	0.000	0.000	0.000	0.000

(1) Peak Hour Volume (Peak hour begins at: 0 AM)
(2) Peak Hour Factor

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PEDESTRIAN CROSSWALK COUNTS

#001B Lopes & Bridgeport - MD PEAK

LOCATION#:	**001B**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Lopes**	**DATE:**	**Thursday, October 26, 2017**
EAST / WEST:	**Bridgeport**	**VICINITY:**	**FAR**

DIRECTION:	NORTHERN CROSSWALK	SOUTHERN CROSSWALK	EASTERN CROSSWALK	WESTERN CROSSWALK	TOTALS
11:30 AM	0	0	0	0	
11:45 AM	0	0	0	0	
12:00 PM	0	0	0	0	
12:15 PM	0	0	0	0	
12:30 PM	0	0	1	0	1
12:45 PM	0	0	0	0	
1:00 PM	0	0	0	0	
1:15 PM	0	0	0	0	

VOLUME STATS:	NORTHERN CROSSWALK	SOUTHERN CROSSWALK	EASTERN CROSSWALK	WESTERN CROSSWALK	
TOTAL:	0	0	1	0	1
P.H.V: [1]	0	0	1	0	1
P.H.F: [2]	0.000	0.000	0.250	0.000	0.250

(1) Peak Hour Volume (Peak hour begins at: 1230 PM)
(2) Peak Hour Factor

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PEDESTRIAN CROSSWALK COUNTS

#001B Lopes & Bridgeport - PM PEAK

LOCATION#:	**001B**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Lopes**	**DATE:**	**Thursday, October 26, 2017**
EAST / WEST:	**Bridgeport**	**VICINITY:**	**FAR**

DIRECTION:	NORTHERN CROSSWALK	SOUTHERN CROSSWALK	EASTERN CROSSWALK	WESTERN CROSSWALK	TOTALS
4:30 PM	0	0	0	0	
4:45 PM	0	0	0	0	
5:00 PM	0	0	0	0	
5:15 PM	0	0	0	0	
5:30 PM	0	0	0	0	
5:45 PM	0	0	0	0	
6:00 PM	0	0	0	0	
6:15 PM	0	0	0	0	

VOLUME STATS:	NORTHERN CROSSWALK	SOUTHERN CROSSWALK	EASTERN CROSSWALK	WESTERN CROSSWALK	
TOTAL:	0	0	0	0	0
P.H.V: [1]	0	0	0	0	0
P.H.F: [2]	0.000	0.000	0.000	0.000	0.000

(1) Peak Hour Volume (Peak hour begins at: 0 AM)

(2) Peak Hour Factor

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BICYCLE TURNING MOVEMENT COUNT

#001B Lopes & Bridgeport - AM PEAK

LOCATION#:	**001B**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Lopes**	**DATE:**	**Thursday, October 26, 2017**
EAST / WEST:	**Bridgeport**	**VICINITY:**	**FAR**

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	0	1	0	0	2	0	0	0	0	0.5	0	0.5	
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	
7:30 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	0	0	0	0	1	0	0	0	0	0	0	0	1
P.H.V: [1]	0	0	0	0	1	0	0	0	0	0	0	0	1
P.H.F: [2]		0.000			0.250			0.000			0.000		0.250

(1) Peak Hour Volume (Peak Hour Begins At 730 AM)
(2) Peak Hour Factor (directional aggregate)

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BICYCLE TURNING MOVEMENT COUNT

#001B Lopes & Bridgeport - MD PEAK

LOCATION#:	**001B**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Lopes**	**DATE:**	**Thursday, October 26, 2017**
EAST / WEST:	**Bridgeport**	**VICINITY:**	**FAR**

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	0	1	0	0	2	0	0	0	0	0.5	0	0.5	
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	
11:45 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
12:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	
12:30 PM	0	2	0	0	0	0	0	0	0	0	0	0	2
12:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	0	3	0	0	2	0	0	0	0	0	0	0	5
P.H.V: [1]	0	3	0	0	1	0	0	0	0	0	0	0	4
P.H.F: [2]		0.375			0.250			0.000			0.000		0.500

(1) Peak Hour Volume (Peak Hour Begins At 1200 PM)
(2) Peak Hour Factor (directional aggregate)

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BICYCLE TURNING MOVEMENT COUNT

#001B Lopes & Bridgeport - PM PEAK

LOCATION#:	**001B**	**QTD PROJ#:**	**2017294**
NORTH / SOUTH:	**Lopes**	**DATE:**	**Thursday, October 26, 2017**
EAST / WEST:	**Bridgeport**	**VICINITY:**	**FAR**

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	0	1	0	0	2	0	0	0	0	0.5	0	0.5	
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	
4:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
5:00 PM	0	2	1	0	3	0	0	0	0	0	0	0	6
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	0	3	1	0	3	0	0	0	0	0	0	0	7
P.H.V: [1]	0	3	1	0	3	0	0	0	0	0	0	0	7
P.H.F: [2]		0.333			0.250			0.000			0.000		0.292

(1) Peak Hour Volume (Peak Hour Begins At 445 PM)
(2) Peak Hour Factor (directional aggregate)

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APPENDIX B: INTERSECTION LOS WORKSHEETS

NO PROJECT SCENARIO OUTPUTS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	230	486	147	199	30	171	107	64	12	198	98
Future Volume (veh/h)	24	230	486	147	199	30	171	107	64	12	198	98
Number	5	2	12	1	6	16	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		0.99	1.00		1.00	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	1845	1845	1845	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	28	271	127	173	234	19	201	126	27	14	233	68
Adj No. of Lanes	1	2	1	1	3	0	2	2	0	1	2	0
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	55	626	276	218	1291	103	399	845	176	31	488	139
Arrive On Green	0.03	0.18	0.18	0.12	0.27	0.27	0.12	0.29	0.29	0.02	0.18	0.18
Sat Flow, veh/h	1757	3505	1547	1757	4756	379	3408	2885	602	1757	2693	768
Grp Volume(v), veh/h	28	271	127	173	164	89	201	75	78	14	150	151
Grp Sat Flow(s),veh/h/ln	1757	1752	1547	1757	1679	1778	1704	1752	1735	1757	1752	1709
Q Serve(g_s), s	0.9	4.0	4.2	5.5	2.1	2.2	3.2	1.8	1.9	0.5	4.4	4.6
Cycle Q Clear(g_c), s	0.9	4.0	4.2	5.5	2.1	2.2	3.2	1.8	1.9	0.5	4.4	4.6
Prop In Lane	1.00		1.00	1.00		0.21	1.00		0.35	1.00		0.45
Lane Grp Cap(c), veh/h	55	626	276	218	912	483	399	513	508	31	317	309
V/C Ratio(X)	0.51	0.43	0.46	0.79	0.18	0.18	0.50	0.15	0.15	0.46	0.47	0.49
Avail Cap(c_a), veh/h	306	2625	1159	459	912	483	1484	1190	1178	306	610	595
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.4	21.0	21.1	24.4	16.0	16.0	23.8	15.0	15.0	27.9	21.1	21.1
Incr Delay (d2), s/veh	2.7	0.2	0.4	2.5	0.0	0.1	1.2	0.2	0.2	3.9	1.6	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.9	1.8	2.8	1.0	1.1	1.5	0.9	0.9	0.3	2.3	2.3
LnGrp Delay(d),s/veh	30.0	21.2	21.5	26.9	16.1	16.1	25.0	15.2	15.2	31.8	22.6	22.8
LnGrp LOS	C	C	C	C	B	B	C	B	B	C	C	C
Approach Vol, veh/h		426			426			354			315	
Approach Delay, s/veh		21.9			20.5			20.7			23.1	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.3	16.2	6.2	22.7	7.0	21.5	12.6	16.3
Change Period (Y+Rc), s	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9	5.9	* 5.9
Max Green Setting (Gmax), s	* 15	43.0	* 10	39.0	* 10	15.0	25.0	* 20
Max Q Clear Time (g_c+I1), s	7.5	6.2	2.5	3.9	2.9	4.2	5.2	6.6
Green Ext Time (p_c), s	0.1	1.9	0.0	2.1	0.0	1.7	1.8	1.7

Intersection Summary	
HCM 2010 Ctrl Delay	21.5
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	55	205	452	240	78	203	230	159	9	744	78
Future Volume (veh/h)	34	55	205	452	240	78	203	230	159	9	744	78
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	1845	1845	1845	1845	1845	1900	1845	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	38	61	145	565	179	80	226	256	85	10	827	84
Adj No. of Lanes	1	1	2	2	1	0	2	2	1	1	2	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	170	178	577	797	274	123	298	1574	702	21	1200	122
Arrive On Green	0.10	0.10	0.10	0.23	0.23	0.23	0.09	0.45	0.45	0.01	0.37	0.37
Sat Flow, veh/h	1757	1845	3136	3514	1209	540	3408	3505	1563	1757	3213	326
Grp Volume(v), veh/h	38	61	145	565	0	259	226	256	85	10	451	460
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	0	1749	1704	1752	1563	1757	1752	1787
Q Serve(g_s), s	2.1	3.2	4.1	15.3	0.0	13.9	6.7	4.5	3.3	0.6	22.5	22.5
Cycle Q Clear(g_c), s	2.1	3.2	4.1	15.3	0.0	13.9	6.7	4.5	3.3	0.6	22.5	22.5
Prop In Lane	1.00		1.00	1.00		0.31	1.00		1.00	1.00		0.18
Lane Grp Cap(c), veh/h	170	178	577	797	0	397	298	1574	702	21	655	668
V/C Ratio(X)	0.22	0.34	0.25	0.71	0.00	0.65	0.76	0.16	0.12	0.47	0.69	0.69
Avail Cap(c_a), veh/h	764	802	1638	1867	0	929	988	1574	702	424	762	777
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.2	43.7	36.1	36.9	0.0	36.3	46.2	17.0	16.6	50.8	27.3	27.3
Incr Delay (d2), s/veh	0.7	1.1	0.2	1.7	0.0	2.6	1.5	0.2	0.3	5.9	4.9	4.8
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	1.0	1.7	1.8	7.6	0.0	7.0	3.2	2.2	1.5	0.3	11.8	12.0
LnGrp Delay(d),s/veh	43.8	44.8	36.4	38.5	0.0	38.9	47.7	17.1	16.9	56.7	32.2	32.1
LnGrp LOS	D	D	D	D		D	D	B	B	E	C	C
Approach Vol, veh/h		244			824			567			921	
Approach Delay, s/veh		39.6			38.6			29.3			32.4	
Approach LOS		D			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	6.4	52.4		29.1	14.3	44.6		15.6
Change Period (Y+Rc), s	* 5.2	5.9		5.6	* 5.2	5.9		5.6
Max Green Setting (Gmax), s	* 25	45.0		55.0	* 30	45.0		45.0
Max Q Clear Time (g_c+I1), s	12.6	6.5		17.3	8.7	24.5		6.1
Green Ext Time (p_c), s	0.0	22.9		6.2	0.4	14.2		1.0

Intersection Summary		
HCM 2010 Ctrl Delay	34.4	
HCM 2010 LOS	C	

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	15.6
Intersection LOS	C

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	223	0	0	311	459	106
Future Vol, veh/h	223	0	0	311	459	106
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	265	0	0	370	546	126
Number of Lanes	2	0	0	2	2	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	2
HCM Control Delay	10.8	11.6	19.7
HCM LOS	B	B	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2
Vol Left, %	100%	59%	0%	0%	0%	0%
Vol Thru, %	0%	0%	100%	100%	100%	100%
Vol Right, %	0%	41%	0%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	306	259	112	112	156	156
LT Vol	306	153	0	0	0	0
Through Vol	0	0	112	112	156	156
RT Vol	0	106	0	0	0	0
Lane Flow Rate	364	308	133	133	185	185
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.682	0.534	0.259	0.193	0.354	0.262
Departure Headway (Hd)	6.736	6.24	7.025	5.233	6.881	5.092
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	536	577	510	681	522	702
Service Time	4.479	3.983	4.792	2.999	4.645	2.855
HCM Lane V/C Ratio	0.679	0.534	0.261	0.195	0.354	0.264
HCM Control Delay	22.8	16	12.3	9.3	13.4	9.7
HCM Lane LOS	C	C	B	A	B	A
HCM 95th-tile Q	5.2	3.1	1	0.7	1.6	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	114	592	916	485
Future Volume (veh/h)	0	0	114	592	916	485
Number			5	2	6	16
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)			1.00			1.00
Parking Bus, Adj			1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln			1845	1845	1845	1845
Adj Flow Rate, veh/h			124	643	996	370
Adj No. of Lanes			2	1	1	1
Peak Hour Factor			0.92	0.92	0.92	0.92
Percent Heavy Veh, %			3	3	3	3
Cap, veh/h			408	1657	1263	1108
Arrive On Green			0.12	0.90	0.68	0.71
Sat Flow, veh/h			3408	1845	1845	1568
Grp Volume(v), veh/h			124	643	996	370
Grp Sat Flow(s),veh/h/ln			1704	1845	1845	1568
Q Serve(g_s), s			1.7	2.7	18.5	4.5
Cycle Q Clear(g_c), s			1.7	2.7	18.5	4.5
Prop In Lane			1.00			1.00
Lane Grp Cap(c), veh/h			408	1657	1263	1108
V/C Ratio(X)			0.30	0.39	0.79	0.33
Avail Cap(c_a), veh/h			1702	1657	1842	1600
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh			20.1	0.4	5.4	2.8
Incr Delay (d2), s/veh			0.2	0.3	1.5	0.2
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			0.8	1.4	9.6	2.0
LnGrp Delay(d),s/veh			20.3	0.7	6.9	3.0
LnGrp LOS			C	A	A	A
Approach Vol, veh/h				767	1366	
Approach Delay, s/veh				3.9	5.8	
Approach LOS				A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		
Phs Duration (G+Y+Rc), s		50.1			10.7	39.4		
Change Period (Y+Rc), s		5.1			* 4.7	5.1		
Max Green Setting (Gmax), s		25.0			* 25	50.0		
Max Q Clear Time (g_c+I1), s		4.7			3.7	20.5		
Green Ext Time (p_c), s		15.0			0.2	13.7		

Intersection Summary	
HCM 2010 Ctrl Delay	5.1
HCM 2010 LOS	A

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	315	65	151	391	399	517
Future Volume (veh/h)	315	65	151	391	399	517
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	346	37	166	430	438	228
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	421	568	215	1009	600	510
Arrive On Green	0.24	0.24	0.12	0.55	0.33	0.33
Sat Flow, veh/h	1757	1568	1757	1845	1845	1568
Grp Volume(v), veh/h	346	37	166	430	438	228
Grp Sat Flow(s),veh/h/ln	1757	1568	1757	1845	1845	1568
Q Serve(g_s), s	8.8	0.7	4.3	6.5	9.9	5.4
Cycle Q Clear(g_c), s	8.8	0.7	4.3	6.5	9.9	5.4
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	421	568	215	1009	600	510
V/C Ratio(X)	0.82	0.07	0.77	0.43	0.73	0.45
Avail Cap(c_a), veh/h	1226	1286	1003	1755	1209	1028
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.0	9.9	20.1	6.3	14.1	12.6
Incr Delay (d2), s/veh	1.6	0.0	2.2	0.1	0.6	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	4.4	0.8	2.2	3.3	5.1	2.4
LnGrp Delay(d),s/veh	18.6	9.9	22.3	6.4	14.8	12.8
LnGrp LOS	B	A	C	A	B	B
Approach Vol, veh/h	383			596	666	
Approach Delay, s/veh	17.7			10.9	14.1	
Approach LOS	B			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		31.3		16.0	10.5	20.8		
Change Period (Y+Rc), s		5.4		* 4.7	* 4.7	5.4		
Max Green Setting (Gmax), s		45.0		* 33	* 27	31.0		
Max Q Clear Time (g_c+I1), s		8.5		10.8	6.3	11.9		
Green Ext Time (p_c), s		3.7		0.6	0.2	3.4		

Intersection Summary	
HCM 2010 Ctrl Delay	13.8
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	91	0	223	0	157	51	5	28	0	0	52	110
Future Volume (veh/h)	91	0	223	0	157	51	5	28	0	0	52	110
Number	1	6	16	5	2	12	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		1.00	1.00		1.00	1.00		0.99
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	0	1845	1900	1845	1845	0	0	1845	1900
Adj Flow Rate, veh/h	112	0	40	0	194	53	6	35	0	0	64	22
Adj No. of Lanes	2	1	2	0	1	0	1	2	0	0	2	0
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	3	3	3	0	3	3	3	3	0	0	3	3
Cap, veh/h	332	812	1346	0	283	77	83	175	0	0	239	78
Arrive On Green	0.10	0.00	0.44	0.00	0.20	0.20	0.05	0.05	0.00	0.00	0.09	0.09
Sat Flow, veh/h	3408	1845	2760	0	1396	381	1757	3689	0	0	2683	847
Grp Volume(v), veh/h	112	0	40	0	0	247	6	35	0	0	42	44
Grp Sat Flow(s),veh/h/ln	1704	1845	1380	0	0	1777	1757	1845	0	0	1752	1685
Q Serve(g_s), s	1.0	0.0	0.2	0.0	0.0	4.2	0.1	0.3	0.0	0.0	0.7	0.8
Cycle Q Clear(g_c), s	1.0	0.0	0.2	0.0	0.0	4.2	0.1	0.3	0.0	0.0	0.7	0.8
Prop In Lane	1.00		1.00	0.00		0.21	1.00		0.00	0.00		0.50
Lane Grp Cap(c), veh/h	332	812	1346	0	0	360	83	175	0	0	162	155
V/C Ratio(X)	0.34	0.00	0.03	0.00	0.00	0.69	0.07	0.20	0.00	0.00	0.26	0.28
Avail Cap(c_a), veh/h	2594	1404	2231	0	0	1353	1337	2808	0	0	1334	1283
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	13.8	0.0	4.4	0.0	0.0	12.1	15.0	15.0	0.0	0.0	13.9	13.9
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.0	0.0	2.3	0.4	0.6	0.0	0.0	0.9	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	0.5	0.0	0.1	0.0	0.0	2.3	0.1	0.2	0.0	0.0	0.4	0.4
LnGrp Delay(d),s/veh	14.4	0.0	4.4	0.0	0.0	14.4	15.3	15.6	0.0	0.0	14.7	14.9
LnGrp LOS	B		A			B	B	B			B	B
Approach Vol, veh/h		152			247			41			86	
Approach Delay, s/veh		11.8			14.4			15.6			14.8	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	7.8	11.3		7.6		19.1		6.2
Change Period (Y+Rc), s	4.6	4.6		4.6		4.6		4.6
Max Green Setting (Gmax), s	25.0	25.0		25.0		25.0		25.0
Max Q Clear Time (g_c+I1), s	3.0	6.2		2.8		2.2		2.3
Green Ext Time (p_c), s	0.5	1.2		0.4		0.5		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	13.8
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	99	0	0	538	2	0	0	0	225	0	50
Future Volume (veh/h)	31	99	0	0	538	2	0	0	0	225	0	50
Number	3	8	18	7	4	14				5	2	12
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	1845	1845	0	1845	1845	1900				1845	0	1845
Adj Flow Rate, veh/h	37	119	0	0	648	2				271	0	18
Adj No. of Lanes	2	2	0	1	2	0				1	0	1
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83				0.83	0.83	0.83
Percent Heavy Veh, %	3	3	0	3	3	3				3	0	3
Cap, veh/h	149	1814	0	5	1237	4				374	0	333
Arrive On Green	0.04	0.52	0.00	0.00	0.35	0.35				0.21	0.00	0.21
Sat Flow, veh/h	3408	3597	0	1757	3584	11				1757	0	1568
Grp Volume(v), veh/h	37	119	0	0	317	333				271	0	18
Grp Sat Flow(s),veh/h/ln	1704	1752	0	1757	1752	1843				1757	0	1568
Q Serve(g_s), s	0.3	0.6	0.0	0.0	4.7	4.7				4.7	0.0	0.3
Cycle Q Clear(g_c), s	0.3	0.6	0.0	0.0	4.7	4.7				4.7	0.0	0.3
Prop In Lane	1.00		0.00	1.00		0.01				1.00		1.00
Lane Grp Cap(c), veh/h	149	1814	0	5	605	636				374	0	333
V/C Ratio(X)	0.25	0.07	0.00	0.00	0.52	0.52				0.73	0.00	0.05
Avail Cap(c_a), veh/h	2091	3225	0	1078	1612	1696				1347	0	1202
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	1.00	0.00	0.00	1.00	1.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	15.1	3.9	0.0	0.0	8.5	8.5				12.0	0.0	10.2
Incr Delay (d2), s/veh	0.9	0.0	0.0	0.0	0.7	0.7				2.7	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
%ile BackOfQ(50%),veh/ln	0.2	0.3	0.0	0.0	2.3	2.4				2.5	0.0	0.1
LnGrp Delay(d),s/veh	15.9	3.9	0.0	0.0	9.2	9.2				14.6	0.0	10.3
LnGrp LOS	B	A			A	A				B		B
Approach Vol, veh/h		156			650						289	
Approach Delay, s/veh		6.8			9.2						14.4	
Approach LOS		A			A						B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4			7	8
Phs Duration (G+Y+Rc), s		11.1	5.6	15.8			0.0	21.5
Change Period (Y+Rc), s		* 4.2	* 4.2	4.6			* 4.2	4.6
Max Green Setting (Gmax), s		* 25	* 20	30.0			* 20	30.0
Max Q Clear Time (g_c+I1), s		6.7	2.3	6.7			0.0	2.6
Green Ext Time (p_c), s		0.8	0.1	4.5			0.0	4.7

Intersection Summary	
HCM 2010 Ctrl Delay	10.2
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	129	0	2	418	2	0	0	0	1	0	0
Future Vol, veh/h	12	129	0	2	418	2	0	0	0	1	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	130	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	16	170	0	3	550	3	0	0	0	1	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	553	0	0	170	0	0	481	759	85	673	758	276
Stage 1	-	-	-	-	-	-	201	201	-	557	557	-
Stage 2	-	-	-	-	-	-	280	558	-	116	201	-
Critical Hdwy	4.16	-	-	4.16	-	-	7.56	6.56	6.96	7.56	6.56	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Follow-up Hdwy	2.23	-	-	2.23	-	-	3.53	4.03	3.33	3.53	4.03	3.33
Pot Cap-1 Maneuver	1006	-	-	1397	-	-	466	333	954	339	333	718
Stage 1	-	-	-	-	-	-	779	731	-	480	508	-
Stage 2	-	-	-	-	-	-	700	507	-	873	731	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1006	-	-	1397	-	-	460	327	954	334	327	718
Mov Cap-2 Maneuver	-	-	-	-	-	-	460	327	-	334	327	-
Stage 1	-	-	-	-	-	-	767	719	-	472	507	-
Stage 2	-	-	-	-	-	-	698	506	-	859	719	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	0	0	15.8
HCM LOS			A	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1006	-	-	1397	-	-	334
HCM Lane V/C Ratio	-	0.016	-	-	0.002	-	-	0.004
HCM Control Delay (s)	0	8.6	-	-	7.6	-	-	15.8
HCM Lane LOS	A	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	93	10	48	20	35	109	56	645	23	42	303	64
Future Volume (veh/h)	93	10	48	20	35	109	56	645	23	42	303	64
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	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	135	14	21	29	51	25	81	935	32	61	439	73
Adj No. of Lanes	1	1	0	1	2	0	1	3	0	1	3	0
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	178	92	137	58	164	75	117	2172	74	99	1852	301
Arrive On Green	0.10	0.14	0.14	0.03	0.07	0.07	0.07	0.43	0.43	0.06	0.42	0.42
Sat Flow, veh/h	1757	660	990	1757	2336	1069	1757	5000	171	1757	4364	709
Grp Volume(v), veh/h	135	0	35	29	37	39	81	627	340	61	335	177
Grp Sat Flow(s),veh/h/ln	1757	0	1649	1757	1752	1652	1757	1679	1814	1757	1679	1717
Q Serve(g_s), s	3.9	0.0	1.0	0.8	1.0	1.2	2.3	6.7	6.8	1.8	3.3	3.4
Cycle Q Clear(g_c), s	3.9	0.0	1.0	0.8	1.0	1.2	2.3	6.7	6.8	1.8	3.3	3.4
Prop In Lane	1.00		0.60	1.00		0.65	1.00		0.09	1.00		0.41
Lane Grp Cap(c), veh/h	178	0	229	58	123	116	117	1458	788	99	1424	728
V/C Ratio(X)	0.76	0.00	0.15	0.50	0.30	0.33	0.69	0.43	0.43	0.62	0.24	0.24
Avail Cap(c_a), veh/h	678	0	1432	848	1522	1435	678	2397	1295	678	2267	1159
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.7	0.0	19.6	24.6	22.9	22.9	23.7	10.2	10.2	23.9	9.5	9.6
Incr Delay (d2), s/veh	6.4	0.0	0.3	6.6	1.4	1.7	7.2	0.2	0.5	2.3	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	2.2	0.0	0.5	0.5	0.6	0.6	1.4	3.1	3.4	0.9	1.6	1.7
LnGrp Delay(d),s/veh	29.1	0.0	19.9	31.2	24.3	24.6	30.9	10.4	10.7	26.2	9.6	9.8
LnGrp LOS	C		B	C	C	C	C	B	B	C	A	A
Approach Vol, veh/h		170			105			1048			573	
Approach Delay, s/veh		27.2			26.3			12.1			11.4	
Approach LOS		C			C			B			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	7.1	27.1	5.9	11.7	7.6	26.6	9.5	8.1
Change Period (Y+Rc), s	* 4.2	4.6	* 4.2	4.5	* 4.2	4.6	* 4.2	4.5
Max Green Setting (Gmax), s	* 20	37.0	* 25	45.0	* 20	35.0	* 20	45.0
Max Q Clear Time (g_c+I1), s	3.8	8.8	2.8	3.0	4.3	5.4	5.9	3.2
Green Ext Time (p_c), s	0.0	13.0	0.0	0.7	0.1	13.3	0.3	0.7

Intersection Summary	
HCM 2010 Ctrl Delay	14.0
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	83	202	42	281	19	305	666	96	9	236	126
Future Volume (veh/h)	39	83	202	42	281	19	305	666	96	9	236	126
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		0.99	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	1845	1845	1900	1845	1845	1900	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	57	122	59	62	413	22	449	979	81	13	347	47
Adj No. of Lanes	2	3	0	2	3	0	2	2	1	2	2	1
Peak Hour Factor	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	164	553	237	240	896	47	594	1497	669	76	964	431
Arrive On Green	0.05	0.16	0.16	0.07	0.18	0.18	0.17	0.43	0.43	0.02	0.28	0.28
Sat Flow, veh/h	3408	3444	1474	3408	4897	259	3408	3505	1568	3408	3505	1568
Grp Volume(v), veh/h	57	119	62	62	282	153	449	979	81	13	347	47
Grp Sat Flow(s),veh/h/ln	1704	1679	1561	1704	1679	1798	1704	1752	1568	1704	1752	1568
Q Serve(g_s), s	1.1	2.1	2.4	1.2	5.2	5.3	8.7	15.4	2.2	0.3	5.5	1.6
Cycle Q Clear(g_c), s	1.1	2.1	2.4	1.2	5.2	5.3	8.7	15.4	2.2	0.3	5.5	1.6
Prop In Lane	1.00		0.94	1.00		0.14	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	164	540	251	240	614	329	594	1497	669	76	964	431
V/C Ratio(X)	0.35	0.22	0.25	0.26	0.46	0.46	0.76	0.65	0.12	0.17	0.36	0.11
Avail Cap(c_a), veh/h	981	1208	562	981	2030	1087	981	1514	677	981	1514	677
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	32.0	25.4	25.5	30.6	25.3	25.3	27.3	15.8	12.0	33.3	20.3	18.8
Incr Delay (d2), s/veh	1.5	0.2	0.6	0.7	0.6	1.2	2.4	1.1	0.1	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	0.6	1.0	1.1	0.6	2.4	2.7	4.3	7.6	1.0	0.1	2.7	0.7
LnGrp Delay(d),s/veh	33.5	25.6	26.1	31.3	26.0	26.6	29.7	16.9	12.1	34.6	20.5	18.9
LnGrp LOS	C	C	C	C	C	C	C	B	B	C	C	B
Approach Vol, veh/h		238			497			1509			407	
Approach Delay, s/veh		27.6			26.8			20.4			20.8	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.5	18.6	6.8	35.6	10.1	17.1	17.3	25.0
Change Period (Y+Rc), s	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9
Max Green Setting (Gmax), s	* 20	42.0	* 20	30.0	* 20	25.0	* 20	30.0
Max Q Clear Time (g_c+I1), s	3.1	7.3	2.3	17.4	3.2	4.4	10.7	7.5
Green Ext Time (p_c), s	0.1	4.9	0.0	7.9	0.1	4.3	1.4	11.6

Intersection Summary	
HCM 2010 Ctrl Delay	22.3
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	90.7
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	410	0	249	0	0	0	72	657	0	1	457	22
Future Vol, veh/h	410	0	249	0	0	0	72	657	0	1	457	22
Peak Hour Factor	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	569	0	346	0	0	0	100	913	0	1	635	31
Number of Lanes	1	1	1	0	0	0	1	2	0	0	2	1

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	3	3
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	3	3	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	3	0	3
HCM Control Delay	34.8	118.6	124.9
HCM LOS	D	F	F

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	100%	100%	0%	1%	0%	0%
Vol Thru, %	0%	100%	100%	0%	0%	0%	99%	100%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	72	329	329	205	205	249	153	305	22
LT Vol	72	0	0	205	205	0	1	0	0
Through Vol	0	329	329	0	0	0	152	305	0
RT Vol	0	0	0	0	0	249	0	0	22
Lane Flow Rate	100	456	456	285	285	346	213	423	31
Geometry Grp	8	8	8	7	7	7	8	8	8
Degree of Util (X)	0.292	1.267	1.045	0.729	0.729	0.771	0.643	1.277	0.086
Departure Headway (Hd)	11.202	10.684	8.87	9.794	9.794	8.567	11.54	11.537	10.813
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	323	342	411	373	373	425	315	317	333
Service Time	8.902	8.384	6.57	7.494	7.494	6.267	9.24	9.237	8.513
HCM Lane V/C Ratio	0.31	1.333	1.109	0.764	0.764	0.814	0.676	1.334	0.093
HCM Control Delay	18.5	172	87.1	34.8	34.8	34.8	32.9	179.1	14.5
HCM Lane LOS	C	F	F	D	D	D	D	F	B
HCM 95th-tile Q	1.2	19.5	13.8	5.6	5.6	6.5	4.2	18.8	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	493	3	199	0	0	0	0	236	262	275	431	0
Future Volume (veh/h)	493	3	199	0	0	0	0	236	262	275	431	0
Number	3	8	18				1	6	16	5	2	12
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	1900	1845	1845				0	1845	1845	1845	1845	0
Adj Flow Rate, veh/h	594	4	127				0	284	74	331	519	0
Adj No. of Lanes	0	1	1				0	1	1	2	1	0
Peak Hour Factor	0.83	0.83	0.83				0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	702	5	631				0	429	364	469	807	0
Arrive On Green	0.40	0.40	0.40				0.00	0.23	0.23	0.14	0.44	0.00
Sat Flow, veh/h	1746	12	1568				0	1845	1566	3408	1845	0
Grp Volume(v), veh/h	598	0	127				0	284	74	331	519	0
Grp Sat Flow(s),veh/h/ln	1757	0	1568				0	1845	1566	1704	1845	0
Q Serve(g_s), s	16.9	0.0	2.9				0.0	7.7	2.1	5.1	12.1	0.0
Cycle Q Clear(g_c), s	16.9	0.0	2.9				0.0	7.7	2.1	5.1	12.1	0.0
Prop In Lane	0.99		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	707	0	631				0	429	364	469	807	0
V/C Ratio(X)	0.85	0.00	0.20				0.00	0.66	0.20	0.71	0.64	0.00
Avail Cap(c_a), veh/h	2080	0	1856				0	873	741	1241	807	0
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	1.00	1.00	0.00
Uniform Delay (d), s/veh	14.9	0.0	10.7				0.0	19.1	17.0	22.6	12.1	0.0
Incr Delay (d2), s/veh	1.1	0.0	0.1				0.0	0.7	0.1	0.7	1.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.4	0.0	1.2				0.0	3.9	0.9	2.4	6.4	0.0
LnGrp Delay(d),s/veh	16.0	0.0	10.7				0.0	19.8	17.1	23.3	13.5	0.0
LnGrp LOS	B		B					B	B	C	B	
Approach Vol, veh/h		725						358			850	
Approach Delay, s/veh		15.1						19.2			17.3	
Approach LOS		B						B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		28.6			11.3	17.4		26.3
Change Period (Y+Rc), s		4.6			3.7	4.6		4.2
Max Green Setting (Gmax), s		24.0			20.0	26.0		65.0
Max Q Clear Time (g_c+I1), s		14.1			7.1	9.7		18.9
Green Ext Time (p_c), s		2.5			0.5	3.0		3.1

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)	183	19	5	16	29	100	12	152	11	80	156	283
Future Volume (veh/h)	183	19	5	16	29	100	12	152	11	80	156	283
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	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	206	21	2	18	33	1	13	171	8	90	175	87
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	277	261	25	97	98	3	30	869	40	139	732	348
Arrive On Green	0.16	0.16	0.16	0.05	0.05	0.05	0.02	0.25	0.25	0.08	0.32	0.32
Sat Flow, veh/h	1757	1659	158	1757	1781	54	1757	3410	159	1757	2306	1098
Grp Volume(v), veh/h	206	0	23	18	0	34	13	87	92	90	131	131
Grp Sat Flow(s),veh/h/ln	1757	0	1817	1757	0	1835	1757	1752	1816	1757	1752	1651
Q Serve(g_s), s	4.4	0.0	0.4	0.4	0.0	0.7	0.3	1.6	1.6	2.0	2.2	2.3
Cycle Q Clear(g_c), s	4.4	0.0	0.4	0.4	0.0	0.7	0.3	1.6	1.6	2.0	2.2	2.3
Prop In Lane	1.00		0.09	1.00		0.03	1.00		0.09	1.00		0.66
Lane Grp Cap(c), veh/h	277	0	286	97	0	101	30	447	463	139	556	524
V/C Ratio(X)	0.74	0.00	0.08	0.19	0.00	0.34	0.44	0.20	0.20	0.65	0.24	0.25
Avail Cap(c_a), veh/h	1328	0	1373	1328	0	1387	1107	1325	1373	1328	1325	1248
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.0	0.0	14.3	17.9	0.0	18.1	19.3	11.6	11.6	17.7	10.0	10.0
Incr Delay (d2), s/veh	1.5	0.0	0.0	0.3	0.0	0.7	3.8	0.1	0.1	1.9	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	2.2	0.0	0.2	0.2	0.0	0.4	0.2	0.8	0.8	1.0	1.1	1.1
LnGrp Delay(d),s/veh	17.5	0.0	14.3	18.2	0.0	18.8	23.1	11.7	11.7	19.6	10.1	10.1
LnGrp LOS	B		B	B		B	C	B	B	B	B	B
Approach Vol, veh/h		229			52			192			352	
Approach Delay, s/veh		17.1			18.6			12.5			12.5	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.3	14.7		10.8	4.9	17.2		6.8
Change Period (Y+Rc), s	* 4.2	4.6		4.6	* 4.2	4.6		4.6
Max Green Setting (Gmax), s	* 3.1	30.0		30.0	* 25	30.0		30.0
Max Q Clear Time (g_c+I1), s	4.4	3.6		6.4	2.3	4.3		2.7
Green Ext Time (p_c), s	0.1	1.6		0.3	0.0	1.6		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	14.2
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	5.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	65	108	201	4	15	268
Future Vol, veh/h	65	108	201	4	15	268
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	68	113	209	4	16	279

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	214	0	-	0	459	211
Stage 1	-	-	-	-	211	-
Stage 2	-	-	-	-	248	-
Critical Hdwy	4.14	-	-	-	6.44	6.24
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	2.236	-	-	-	3.536	3.336
Pot Cap-1 Maneuver	1344	-	-	-	556	824
Stage 1	-	-	-	-	819	-
Stage 2	-	-	-	-	789	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1344	-	-	-	526	824
Mov Cap-2 Maneuver	-	-	-	-	526	-
Stage 1	-	-	-	-	819	-
Stage 2	-	-	-	-	746	-

Approach	EB	WB	SB
HCM Control Delay, s	2.9	0	12.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1344	-	-	-	800
HCM Lane V/C Ratio	0.05	-	-	-	0.368
HCM Control Delay (s)	7.8	0	-	-	12.1
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	1.7

Intersection	
Int Delay, s/veh	165.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	266	234	298	116	47	373
Future Vol, veh/h	266	234	298	116	47	373
Conflicting Peds, #/hr	5	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	315	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	292	257	327	127	52	410

Major/Minor	Minor1		Major1		Minor2	
Conflicting Flow All	537	327	0	0	456	327
Stage 1	327	-	-	-	0	0
Stage 2	210	-	-	-	456	327
Critical Hdwy	7.13	6.23	-	-	7.13	6.53
Critical Hdwy Stg 1	6.13	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	6.13	5.53
Follow-up Hdwy	3.527	3.327	-	-	3.527	4.027
Pot Cap-1 Maneuver	453	712	-	-	513	590
Stage 1	684	-	-	-	-	-
Stage 2	-	-	-	-	582	646
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	~ 197	712	-	-	328	590
Mov Cap-2 Maneuver	~ 197	-	-	-	328	590
Stage 1	684	-	-	-	-	-
Stage 2	-	-	-	-	372	646

Approach	WB	NB	SB
HCM Control Delay, s	$ 421.6	0	23.2
HCM LOS	F		C

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBLn1	SBLn2
Capacity (veh/h)	-	-	298	328	590
HCM Lane V/C Ratio	-	-	1.844	0.157	0.695
HCM Control Delay (s)	-	-	$ 421.6	18	23.8
HCM Lane LOS	-	-	F	C	C
HCM 95th %tile Q(veh)	-	-	37	0.6	5.5

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

Intersection	
Int Delay, s/veh	124.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	72	21	393	9	42	514
Future Vol, veh/h	72	21	393	9	42	514
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	76	76	76	76	76	76
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	95	28	517	12	55	676

Major/Minor	Minor1		Minor2		Major2	
Conflicting Flow All	1051	0	787	676	0	0
Stage 1	0	-	787	-	-	-
Stage 2	1051	-	0	-	-	-
Critical Hdwy	7.13	6.23	6.53	6.23	4.13	-
Critical Hdwy Stg 1	-	-	5.53	-	-	-
Critical Hdwy Stg 2	6.13	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	4.027	3.327	2.227	-
Pot Cap-1 Maneuver	204	-	~ 323	452	-	-
Stage 1	-	-	~ 401	-	-	-
Stage 2	273	-	-	-	-	-
Platoon blocked, %						-
Mov Cap-1 Maneuver	-	-	~ 323	452	-	-
Mov Cap-2 Maneuver	-	-	~ 323	-	-	-
Stage 1	-	-	~ 401	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s		$ 324.7	
HCM LOS	-	F	

Minor Lane/Major Mvmt	NBLn1	WBLn1	SBL	SBT
Capacity (veh/h)	325	-	-	-
HCM Lane V/C Ratio	1.628	-	-	-
HCM Control Delay (s)	$ 324.7	-	-	-
HCM Lane LOS	F	-	-	-
HCM 95th %tile Q(veh)	31.7	-	-	-

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 (veh/h)	17	69	208	171	144	36	256	202	128	15	131	37
Future Volume (veh/h)	17	69	208	171	144	36	256	202	128	15	131	37
Number	5	2	12	1	6	16	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		0.98	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	1845	1845	1845	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	20	79	45	197	166	15	294	232	73	17	151	22
Adj No. of Lanes	1	2	1	1	3	0	2	2	0	1	2	0
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	42	485	212	244	1196	106	571	868	266	36	522	75
Arrive On Green	0.02	0.14	0.14	0.14	0.25	0.25	0.17	0.33	0.33	0.02	0.17	0.17
Sat Flow, veh/h	1757	3505	1534	1757	4711	416	3408	2643	811	1757	3077	441
Grp Volume(v), veh/h	20	79	45	197	117	64	294	152	153	17	85	88
Grp Sat Flow(s),veh/h/ln	1757	1752	1534	1757	1679	1771	1704	1752	1701	1757	1752	1766
Q Serve(g_s), s	0.7	1.2	1.5	6.5	1.6	1.7	4.7	3.8	3.9	0.6	2.5	2.6
Cycle Q Clear(g_c), s	0.7	1.2	1.5	6.5	1.6	1.7	4.7	3.8	3.9	0.6	2.5	2.6
Prop In Lane	1.00		1.00	1.00		0.24	1.00		0.48	1.00		0.25
Lane Grp Cap(c), veh/h	42	485	212	244	852	450	571	576	559	36	297	299
V/C Ratio(X)	0.48	0.16	0.21	0.81	0.14	0.14	0.51	0.26	0.27	0.47	0.29	0.29
Avail Cap(c_a), veh/h	296	2535	1110	443	852	450	1433	1150	1116	296	590	594
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	28.7	22.6	22.7	24.8	17.1	17.2	22.5	14.7	14.7	28.8	21.5	21.6
Incr Delay (d2), s/veh	3.2	0.1	0.2	2.4	0.0	0.1	0.9	0.3	0.4	3.5	0.7	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.6	0.7	3.3	0.7	0.8	2.3	1.9	1.9	0.3	1.3	1.3
LnGrp Delay(d),s/veh	31.8	22.6	22.9	27.2	17.2	17.2	23.4	15.0	15.1	32.3	22.3	22.3
LnGrp LOS	C	C	C	C	B	B	C	B	B	C	C	C
Approach Vol, veh/h		144			378			599			190	
Approach Delay, s/veh		24.0			22.4			19.2			23.2	
Approach LOS		C			C			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	13.5	14.1	6.4	25.4	6.6	21.0	15.9	16.0
Change Period (Y+Rc), s	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9	5.9	* 5.9
Max Green Setting (Gmax), s	* 15	43.0	* 10	39.0	* 10	15.0	25.0	* 20
Max Q Clear Time (g_c+I1), s	8.5	3.5	2.6	5.9	2.7	3.7	6.7	4.6
Green Ext Time (p_c), s	0.1	0.9	0.0	3.9	0.0	0.8	3.4	0.9

Intersection Summary	
HCM 2010 Ctrl Delay	21.2
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	157	206	617	478	368	77	410	352	75	2	377	131
Future Volume (veh/h)	157	206	617	478	368	77	410	352	75	2	377	131
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	1845	1845	1845	1845	1845	1900	1845	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	173	226	569	336	668	80	451	387	33	2	414	128
Adj No. of Lanes	1	1	2	1	2	0	2	2	1	1	2	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	338	355	1071	475	875	105	509	1299	580	5	593	181
Arrive On Green	0.19	0.19	0.19	0.27	0.27	0.27	0.15	0.37	0.37	0.00	0.22	0.22
Sat Flow, veh/h	1757	1845	3136	1757	3234	387	3408	3505	1565	1757	2645	809
Grp Volume(v), veh/h	173	226	569	336	381	367	451	387	33	2	273	269
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	1845	1776	1704	1752	1565	1757	1752	1702
Q Serve(g_s), s	12.0	15.4	19.9	23.5	25.8	25.9	17.7	10.6	1.8	0.2	19.5	19.8
Cycle Q Clear(g_c), s	12.0	15.4	19.9	23.5	25.8	25.9	17.7	10.6	1.8	0.2	19.5	19.8
Prop In Lane	1.00		1.00	1.00		0.22	1.00		1.00	1.00		0.48
Lane Grp Cap(c), veh/h	338	355	1071	475	499	480	509	1299	580	5	393	381
V/C Ratio(X)	0.51	0.64	0.53	0.71	0.76	0.76	0.89	0.30	0.06	0.43	0.69	0.71
Avail Cap(c_a), veh/h	581	610	1505	710	745	718	751	1299	580	323	579	562
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	49.3	50.6	36.0	44.8	45.7	45.7	56.8	30.3	27.5	67.8	48.5	48.7
Incr Delay (d2), s/veh	1.2	1.9	0.4	2.8	3.6	3.8	6.5	0.5	0.1	21.0	7.8	8.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	8.0	8.6	11.8	13.6	13.3	8.8	5.2	0.8	0.1	10.3	10.2
LnGrp Delay(d),s/veh	50.5	52.5	36.5	47.6	49.3	49.5	63.3	30.8	27.7	88.8	56.3	57.1
LnGrp LOS	D	D	D	D	D	D	E	C	C	F	E	E
Approach Vol, veh/h		968			1084			871			544	
Approach Delay, s/veh		42.7			48.8			47.5			56.8	
Approach LOS		D			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	5.6	56.4		42.4	25.5	36.4		31.8
Change Period (Y+Rc), s	* 5.2	5.9		5.6	* 5.2	5.9		5.6
Max Green Setting (Gmax), s	* 25	45.0		55.0	* 30	45.0		45.0
Max Q Clear Time (g_c+I1), s	12.2	12.6		27.9	19.7	21.8		21.9
Green Ext Time (p_c), s	0.0	15.6		8.9	0.7	8.7		4.3

Intersection Summary	
HCM 2010 Ctrl Delay	48.0
HCM 2010 LOS	D

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	14.1
Intersection LOS	B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	283	0	0	426	497	14
Future Vol, veh/h	283	0	0	426	497	14
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	286	0	0	430	502	14
Number of Lanes	2	0	0	2	2	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	2
HCM Control Delay	10.6	11.6	18.1
HCM LOS	B	B	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2
Vol Left, %	100%	92%	0%	0%	0%	0%
Vol Thru, %	0%	0%	100%	100%	100%	100%
Vol Right, %	0%	8%	0%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	331	180	142	142	213	213
LT Vol	331	166	0	0	0	0
Through Vol	0	0	142	142	213	213
RT Vol	0	14	0	0	0	0
Lane Flow Rate	335	181	143	143	215	215
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.636	0.34	0.27	0.198	0.395	0.288
Departure Headway (Hd)	6.843	6.748	6.788	4.999	6.601	4.816
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	529	532	527	713	544	742
Service Time	4.588	4.494	4.555	2.764	4.364	2.577
HCM Lane V/C Ratio	0.633	0.34	0.271	0.201	0.395	0.29
HCM Control Delay	20.8	13	12.1	9	13.6	9.5
HCM Lane LOS	C	B	B	A	B	A
HCM 95th-tile Q	4.4	1.5	1.1	0.7	1.9	1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	115	837	846	626
Future Volume (veh/h)	0	0	115	837	846	626
Number			5	2	6	16
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)			1.00			1.00
Parking Bus, Adj			1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln			1845	1845	1845	1845
Adj Flow Rate, veh/h			126	920	930	486
Adj No. of Lanes			2	1	1	1
Peak Hour Factor			0.91	0.91	0.91	0.91
Percent Heavy Veh, %			3	3	3	3
Cap, veh/h			419	1652	1247	1060
Arrive On Green			0.12	0.90	0.68	0.68
Sat Flow, veh/h			3408	1845	1845	1568
Grp Volume(v), veh/h			126	920	930	486
Grp Sat Flow(s),veh/h/ln			1704	1845	1845	1568
Q Serve(g_s), s			1.6	5.1	16.1	7.1
Cycle Q Clear(g_c), s			1.6	5.1	16.1	7.1
Prop In Lane			1.00			1.00
Lane Grp Cap(c), veh/h			419	1652	1247	1060
V/C Ratio(X)			0.30	0.56	0.75	0.46
Avail Cap(c_a), veh/h			1747	1652	1891	1607
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh			19.5	0.5	5.2	3.7
Incr Delay (d2), s/veh			0.2	0.7	0.9	0.3
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			0.8	2.6	8.3	3.1
LnGrp Delay(d),s/veh			19.7	1.2	6.1	4.0
LnGrp LOS			B	A	A	A
Approach Vol, veh/h				1046	1416	
Approach Delay, s/veh				3.5	5.4	
Approach LOS				A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		
Phs Duration (G+Y+Rc), s		48.8			10.7	38.1		
Change Period (Y+Rc), s		5.1			* 4.7	5.1		
Max Green Setting (Gmax), s		25.0			* 25	50.0		
Max Q Clear Time (g_c+I1), s		7.1			3.6	18.1		
Green Ext Time (p_c), s		15.4			0.2	14.9		

Intersection Summary	
HCM 2010 Ctrl Delay	4.6
HCM 2010 LOS	A

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	412	110	215	540	352	494
Future Volume (veh/h)	412	110	215	540	352	494
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	429	67	224	562	367	146
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	497	693	280	976	521	443
Arrive On Green	0.28	0.28	0.16	0.53	0.28	0.28
Sat Flow, veh/h	1757	1568	1757	1845	1845	1568
Grp Volume(v), veh/h	429	67	224	562	367	146
Grp Sat Flow(s),veh/h/ln	1757	1568	1757	1845	1845	1568
Q Serve(g_s), s	12.5	1.3	6.6	11.1	9.6	4.0
Cycle Q Clear(g_c), s	12.5	1.3	6.6	11.1	9.6	4.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	497	693	280	976	521	443
V/C Ratio(X)	0.86	0.10	0.80	0.58	0.70	0.33
Avail Cap(c_a), veh/h	1077	1211	882	1543	1063	903
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.3	8.7	21.8	8.6	17.3	15.3
Incr Delay (d2), s/veh	1.8	0.0	2.0	0.2	0.7	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	6.2	1.5	3.3	5.7	4.9	1.7
LnGrp Delay(d),s/veh	20.1	8.8	23.8	8.8	17.9	15.4
LnGrp LOS	C	A	C	A	B	B
Approach Vol, veh/h	496			786	513	
Approach Delay, s/veh	18.5			13.1	17.2	
Approach LOS	B			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		33.9		19.9	13.3	20.6		
Change Period (Y+Rc), s		5.4		* 4.7	* 4.7	5.4		
Max Green Setting (Gmax), s		45.0		* 33	* 27	31.0		
Max Q Clear Time (g_c+I1), s		13.1		14.5	8.6	11.6		
Green Ext Time (p_c), s		3.9		0.8	0.3	3.6		

Intersection Summary	
HCM 2010 Ctrl Delay	15.8
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	0	148	0	259	13	14	21	0	0	67	116
Future Volume (veh/h)	63	0	148	0	259	13	14	21	0	0	67	116
Number	1	6	16	5	2	12	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		0.97
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	0	1845	1900	1845	1845	0	0	1845	1900
Adj Flow Rate, veh/h	77	0	43	0	316	15	14	30	0	0	82	21
Adj No. of Lanes	2	1	2	0	1	0	1	2	0	0	2	0
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	3	3	3	0	3	3	3	3	0	0	3	3
Cap, veh/h	256	855	1388	0	450	21	87	183	0	0	259	64
Arrive On Green	0.08	0.00	0.46	0.00	0.26	0.26	0.05	0.05	0.00	0.00	0.09	0.09
Sat Flow, veh/h	3408	1845	2697	0	1747	83	1757	3689	0	0	2861	680
Grp Volume(v), veh/h	77	0	43	0	0	331	14	30	0	0	51	52
Grp Sat Flow(s),veh/h/ln	1704	1845	1349	0	0	1830	1757	1845	0	0	1752	1697
Q Serve(g_s), s	0.7	0.0	0.3	0.0	0.0	5.8	0.3	0.3	0.0	0.0	0.9	1.0
Cycle Q Clear(g_c), s	0.7	0.0	0.3	0.0	0.0	5.8	0.3	0.3	0.0	0.0	0.9	1.0
Prop In Lane	1.00		1.00	0.00		0.05	1.00		0.00	0.00		0.40
Lane Grp Cap(c), veh/h	256	855	1388	0	0	471	87	183	0	0	164	158
V/C Ratio(X)	0.30	0.00	0.03	0.00	0.00	0.70	0.16	0.16	0.00	0.00	0.31	0.33
Avail Cap(c_a), veh/h	2428	1314	2059	0	0	1304	1252	2629	0	0	1249	1209
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	15.3	0.0	4.2	0.0	0.0	11.8	16.0	16.0	0.0	0.0	14.8	14.9
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.0	0.0	1.9	0.8	0.4	0.0	0.0	1.1	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.1	0.0	0.0	3.1	0.1	0.1	0.0	0.0	0.5	0.5
LnGrp Delay(d),s/veh	16.0	0.0	4.2	0.0	0.0	13.7	16.8	16.4	0.0	0.0	15.9	16.1
LnGrp LOS	B		A			B	B	B			B	B
Approach Vol, veh/h		120			331			44			103	
Approach Delay, s/veh		11.8			13.7			16.5			16.0	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	7.2	13.6		7.9		20.9		6.3
Change Period (Y+Rc), s	4.6	4.6		4.6		4.6		4.6
Max Green Setting (Gmax), s	25.0	25.0		25.0		25.0		25.0
Max Q Clear Time (g_c+I1), s	2.7	7.8		3.0		2.3		2.3
Green Ext Time (p_c), s	0.3	1.6		0.4		0.4		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	13.9
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	443	0	0	234	1	0	0	0	188	0	27
Future Volume (veh/h)	34	443	0	0	234	1	0	0	0	188	0	27
Number	3	8	18	7	4	14				5	2	12
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	1845	1845	0	1845	1845	1900				1845	0	1845
Adj Flow Rate, veh/h	47	607	0	0	321	1				258	0	11
Adj No. of Lanes	2	2	0	1	2	0				1	0	1
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73				0.73	0.73	0.73
Percent Heavy Veh, %	3	3	0	3	3	3				3	0	3
Cap, veh/h	183	1803	0	6	1168	4				357	0	318
Arrive On Green	0.05	0.51	0.00	0.00	0.33	0.33				0.20	0.00	0.20
Sat Flow, veh/h	3408	3597	0	1757	3584	11				1757	0	1568
Grp Volume(v), veh/h	47	607	0	0	157	165				258	0	11
Grp Sat Flow(s),veh/h/ln	1704	1752	0	1757	1752	1843				1757	0	1568
Q Serve(g_s), s	0.4	3.2	0.0	0.0	2.1	2.1				4.3	0.0	0.2
Cycle Q Clear(g_c), s	0.4	3.2	0.0	0.0	2.1	2.1				4.3	0.0	0.2
Prop In Lane	1.00		0.00	1.00		0.01				1.00		1.00
Lane Grp Cap(c), veh/h	183	1803	0	6	571	601				357	0	318
V/C Ratio(X)	0.26	0.34	0.00	0.00	0.27	0.27				0.72	0.00	0.03
Avail Cap(c_a), veh/h	2189	3376	0	1128	1688	1775				1410	0	1259
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	1.00	0.00	0.00	1.00	1.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	14.1	4.4	0.0	0.0	7.8	7.8				11.6	0.0	10.0
Incr Delay (d2), s/veh	0.7	0.1	0.0	0.0	0.3	0.2				2.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.5	0.0	0.0	1.0	1.0				2.4	0.0	0.1
LnGrp Delay(d),s/veh	14.9	4.6	0.0	0.0	8.0	8.0				14.4	0.0	10.0
LnGrp LOS	B	A			A	A				B		B
Approach Vol, veh/h		654			322						269	
Approach Delay, s/veh		5.3			8.0						14.2	
Approach LOS		A			A						B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4			7	8
Phs Duration (G+Y+Rc), s		10.5	5.9	14.8			0.0	20.6
Change Period (Y+Rc), s		* 4.2	* 4.2	4.6			* 4.2	4.6
Max Green Setting (Gmax), s		* 25	* 20	30.0			* 20	30.0
Max Q Clear Time (g_c+I1), s		6.3	2.4	4.1			0.0	5.2
Green Ext Time (p_c), s		0.7	0.1	6.1			0.0	6.0

Intersection Summary	
HCM 2010 Ctrl Delay	7.9
HCM 2010 LOS	A

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	466	0	19	302	2	0	0	0	11	0	10
Future Vol, veh/h	3	466	0	19	302	2	0	0	0	11	0	10
Conflicting Peds, #/hr	2	0	0	0	0	2	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	-	-	130	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	4	575	0	23	373	2	0	0	0	14	0	12

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	377	0	0	575	0	0	816	1007	288	718	1006	190
Stage 1	-	-	-	-	-	-	583	583	-	423	423	-
Stage 2	-	-	-	-	-	-	233	424	-	295	583	-
Critical Hdwy	4.16	-	-	4.16	-	-	7.56	6.56	6.96	7.56	6.56	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Follow-up Hdwy	2.23	-	-	2.23	-	-	3.53	4.03	3.33	3.53	4.03	3.33
Pot Cap-1 Maneuver	1171	-	-	987	-	-	267	238	706	315	238	816
Stage 1	-	-	-	-	-	-	463	494	-	576	584	-
Stage 2	-	-	-	-	-	-	746	583	-	686	494	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1171	-	-	987	-	-	258	231	706	308	231	815
Mov Cap-2 Maneuver	-	-	-	-	-	-	258	231	-	308	231	-
Stage 1	-	-	-	-	-	-	461	492	-	573	569	-
Stage 2	-	-	-	-	-	-	718	568	-	684	492	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.5	0	13.7
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1171	-	-	987	-	-	438
HCM Lane V/C Ratio	-	0.003	-	-	0.024	-	-	0.059
HCM Control Delay (s)	0	8.1	-	-	8.7	-	-	13.7
HCM Lane LOS	A	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	-	0	-	-	0.1	-	-	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	33	61	19	34	37	62	579	39	19	410	65
Future Volume (veh/h)	63	33	61	19	34	37	62	579	39	19	410	65
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		0.99
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	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	72	38	19	22	39	7	71	666	42	22	471	62
Adj No. of Lanes	1	1	0	1	2	0	1	3	0	1	3	0
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	120	105	53	47	148	26	119	2084	131	47	1757	227
Arrive On Green	0.07	0.09	0.09	0.03	0.05	0.05	0.07	0.43	0.43	0.03	0.39	0.39
Sat Flow, veh/h	1757	1161	581	1757	2984	521	1757	4843	304	1757	4508	583
Grp Volume(v), veh/h	72	0	57	22	22	24	71	461	247	22	349	184
Grp Sat Flow(s),veh/h/ln	1757	0	1742	1757	1752	1753	1757	1679	1790	1757	1679	1733
Q Serve(g_s), s	1.6	0.0	1.3	0.5	0.5	0.5	1.6	3.7	3.8	0.5	2.9	3.0
Cycle Q Clear(g_c), s	1.6	0.0	1.3	0.5	0.5	0.5	1.6	3.7	3.8	0.5	2.9	3.0
Prop In Lane	1.00		0.33	1.00		0.30	1.00		0.17	1.00		0.34
Lane Grp Cap(c), veh/h	120	0	158	47	87	87	119	1444	770	47	1308	675
V/C Ratio(X)	0.60	0.00	0.36	0.46	0.26	0.27	0.60	0.32	0.32	0.46	0.27	0.27
Avail Cap(c_a), veh/h	853	0	1904	1067	1915	1915	853	3017	1608	853	2854	1473
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.6	0.0	17.6	19.7	18.8	18.8	18.7	7.7	7.8	19.7	8.6	8.6
Incr Delay (d2), s/veh	4.8	0.0	1.4	6.9	1.5	1.6	4.8	0.2	0.3	2.6	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	0.9	0.0	0.7	0.3	0.3	0.3	0.9	1.8	1.9	0.3	1.4	1.5
LnGrp Delay(d),s/veh	23.4	0.0	19.0	26.6	20.4	20.5	23.4	7.9	8.0	22.3	8.7	8.8
LnGrp LOS	C		B	C	C	C	C	A	A	C	A	A
Approach Vol, veh/h		129			68			779			555	
Approach Delay, s/veh		21.5			22.4			9.4			9.3	
Approach LOS		C			C			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.3	22.3	5.3	8.2	7.0	20.6	7.0	6.5
Change Period (Y+Rc), s	* 4.2	4.6	* 4.2	4.5	* 4.2	4.6	* 4.2	4.5
Max Green Setting (Gmax), s	* 20	37.0	* 25	45.0	* 20	35.0	* 20	45.0
Max Q Clear Time (g_c+I1), s	2.5	5.8	2.5	3.3	3.6	5.0	3.6	2.5
Green Ext Time (p_c), s	0.0	10.9	0.0	0.6	0.1	10.7	0.1	0.6

Intersection Summary	
HCM 2010 Ctrl Delay	10.9
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	103	286	242	47	157	10	195	567	81	14	332	144
Future Volume (veh/h)	103	286	242	47	157	10	195	567	81	14	332	144
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		0.98	1.00		1.00	1.00		1.00	1.00		0.98
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	1900	1845	1845	1900	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	113	314	139	52	173	6	214	623	36	15	365	43
Adj No. of Lanes	2	3	0	2	3	0	2	2	1	2	2	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	238	686	283	229	971	33	379	1219	544	88	919	404
Arrive On Green	0.07	0.20	0.20	0.07	0.19	0.19	0.11	0.35	0.35	0.03	0.26	0.26
Sat Flow, veh/h	3408	3486	1435	3408	4999	172	3408	3505	1565	3408	3505	1543
Grp Volume(v), veh/h	113	302	151	52	116	63	214	623	36	15	365	43
Grp Sat Flow(s),veh/h/ln	1704	1679	1564	1704	1679	1813	1704	1752	1565	1704	1752	1543
Q Serve(g_s), s	2.0	4.9	5.3	0.9	1.8	1.8	3.6	8.6	0.9	0.3	5.3	1.3
Cycle Q Clear(g_c), s	2.0	4.9	5.3	0.9	1.8	1.8	3.6	8.6	0.9	0.3	5.3	1.3
Prop In Lane	1.00		0.92	1.00		0.09	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	238	661	308	229	652	352	379	1219	544	88	919	404
V/C Ratio(X)	0.48	0.46	0.49	0.23	0.18	0.18	0.56	0.51	0.07	0.17	0.40	0.11
Avail Cap(c_a), veh/h	1113	1371	638	1113	2303	1244	1113	1717	767	1113	1717	756
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.4	21.7	21.9	27.1	20.6	20.6	25.8	15.8	13.3	29.2	18.6	17.1
Incr Delay (d2), s/veh	1.8	0.6	1.5	0.6	0.2	0.3	1.6	0.4	0.1	1.1	0.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	2.3	2.4	0.4	0.8	0.9	1.8	4.2	0.4	0.1	2.6	0.6
LnGrp Delay(d),s/veh	29.2	22.3	23.3	27.7	20.7	20.9	27.4	16.2	13.4	30.3	18.9	17.3
LnGrp LOS	C	C	C	C	C	C	C	B	B	C	B	B
Approach Vol, veh/h		566			231			873			423	
Approach Delay, s/veh		23.9			22.3			18.9			19.2	
Approach LOS		C			C			B			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	9.5	17.8	6.8	27.2	9.3	18.0	12.0	22.0
Change Period (Y+Rc), s	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9
Max Green Setting (Gmax), s	* 6	42.0	* 20	30.0	* 20	25.0	* 20	30.0
Max Q Clear Time (g_c+I1), s	4.0	3.8	2.3	10.6	2.9	7.3	5.6	7.3
Green Ext Time (p_c), s	0.3	5.1	0.0	7.6	0.1	4.2	0.7	8.2

Intersection Summary	
HCM 2010 Ctrl Delay	20.7
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	21.1
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	351	0	278	0	0	0	89	492	0	0	581	40
Future Vol, veh/h	351	0	278	0	0	0	89	492	0	0	581	40
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
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	358	0	284	0	0	0	91	502	0	0	593	41
Number of Lanes	1	1	1	0	0	0	1	2	0	0	2	1

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	3	3
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	3	3	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	3	0	3
HCM Control Delay	17.6	18.7	27
HCM LOS	C	C	D

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	100%	100%	0%	0%	0%	0%
Vol Thru, %	0%	100%	100%	0%	0%	0%	100%	100%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	89	246	246	176	176	278	291	291	40
LT Vol	89	0	0	176	176	0	0	0	0
Through Vol	0	246	246	0	0	0	291	291	0
RT Vol	0	0	0	0	0	278	0	0	40
Lane Flow Rate	91	251	251	179	179	284	296	296	41
Geometry Grp	8	8	8	7	7	7	8	8	8
Degree of Util (X)	0.229	0.598	0.473	0.413	0.413	0.558	0.692	0.692	0.067
Departure Headway (Hd)	9.095	8.581	6.781	8.297	8.297	7.082	8.409	8.409	5.893
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	394	419	530	433	433	508	430	430	604
Service Time	6.872	6.358	4.558	6.051	6.051	4.836	6.186	6.186	3.669
HCM Lane V/C Ratio	0.231	0.599	0.474	0.413	0.413	0.559	0.688	0.688	0.068
HCM Control Delay	14.6	23.4	15.6	16.8	16.8	18.5	28.2	28.2	9.1
HCM Lane LOS	B	C	C	C	C	C	D	D	A
HCM 95th-tile Q	0.9	3.8	2.5	2	2	3.4	5.1	5.1	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	274	3	267	0	0	0	0	307	402	415	444	0
Future Volume (veh/h)	274	3	267	0	0	0	0	307	402	415	444	0
Number	3	8	18				1	6	16	5	2	12
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	1900	1845	1845				0	1845	1845	1845	1845	0
Adj Flow Rate, veh/h	304	3	138				0	341	136	461	493	0
Adj No. of Lanes	0	1	1				0	1	1	2	1	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, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	418	4	377				0	521	442	646	1028	0
Arrive On Green	0.24	0.24	0.24				0.00	0.28	0.28	0.19	0.56	0.00
Sat Flow, veh/h	1740	17	1568				0	1845	1565	3408	1845	0
Grp Volume(v), veh/h	307	0	138				0	341	136	461	493	0
Grp Sat Flow(s),veh/h/ln	1758	0	1568				0	1845	1565	1704	1845	0
Q Serve(g_s), s	7.0	0.0	3.2				0.0	7.1	3.0	5.5	7.0	0.0
Cycle Q Clear(g_c), s	7.0	0.0	3.2				0.0	7.1	3.0	5.5	7.0	0.0
Prop In Lane	0.99		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	423	0	377				0	521	442	646	1028	0
V/C Ratio(X)	0.73	0.00	0.37				0.00	0.65	0.31	0.71	0.48	0.00
Avail Cap(c_a), veh/h	2628	0	2344				0	1103	936	1568	1028	0
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	1.00	1.00	0.00
Uniform Delay (d), s/veh	15.2	0.0	13.8				0.0	13.7	12.3	16.5	5.8	0.0
Incr Delay (d2), s/veh	0.9	0.0	0.2				0.0	0.5	0.1	0.6	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	0.0	1.4				0.0	3.7	1.3	2.6	3.5	0.0
LnGrp Delay(d),s/veh	16.1	0.0	14.0				0.0	14.2	12.4	17.1	5.9	0.0
LnGrp LOS	B		B					B	B	B	A	
Approach Vol, veh/h		445						477			954	
Approach Delay, s/veh		15.4						13.7			11.3	
Approach LOS		B						B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		28.8			11.9	16.9		14.7
Change Period (Y+Rc), s		4.6			3.7	4.6		4.2
Max Green Setting (Gmax), s		24.0			20.0	26.0		65.0
Max Q Clear Time (g_c+I1), s		9.0			7.5	9.1		9.0
Green Ext Time (p_c), s		3.2			0.8	3.1		1.5

Intersection Summary	
HCM 2010 Ctrl Delay	12.9
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	296	29	16	34	24	125	6	192	35	152	270	189
Future Volume (veh/h)	296	29	16	34	24	125	6	192	35	152	270	189
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	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	308	30	5	35	25	13	6	200	25	158	281	120
Adj No. of Lanes	1	1	0	1	1	0	1	2	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	0.96	0.96	0.96
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	393	345	57	114	75	39	14	672	83	205	779	325
Arrive On Green	0.22	0.22	0.22	0.07	0.07	0.07	0.01	0.21	0.21	0.12	0.32	0.32
Sat Flow, veh/h	1757	1541	257	1757	1144	595	1757	3140	388	1757	2413	1005
Grp Volume(v), veh/h	308	0	35	35	0	38	6	111	114	158	202	199
Grp Sat Flow(s),veh/h/ln	1757	0	1798	1757	0	1740	1757	1752	1775	1757	1752	1665
Q Serve(g_s), s	7.8	0.0	0.7	0.9	0.0	1.0	0.2	2.5	2.6	4.1	4.2	4.3
Cycle Q Clear(g_c), s	7.8	0.0	0.7	0.9	0.0	1.0	0.2	2.5	2.6	4.1	4.2	4.3
Prop In Lane	1.00		0.14	1.00		0.34	1.00		0.22	1.00		0.60
Lane Grp Cap(c), veh/h	393	0	402	114	0	113	14	375	380	205	566	538
V/C Ratio(X)	0.78	0.00	0.09	0.31	0.00	0.34	0.43	0.29	0.30	0.77	0.36	0.37
Avail Cap(c_a), veh/h	1113	0	1139	1113	0	1102	928	1110	1125	1113	1110	1055
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.3	0.0	14.5	21.1	0.0	21.2	23.4	15.6	15.6	20.3	12.3	12.3
Incr Delay (d2), s/veh	1.3	0.0	0.0	0.6	0.0	0.6	7.4	0.2	0.2	2.3	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	3.9	0.0	0.4	0.5	0.0	0.5	0.1	1.2	1.3	2.1	2.0	2.0
LnGrp Delay(d),s/veh	18.6	0.0	14.6	21.7	0.0	21.8	30.8	15.8	15.8	22.6	12.4	12.5
LnGrp LOS	B		B	C		C	C	B	B	C	B	B
Approach Vol, veh/h		343			73			231			559	
Approach Delay, s/veh		18.2			21.7			16.2			15.3	
Approach LOS		B			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.7	14.7		15.2	4.6	19.9		7.7
Change Period (Y+Rc), s	* 4.2	4.6		4.6	* 4.2	4.6		4.6
Max Green Setting (Gmax), s	* 6	30.0		30.0	* 25	30.0		30.0
Max Q Clear Time (g_c+I1), s	6.1	4.6		9.8	2.2	6.3		3.0
Green Ext Time (p_c), s	0.2	2.4		0.5	0.0	2.3		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	16.7
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	6.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	105	394	129	3	46	244
Future Vol, veh/h	105	394	129	3	46	244
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	131	493	161	4	58	305

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	165	0	-	0	918	163
Stage 1	-	-	-	-	163	-
Stage 2	-	-	-	-	755	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1407	-	-	-	300	879
Stage 1	-	-	-	-	864	-
Stage 2	-	-	-	-	462	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1407	-	-	-	262	879
Mov Cap-2 Maneuver	-	-	-	-	262	-
Stage 1	-	-	-	-	864	-
Stage 2	-	-	-	-	403	-

Approach	EB	WB	SB
HCM Control Delay, s	1.6	0	17.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1407	-	-	-	640
HCM Lane V/C Ratio	0.093	-	-	-	0.566
HCM Control Delay (s)	7.8	0	-	-	17.7
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.3	-	-	-	3.6

Intersection	
Int Delay, s/veh	142.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	196	198	554	359	135	258
Future Vol, veh/h	196	198	554	359	135	258
Conflicting Peds, #/hr	2	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	315	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	220	222	622	403	152	290

Major/Minor	Minor1		Major1		Minor2	
Conflicting Flow All	769	622	0	0	734	622
Stage 1	622	-	-	-	0	0
Stage 2	147	-	-	-	734	622
Critical Hdwy	7.13	6.23	-	-	7.13	6.53
Critical Hdwy Stg 1	6.13	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	6.13	5.53
Follow-up Hdwy	3.527	3.327	-	-	3.527	4.027
Pot Cap-1 Maneuver	317	485	-	-	334	402
Stage 1	473	-	-	-	-	-
Stage 2	-	-	-	-	410	477
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	~ 131	485	-	-	181	402
Mov Cap-2 Maneuver	~ 131	-	-	-	181	402
Stage 1	473	-	-	-	-	-
Stage 2	-	-	-	-	222	477

Approach	WB	NB	SB
HCM Control Delay, s	$ 565.6	0	50.6
HCM LOS	F		F

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBLn1	SBLn2
Capacity (veh/h)	-	-	207	181	402
HCM Lane V/C Ratio	-	-	2.139	0.838	0.721
HCM Control Delay (s)	-	-	$ 565.6	82.4	33.9
HCM Lane LOS	-	-	F	F	D
HCM 95th %tile Q(veh)	-	-	34.3	5.9	5.6

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

Intersection	
Int Delay, s/veh	111.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	9	332	581	3	20	418
Future Vol, veh/h	9	332	581	3	20	418
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Free	Free
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, %	3	3	3	3	3	3
Mvmt Flow	10	386	676	3	23	486

Major/Minor	Minor1		Minor2		Major2	
Conflicting Flow All	872	0	533	486	0	0
Stage 1	0	-	533	-	-	-
Stage 2	872	-	0	-	-	-
Critical Hdwy	7.13	6.23	6.53	6.23	4.13	-
Critical Hdwy Stg 1	-	-	5.53	-	-	-
Critical Hdwy Stg 2	6.13	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	4.027	3.327	2.227	-
Pot Cap-1 Maneuver	270	-	~ 451	579	-	-
Stage 1	-	-	~ 523	-	-	-
Stage 2	344	-	-	-	-	-
Platoon blocked, %						-
Mov Cap-1 Maneuver	-	-	~ 451	579	-	-
Mov Cap-2 Maneuver	-	-	~ 451	-	-	-
Stage 1	-	-	~ 523	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s		260.8	
HCM LOS	-	F	

Minor Lane/Major Mvmt	NBLn1	WBLn1	SBL	SBT
Capacity (veh/h)	452	-	-	-
HCM Lane V/C Ratio	1.502	-	-	-
HCM Control Delay (s)	260.8	-	-	-
HCM Lane LOS	F	-	-	-
HCM 95th %tile Q(veh)	35.5	-	-	-

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)	30	250	400	170	220	40	110	130	80	20	240	110
Future Volume (veh/h)	30	250	400	170	220	40	110	130	80	20	240	110
Number	5	2	12	1	6	16	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		0.99	1.00		1.00	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	1845	1845	1845	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	35	294	97	200	259	26	129	153	30	24	282	89
Adj No. of Lanes	1	2	1	1	3	0	2	2	0	1	2	0
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	66	627	277	249	1320	130	303	756	145	49	486	150
Arrive On Green	0.04	0.18	0.18	0.14	0.28	0.28	0.09	0.26	0.26	0.03	0.18	0.18
Sat Flow, veh/h	1757	3505	1547	1757	4663	458	3408	2932	562	1757	2637	816
Grp Volume(v), veh/h	35	294	97	200	185	100	129	90	93	24	185	186
Grp Sat Flow(s),veh/h/ln	1757	1752	1547	1757	1679	1764	1704	1752	1742	1757	1752	1701
Q Serve(g_s), s	1.1	4.2	3.1	6.2	2.4	2.4	2.0	2.3	2.4	0.8	5.4	5.6
Cycle Q Clear(g_c), s	1.1	4.2	3.1	6.2	2.4	2.4	2.0	2.3	2.4	0.8	5.4	5.6
Prop In Lane	1.00		1.00	1.00		0.26	1.00		0.32	1.00		0.48
Lane Grp Cap(c), veh/h	66	627	277	249	951	500	303	452	449	49	323	313
V/C Ratio(X)	0.53	0.47	0.35	0.80	0.19	0.20	0.43	0.20	0.21	0.49	0.57	0.59
Avail Cap(c_a), veh/h	312	2673	1180	467	951	500	1511	1212	1205	312	622	603
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	26.7	20.8	20.3	23.4	15.3	15.4	24.3	16.4	16.4	27.0	21.0	21.1
Incr Delay (d2), s/veh	2.5	0.2	0.3	2.3	0.0	0.1	1.1	0.3	0.3	2.8	2.3	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	2.1	1.4	3.2	1.1	1.2	1.0	1.1	1.2	0.4	2.8	2.8
LnGrp Delay(d),s/veh	29.1	21.0	20.6	25.7	15.4	15.4	25.5	16.7	16.7	29.8	23.3	23.6
LnGrp LOS	C	C	C	C	B	B	C	B	B	C	C	C
Approach Vol, veh/h		426			485			312			395	
Approach Delay, s/veh		21.5			19.7			20.3			23.8	
Approach LOS		C			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.2	16.0	6.8	20.4	7.3	21.9	10.9	16.3
Change Period (Y+Rc), s	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9	5.9	* 5.9
Max Green Setting (Gmax), s	* 15	43.0	* 10	39.0	* 10	15.0	25.0	* 20
Max Q Clear Time (g_c+I1), s	8.2	6.2	2.8	4.4	3.1	4.4	4.0	7.6
Green Ext Time (p_c), s	0.1	1.7	0.0	2.0	0.0	1.9	1.8	2.1

Intersection Summary	
HCM 2010 Ctrl Delay	21.3
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	80	380	550	280	90	320	200	220	20	750	40
Future Volume (veh/h)	30	80	380	550	280	90	320	200	220	20	750	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	1845	1845	1845	1845	1845	1900	1845	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	33	89	374	672	225	94	356	222	107	22	833	43
Adj No. of Lanes	1	1	2	2	1	0	2	2	1	1	2	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	235	247	805	890	313	131	419	1447	645	38	1056	54
Arrive On Green	0.13	0.13	0.13	0.25	0.25	0.25	0.12	0.41	0.41	0.02	0.31	0.31
Sat Flow, veh/h	1757	1845	3136	3514	1237	517	3408	3505	1562	1757	3391	175
Grp Volume(v), veh/h	33	89	374	672	0	319	356	222	107	22	430	446
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	0	1753	1704	1752	1562	1757	1752	1814
Q Serve(g_s), s	2.1	5.5	12.6	22.0	0.0	20.7	12.8	5.0	5.4	1.5	28.0	28.0
Cycle Q Clear(g_c), s	2.1	5.5	12.6	22.0	0.0	20.7	12.8	5.0	5.4	1.5	28.0	28.0
Prop In Lane	1.00		1.00	1.00		0.29	1.00		1.00	1.00		0.10
Lane Grp Cap(c), veh/h	235	247	805	890	0	444	419	1447	645	38	546	565
V/C Ratio(X)	0.14	0.36	0.46	0.76	0.00	0.72	0.85	0.15	0.17	0.59	0.79	0.79
Avail Cap(c_a), veh/h	634	666	1517	1550	0	773	820	1447	645	352	632	655
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.7	49.1	39.1	43.0	0.0	42.5	53.6	23.0	23.1	60.5	39.2	39.2
Incr Delay (d2), s/veh	0.3	0.9	0.4	1.9	0.0	3.1	1.9	0.2	0.4	5.3	9.7	9.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	2.9	5.5	11.0	0.0	10.4	6.1	2.4	2.4	0.8	15.0	15.5
LnGrp Delay(d),s/veh	47.9	50.0	39.5	44.9	0.0	45.6	55.5	23.1	23.5	65.8	48.9	48.6
LnGrp LOS	D	D	D	D		D	E	C	C	E	D	D
Approach Vol, veh/h		496			991			685			898	
Approach Delay, s/veh		42.0			45.1			40.0			49.1	
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	7.9	57.4		37.2	20.5	44.7		22.3
Change Period (Y+Rc), s	* 5.2	5.9		5.6	* 5.2	5.9		5.6
Max Green Setting (Gmax), s	* 25	45.0		55.0	* 30	45.0		45.0
Max Q Clear Time (g_c+I1), s	2.5	7.4		24.0	14.8	30.0		14.6
Green Ext Time (p_c), s	0.0	21.5		7.5	0.6	8.9		2.1

Intersection Summary	
HCM 2010 Ctrl Delay	44.6
HCM 2010 LOS	D

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	320	0	0	410	510	120
Future Volume (veh/h)	320	0	0	410	510	120
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	0	0	1845	1845	1900
Adj Flow Rate, veh/h	381	0	0	488	703	0
Adj No. of Lanes	2	0	0	2	2	1
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	3	0	0	3	3	0
Cap, veh/h	1210	0	0	1210	1127	518
Arrive On Green	0.35	0.00	0.00	0.35	0.32	0.00
Sat Flow, veh/h	3689	0	0	3689	3514	1615
Grp Volume(v), veh/h	381	0	0	488	703	0
Grp Sat Flow(s),veh/h/ln	1752	0	0	1752	1757	1615
Q Serve(g_s), s	2.4	0.0	0.0	3.2	5.1	0.0
Cycle Q Clear(g_c), s	2.4	0.0	0.0	3.2	5.1	0.0
Prop In Lane		0.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	1210	0	0	1210	1127	518
V/C Ratio(X)	0.31	0.00	0.00	0.40	0.62	0.00
Avail Cap(c_a), veh/h	2692	0	0	2692	3755	1726
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	0.00
Uniform Delay (d), s/veh	7.2	0.0	0.0	7.5	8.6	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.2	0.6	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	1.1	0.0	0.0	1.5	2.5	0.0
LnGrp Delay(d),s/veh	7.3	0.0	0.0	7.7	9.2	0.0
LnGrp LOS	A			A	A	
Approach Vol, veh/h	381			488	703	
Approach Delay, s/veh	7.3			7.7	9.2	
Approach LOS	A			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		15.3				15.3		14.6
Change Period (Y+Rc), s		5.0				5.0		5.0
Max Green Setting (Gmax), s		23.0				23.0		32.0
Max Q Clear Time (g_c+I1), s		4.4				5.2		7.1
Green Ext Time (p_c), s		5.3				5.2		2.5

Intersection Summary	
HCM 2010 Ctrl Delay	8.3
HCM 2010 LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	130	740	1070	610
Future Volume (veh/h)	0	0	130	740	1070	610
Number			5	2	6	16
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)			1.00			1.00
Parking Bus, Adj			1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln			1845	1845	1845	1845
Adj Flow Rate, veh/h			141	804	1163	521
Adj No. of Lanes			2	1	1	1
Peak Hour Factor			0.92	0.92	0.92	0.92
Percent Heavy Veh, %			3	3	3	3
Cap, veh/h			356	1681	1337	1167
Arrive On Green			0.10	0.91	0.72	0.74
Sat Flow, veh/h			3408	1845	1845	1568
Grp Volume(v), veh/h			141	804	1163	521
Grp Sat Flow(s),veh/h/ln			1704	1845	1845	1568
Q Serve(g_s), s			2.2	3.9	27.0	7.3
Cycle Q Clear(g_c), s			2.2	3.9	27.0	7.3
Prop In Lane			1.00			1.00
Lane Grp Cap(c), veh/h			356	1681	1337	1167
V/C Ratio(X)			0.40	0.48	0.87	0.45
Avail Cap(c_a), veh/h			1483	1681	1605	1395
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh			24.0	0.4	5.9	2.8
Incr Delay (d2), s/veh			0.4	0.5	4.7	0.3
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			1.1	2.0	15.0	3.1
LnGrp Delay(d),s/veh			24.4	0.9	10.6	3.1
LnGrp LOS			C	A	B	A
Approach Vol, veh/h				945	1684	
Approach Delay, s/veh				4.4	8.3	
Approach LOS				A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		
Phs Duration (G+Y+Rc), s		57.4			10.7	46.7		
Change Period (Y+Rc), s		5.1			* 4.7	5.1		
Max Green Setting (Gmax), s		25.0			* 25	50.0		
Max Q Clear Time (g_c+I1), s		5.9			4.2	29.0		
Green Ext Time (p_c), s		16.7			0.2	12.7		

Intersection Summary	
HCM 2010 Ctrl Delay	6.9
HCM 2010 LOS	A

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	410	80	170	460	450	620
Future Volume (veh/h)	410	80	170	460	450	620
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	451	47	187	505	495	323
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	509	664	235	1009	623	530
Arrive On Green	0.29	0.29	0.13	0.55	0.34	0.34
Sat Flow, veh/h	1757	1568	1757	1845	1845	1568
Grp Volume(v), veh/h	451	47	187	505	495	323
Grp Sat Flow(s),veh/h/ln	1757	1568	1757	1845	1845	1568
Q Serve(g_s), s	15.2	1.1	6.4	10.6	15.0	10.6
Cycle Q Clear(g_c), s	15.2	1.1	6.4	10.6	15.0	10.6
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	509	664	235	1009	623	530
V/C Ratio(X)	0.89	0.07	0.80	0.50	0.79	0.61
Avail Cap(c_a), veh/h	936	1045	766	1341	924	785
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.0	10.6	26.0	8.7	18.6	17.1
Incr Delay (d2), s/veh	2.1	0.0	2.4	0.1	1.6	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.6	1.3	3.2	5.4	7.8	4.6
LnGrp Delay(d),s/veh	23.1	10.6	28.4	8.9	20.2	17.5
LnGrp LOS	C	B	C	A	C	B
Approach Vol, veh/h	498			692	818	
Approach Delay, s/veh	21.9			14.2	19.1	
Approach LOS	C			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		39.3		22.6	13.0	26.3		
Change Period (Y+Rc), s		5.4		* 4.7	* 4.7	5.4		
Max Green Setting (Gmax), s		45.0		* 33	* 27	31.0		
Max Q Clear Time (g_c+I1), s		12.6		17.2	8.4	17.0		
Green Ext Time (p_c), s		4.6		0.8	0.2	3.9		

Intersection Summary	
HCM 2010 Ctrl Delay	18.1
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	0	270	0	180	60	10	40	0	0	60	120
Future Volume (veh/h)	100	0	270	0	180	60	10	40	0	0	60	120
Number	1	6	16	5	2	12	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		1.00	1.00		1.00	1.00		0.99
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	0	1845	1900	1845	1845	0	0	1845	1900
Adj Flow Rate, veh/h	123	0	42	0	222	65	12	49	0	0	74	25
Adj No. of Lanes	2	1	2	0	1	0	1	2	0	0	2	0
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	3	3	3	0	3	3	3	3	0	0	3	3
Cap, veh/h	335	842	1434	0	316	92	111	234	0	0	251	81
Arrive On Green	0.10	0.00	0.46	0.00	0.23	0.23	0.06	0.06	0.00	0.00	0.10	0.10
Sat Flow, veh/h	3408	1845	2760	0	1372	402	1757	3689	0	0	2693	838
Grp Volume(v), veh/h	123	0	42	0	0	287	12	49	0	0	49	50
Grp Sat Flow(s),veh/h/ln	1704	1845	1380	0	0	1774	1757	1845	0	0	1752	1686
Q Serve(g_s), s	1.2	0.0	0.3	0.0	0.0	5.3	0.2	0.5	0.0	0.0	0.9	1.0
Cycle Q Clear(g_c), s	1.2	0.0	0.3	0.0	0.0	5.3	0.2	0.5	0.0	0.0	0.9	1.0
Prop In Lane	1.00		1.00	0.00		0.23	1.00		0.00	0.00		0.50
Lane Grp Cap(c), veh/h	335	842	1434	0	0	408	111	234	0	0	169	163
V/C Ratio(X)	0.37	0.00	0.03	0.00	0.00	0.70	0.11	0.21	0.00	0.00	0.29	0.31
Avail Cap(c_a), veh/h	2369	1282	2093	0	0	1233	1221	2565	0	0	1218	1172
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	15.2	0.0	4.2	0.0	0.0	12.7	15.9	16.0	0.0	0.0	15.1	15.1
Incr Delay (d2), s/veh	0.7	0.0	0.0	0.0	0.0	2.2	0.4	0.4	0.0	0.0	0.9	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.1	0.0	0.0	2.8	0.1	0.2	0.0	0.0	0.5	0.5
LnGrp Delay(d),s/veh	15.8	0.0	4.2	0.0	0.0	14.9	16.3	16.4	0.0	0.0	16.0	16.2
LnGrp LOS	B		A			B	B	B			B	B
Approach Vol, veh/h		165			287			61			99	
Approach Delay, s/veh		12.9			14.9			16.4			16.1	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	8.1	12.9		8.1		21.0		6.9
Change Period (Y+Rc), s	4.6	4.6		4.6		4.6		4.6
Max Green Setting (Gmax), s	25.0	25.0		25.0		25.0		25.0
Max Q Clear Time (g_c+I1), s	3.2	7.3		3.0		2.3		2.5
Green Ext Time (p_c), s	0.5	1.4		0.4		0.5		0.2

Intersection Summary		
HCM 2010 Ctrl Delay		14.7
HCM 2010 LOS		B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	140	0	0	650	10	0	0	0	260	0	70
Future Volume (veh/h)	40	140	0	0	650	10	0	0	0	260	0	70
Number	3	8	18	7	4	14				5	2	12
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	1845	1845	0	1845	1845	1900				1845	0	1845
Adj Flow Rate, veh/h	48	169	0	0	783	11				313	0	26
Adj No. of Lanes	2	2	0	1	2	0				1	0	1
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83				0.83	0.83	0.83
Percent Heavy Veh, %	3	3	0	3	3	3				3	0	3
Cap, veh/h	177	1885	0	5	1336	19				413	0	369
Arrive On Green	0.05	0.54	0.00	0.00	0.38	0.38				0.24	0.00	0.24
Sat Flow, veh/h	3408	3597	0	1757	3539	50				1757	0	1568
Grp Volume(v), veh/h	48	169	0	0	388	406				313	0	26
Grp Sat Flow(s),veh/h/ln	1704	1752	0	1757	1752	1836				1757	0	1568
Q Serve(g_s), s	0.5	0.9	0.0	0.0	6.9	6.9				6.4	0.0	0.5
Cycle Q Clear(g_c), s	0.5	0.9	0.0	0.0	6.9	6.9				6.4	0.0	0.5
Prop In Lane	1.00		0.00	1.00		0.03				1.00		1.00
Lane Grp Cap(c), veh/h	177	1885	0	5	661	693				413	0	369
V/C Ratio(X)	0.27	0.09	0.00	0.00	0.59	0.59				0.76	0.00	0.07
Avail Cap(c_a), veh/h	1758	2712	0	906	1356	1420				1133	0	1011
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	1.00	0.00	0.00	1.00	1.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	17.7	4.4	0.0	0.0	9.6	9.6				13.8	0.0	11.5
Incr Delay (d2), s/veh	0.8	0.0	0.0	0.0	0.8	0.8				2.9	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
%ile BackOfQ(50%),veh/ln	0.3	0.4	0.0	0.0	3.4	3.5				3.4	0.0	0.2
LnGrp Delay(d),s/veh	18.5	4.4	0.0	0.0	10.5	10.4				16.7	0.0	11.6
LnGrp LOS	B	A			B	B				B		B
Approach Vol, veh/h		217			794						339	
Approach Delay, s/veh		7.5			10.5						16.3	
Approach LOS		A			B						B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4			7	8
Phs Duration (G+Y+Rc), s		13.3	6.2	19.2			0.0	25.5
Change Period (Y+Rc), s		* 4.2	* 4.2	4.6			* 4.2	4.6
Max Green Setting (Gmax), s		* 25	* 20	30.0			* 20	30.0
Max Q Clear Time (g_c+I1), s		8.4	2.5	8.9			0.0	2.9
Green Ext Time (p_c), s		0.9	0.1	5.8			0.0	6.2

Intersection Summary	
HCM 2010 Ctrl Delay	11.4
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	170	0	10	530	10	0	0	0	10	0	0
Future Vol, veh/h	20	170	0	10	530	10	0	0	0	10	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	130	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	26	224	0	13	697	13	0	0	0	13	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	711	0	0	224	0	0	651	1013	112	894	1006	355
Stage 1	-	-	-	-	-	-	276	276	-	730	730	-
Stage 2	-	-	-	-	-	-	375	737	-	164	276	-
Critical Hdwy	4.16	-	-	4.16	-	-	7.56	6.56	6.96	7.56	6.56	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Follow-up Hdwy	2.23	-	-	2.23	-	-	3.53	4.03	3.33	3.53	4.03	3.33
Pot Cap-1 Maneuver	878	-	-	1335	-	-	352	236	916	234	238	638
Stage 1	-	-	-	-	-	-	704	678	-	378	423	-
Stage 2	-	-	-	-	-	-	615	420	-	819	678	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	878	-	-	1335	-	-	342	227	916	227	229	638
Mov Cap-2 Maneuver	-	-	-	-	-	-	342	227	-	227	229	-
Stage 1	-	-	-	-	-	-	683	658	-	367	419	-
Stage 2	-	-	-	-	-	-	609	416	-	795	658	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1	0.1	0	21.8
HCM LOS			A	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	878	-	-	1335	-	-	227
HCM Lane V/C Ratio	-	0.03	-	-	0.01	-	-	0.058
HCM Control Delay (s)	0	9.2	-	-	7.7	-	-	21.8
HCM Lane LOS	A	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	-	0.1	-	-	0	-	-	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	20	60	30	40	120	70	700	30	50	360	70
Future Volume (veh/h)	100	20	60	30	40	120	70	700	30	50	360	70
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	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	145	29	23	43	58	28	101	1014	40	72	522	84
Adj No. of Lanes	1	1	0	1	2	0	1	3	0	1	3	0
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	190	129	102	76	168	76	133	2227	88	106	1897	300
Arrive On Green	0.11	0.14	0.14	0.04	0.07	0.07	0.08	0.45	0.45	0.06	0.43	0.43
Sat Flow, veh/h	1757	946	750	1757	2346	1060	1757	4971	196	1757	4384	693
Grp Volume(v), veh/h	145	0	52	43	42	44	101	685	369	72	398	208
Grp Sat Flow(s),veh/h/ln	1757	0	1697	1757	1752	1653	1757	1679	1810	1757	1679	1720
Q Serve(g_s), s	4.5	0.0	1.5	1.3	1.3	1.4	3.2	7.9	7.9	2.3	4.3	4.4
Cycle Q Clear(g_c), s	4.5	0.0	1.5	1.3	1.3	1.4	3.2	7.9	7.9	2.3	4.3	4.4
Prop In Lane	1.00		0.44	1.00		0.64	1.00		0.11	1.00		0.40
Lane Grp Cap(c), veh/h	190	0	231	76	126	118	133	1504	811	106	1452	744
V/C Ratio(X)	0.76	0.00	0.22	0.56	0.34	0.37	0.76	0.46	0.46	0.68	0.27	0.28
Avail Cap(c_a), veh/h	626	0	1361	783	1405	1326	626	2214	1193	626	2094	1073
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.3	0.0	21.6	26.3	24.8	24.8	25.4	10.7	10.7	25.8	10.2	10.3
Incr Delay (d2), s/veh	6.2	0.0	0.5	6.3	1.6	1.9	8.6	0.3	0.5	2.9	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	2.5	0.0	0.8	0.8	0.7	0.7	1.9	3.7	4.0	1.2	2.0	2.1
LnGrp Delay(d),s/veh	30.5	0.0	22.1	32.6	26.3	26.7	34.1	11.0	11.2	28.7	10.4	10.5
LnGrp LOS	C		C	C	C	C	C	B	B	C	B	B
Approach Vol, veh/h		197			129			1155			678	
Approach Delay, s/veh		28.3			28.6			13.1			12.4	
Approach LOS		C			C			B			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	7.6	29.7	6.6	12.2	8.4	28.9	10.3	8.5
Change Period (Y+Rc), s	* 4.2	4.6	* 4.2	4.5	* 4.2	4.6	* 4.2	4.5
Max Green Setting (Gmax), s	* 20	37.0	* 25	45.0	* 20	35.0	* 20	45.0
Max Q Clear Time (g_c+I1), s	4.3	9.9	3.3	3.5	5.2	6.4	6.5	3.4
Green Ext Time (p_c), s	0.1	14.5	0.1	0.8	0.2	15.0	0.3	0.8

Intersection Summary	
HCM 2010 Ctrl Delay	15.2
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	110	240	90	340	20	340	730	120	10	270	170
Future Volume (veh/h)	50	110	240	90	340	20	340	730	120	10	270	170
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		0.99	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	1845	1845	1900	1845	1845	1900	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	74	162	68	132	500	25	500	1074	116	15	397	60
Adj No. of Lanes	2	3	0	2	3	0	2	2	1	2	2	1
Peak Hour Factor	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	180	614	234	300	1017	51	634	1460	653	85	896	401
Arrive On Green	0.05	0.17	0.17	0.09	0.21	0.21	0.19	0.42	0.42	0.03	0.26	0.26
Sat Flow, veh/h	3408	3580	1361	3408	4914	244	3408	3505	1568	3408	3505	1568
Grp Volume(v), veh/h	74	151	79	132	341	184	500	1074	116	15	397	60
Grp Sat Flow(s),veh/h/ln	1704	1679	1583	1704	1679	1801	1704	1752	1568	1704	1752	1568
Q Serve(g_s), s	1.6	2.9	3.2	2.7	6.7	6.7	10.4	19.2	3.5	0.3	7.1	2.2
Cycle Q Clear(g_c), s	1.6	2.9	3.2	2.7	6.7	6.7	10.4	19.2	3.5	0.3	7.1	2.2
Prop In Lane	1.00		0.86	1.00		0.14	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	180	576	272	300	695	373	634	1460	653	85	896	401
V/C Ratio(X)	0.41	0.26	0.29	0.44	0.49	0.49	0.79	0.74	0.18	0.18	0.44	0.15
Avail Cap(c_a), veh/h	917	1130	533	917	1898	1018	917	1460	653	917	1415	633
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	34.1	26.7	26.8	32.1	26.0	26.0	28.8	18.2	13.7	35.5	23.2	21.4
Incr Delay (d2), s/veh	1.8	0.3	0.7	1.2	0.6	1.2	3.4	2.1	0.2	1.2	0.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	1.4	1.5	1.3	3.1	3.5	5.2	9.7	1.5	0.2	3.5	1.0
LnGrp Delay(d),s/veh	35.9	27.0	27.5	33.4	26.6	27.3	32.2	20.3	13.8	36.6	23.6	21.6
LnGrp LOS	D	C	C	C	C	C	C	C	B	D	C	C
Approach Vol, veh/h		304			657			1690			472	
Approach Delay, s/veh		29.3			28.2			23.4			23.8	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.1	21.3	7.1	36.8	11.7	18.7	19.0	24.9
Change Period (Y+Rc), s	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9
Max Green Setting (Gmax), s	* 20	42.0	* 20	30.0	* 20	25.0	* 20	30.0
Max Q Clear Time (g_c+I1), s	3.6	8.7	2.3	21.2	4.7	5.2	12.4	9.1
Green Ext Time (p_c), s	0.2	6.1	0.0	6.6	0.4	5.3	1.4	9.9

Intersection Summary	
HCM 2010 Ctrl Delay	25.0
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	161.9
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	440	0	270	0	0	0	80	750	0	10	550	40
Future Vol, veh/h	440	0	270	0	0	0	80	750	0	10	550	40
Peak Hour Factor	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	611	0	375	0	0	0	111	1042	0	14	764	56
Number of Lanes	1	1	1	0	0	0	1	2	0	0	2	1

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	3	3
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	3	3	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	3	0	3
HCM Control Delay	44.6	223.9	214.9
HCM LOS	E	F	F

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	100%	100%	0%	5%	0%	0%
Vol Thru, %	0%	100%	100%	0%	0%	0%	95%	100%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	80	375	375	220	220	270	193	367	40
LT Vol	80	0	0	220	220	0	10	0	0
Through Vol	0	375	375	0	0	0	183	367	0
RT Vol	0	0	0	0	0	270	0	0	40
Lane Flow Rate	111	521	521	306	306	375	269	509	56
Geometry Grp	8	8	8	7	7	7	8	8	8
Degree of Util (X)	0.35	1.57	1.317	0.793	0.793	0.849	0.848	1.605	0.164
Departure Headway (Hd)	12.584	12.066	10.251	10.493	10.493	9.271	12.886	12.859	12.137
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	288	307	359	348	348	394	285	285	297
Service Time	10.284	9.766	7.951	8.193	8.193	6.971	10.586	10.559	9.837
HCM Lane V/C Ratio	0.385	1.697	1.451	0.879	0.879	0.952	0.944	1.786	0.189
HCM Control Delay	21.9	301	189.9	43.5	43.5	46.5	59.4	318.5	17.2
HCM Lane LOS	C	F	F	E	E	E	F	F	C
HCM 95th-tile Q	1.5	27.6	21.9	6.6	6.6	8	7.1	27.3	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	560	10	210	0	0	0	0	270	290	340	480	0
Future Volume (veh/h)	560	10	210	0	0	0	0	270	290	340	480	0
Number	3	8	18				1	6	16	5	2	12
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	1900	1845	1845				0	1845	1845	1845	1845	0
Adj Flow Rate, veh/h	675	12	165				0	325	80	410	578	0
Adj No. of Lanes	0	1	1				0	1	1	2	1	0
Peak Hour Factor	0.83	0.83	0.83				0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	766	14	695				0	400	340	526	786	0
Arrive On Green	0.44	0.44	0.44				0.00	0.22	0.22	0.15	0.43	0.00
Sat Flow, veh/h	1728	31	1568				0	1845	1566	3408	1845	0
Grp Volume(v), veh/h	687	0	165				0	325	80	410	578	0
Grp Sat Flow(s),veh/h/ln	1758	0	1568				0	1845	1566	1704	1845	0
Q Serve(g_s), s	24.1	0.0	4.4				0.0	11.3	2.8	7.8	17.7	0.0
Cycle Q Clear(g_c), s	24.1	0.0	4.4				0.0	11.3	2.8	7.8	17.7	0.0
Prop In Lane	0.98		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	780	0	695				0	400	340	526	786	0
V/C Ratio(X)	0.88	0.00	0.24				0.00	0.81	0.24	0.78	0.74	0.00
Avail Cap(c_a), veh/h	1694	0	1511				0	711	603	1010	786	0
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	1.00	1.00	0.00
Uniform Delay (d), s/veh	17.1	0.0	11.7				0.0	25.1	21.8	27.4	16.2	0.0
Incr Delay (d2), s/veh	1.3	0.0	0.1				0.0	1.5	0.1	1.0	3.2	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	1.9	0.0	1.9				0.0	5.9	1.2	3.7	9.7	0.0
LnGrp Delay(d),s/veh	18.5	0.0	11.7				0.0	26.6	21.9	28.4	19.4	0.0
LnGrp LOS	B		B					C	C	C	B	
Approach Vol, veh/h		852						405			988	
Approach Delay, s/veh		17.2						25.7			23.1	
Approach LOS		B						C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		33.3			14.1	19.2		34.1
Change Period (Y+Rc), s		4.6			3.7	4.6		4.2
Max Green Setting (Gmax), s		24.0			20.0	26.0		65.0
Max Q Clear Time (g_c+I1), s		19.7			9.8	13.3		26.1
Green Ext Time (p_c), s		1.7			0.6	1.3		3.8

Intersection Summary	
HCM 2010 Ctrl Delay	21.3
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	220	30	10	20	40	110	20	180	20	90	180	320
Future Volume (veh/h)	220	30	10	20	40	110	20	180	20	90	180	320
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	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	247	34	2	22	45	45	22	202	16	101	202	131
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	323	317	19	150	72	72	47	769	60	143	600	371
Arrive On Green	0.18	0.18	0.18	0.09	0.09	0.09	0.03	0.23	0.23	0.08	0.29	0.29
Sat Flow, veh/h	1757	1725	101	1757	848	848	1757	3292	259	1757	2081	1289
Grp Volume(v), veh/h	247	0	36	22	0	90	22	107	111	101	169	164
Grp Sat Flow(s),veh/h/ln	1757	0	1827	1757	0	1695	1757	1752	1798	1757	1752	1617
Q Serve(g_s), s	5.8	0.0	0.7	0.5	0.0	2.2	0.5	2.2	2.2	2.4	3.3	3.5
Cycle Q Clear(g_c), s	5.8	0.0	0.7	0.5	0.0	2.2	0.5	2.2	2.2	2.4	3.3	3.5
Prop In Lane	1.00		0.06	1.00		0.50	1.00		0.14	1.00		0.80
Lane Grp Cap(c), veh/h	323	0	336	150	0	145	47	410	420	143	505	466
V/C Ratio(X)	0.76	0.00	0.11	0.15	0.00	0.62	0.47	0.26	0.26	0.71	0.33	0.35
Avail Cap(c_a), veh/h	1217	0	1266	1217	0	1175	1014	1214	1246	1217	1214	1121
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.8	0.0	14.7	18.3	0.0	19.1	20.8	13.5	13.5	19.4	12.1	12.2
Incr Delay (d2), s/veh	1.4	0.0	0.1	0.2	0.0	1.6	2.6	0.1	0.1	2.4	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	2.9	0.0	0.4	0.3	0.0	1.1	0.3	1.1	1.1	1.3	1.6	1.6
LnGrp Delay(d),s/veh	18.2	0.0	14.8	18.5	0.0	20.7	23.4	13.7	13.7	21.8	12.3	12.4
LnGrp LOS	B		B	B		C	C	B	B	C	B	B
Approach Vol, veh/h		283			112			240			434	
Approach Delay, s/veh		17.8			20.3			14.6			14.5	
Approach LOS		B			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.7	14.7		12.6	5.4	17.1		8.3
Change Period (Y+Rc), s	* 4.2	4.6		4.6	* 4.2	4.6		4.6
Max Green Setting (Gmax), s	* 3.5	30.0		30.0	* 25	30.0		30.0
Max Q Clear Time (g_c+I1), s	4.4	4.2		7.8	2.5	5.5		4.2
Green Ext Time (p_c), s	0.1	2.1		0.5	0.0	2.0		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	16.0
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	6.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	80	130	220	10	20	310
Future Vol, veh/h	80	130	220	10	20	310
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	83	135	229	10	21	323

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	240	0	-	0	536	234
Stage 1	-	-	-	-	234	-
Stage 2	-	-	-	-	302	-
Critical Hdwy	4.14	-	-	-	6.44	6.24
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	2.236	-	-	-	3.536	3.336
Pot Cap-1 Maneuver	1315	-	-	-	502	800
Stage 1	-	-	-	-	800	-
Stage 2	-	-	-	-	745	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1315	-	-	-	468	800
Mov Cap-2 Maneuver	-	-	-	-	468	-
Stage 1	-	-	-	-	800	-
Stage 2	-	-	-	-	694	-

Approach	EB	WB	SB
HCM Control Delay, s	3	0	13.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1315	-	-	-	767
HCM Lane V/C Ratio	0.063	-	-	-	0.448
HCM Control Delay (s)	7.9	0	-	-	13.4
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	2.3

Intersection	
Int Delay, s/veh	477.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	310	280	360	130	60	420
Future Vol, veh/h	310	280	360	130	60	420
Conflicting Peds, #/hr	5	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	315	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	341	308	396	143	66	462

Major/Minor	Minor1		Major1		Minor2	
Conflicting Flow All	632	396	0	0	549	396
Stage 1	396	-	-	-	0	0
Stage 2	236	-	-	-	549	396
Critical Hdwy	7.13	6.23	-	-	7.13	6.53
Critical Hdwy Stg 1	6.13	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	6.13	5.53
Follow-up Hdwy	3.527	3.327	-	-	3.527	4.027
Pot Cap-1 Maneuver	392	651	-	-	445	540
Stage 1	627	-	-	-	-	-
Stage 2	-	-	-	-	518	602
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	~ 108	651	-	-	235	540
Mov Cap-2 Maneuver	~ 108	-	-	-	235	540
Stage 1	627	-	-	-	-	-
Stage 2	-	-	-	-	273	602

Approach	WB	NB	SB
HCM Control Delay, s	$ 1232.2	0	37.6
HCM LOS	F		E

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBLn1	SBLn2
Capacity (veh/h)	-	-	179	235	540
HCM Lane V/C Ratio	-	-	3.622	0.281	0.855
HCM Control Delay (s)	-	-	$ 1232.2	26.2	39.2
HCM Lane LOS	-	-	F	D	E
HCM 95th %tile Q(veh)	-	-	62.6	1.1	9.1

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

Intersection	
Int Delay, s/veh	225.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	80	30	460	10	50	580
Future Vol, veh/h	80	30	460	10	50	580
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	76	76	76	76	76	76
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	105	39	605	13	66	763

Major/Minor	Minor1		Minor2		Major2	
Conflicting Flow All	1204	0	895	763	0	0
Stage 1	0	-	895	-	-	-
Stage 2	1204	-	0	-	-	-
Critical Hdwy	7.13	6.23	6.53	6.23	4.13	-
Critical Hdwy Stg 1	-	-	5.53	-	-	-
Critical Hdwy Stg 2	6.13	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	4.027	3.327	2.227	-
Pot Cap-1 Maneuver	160	-	~ 279	403	-	-
Stage 1	-	-	~ 358	-	-	-
Stage 2	224	-	-	-	-	-
Platoon blocked, %						-
Mov Cap-1 Maneuver	-	-	~ 279	403	-	-
Mov Cap-2 Maneuver	-	-	~ 279	-	-	-
Stage 1	-	-	~ 358	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s		$ 580.7	
HCM LOS	-	F	

Minor Lane/Major Mvmt	NBLn1	WBLn1	SBL	SBT
Capacity (veh/h)	281	-	-	-
HCM Lane V/C Ratio	2.201	-	-	-
HCM Control Delay (s)	$ 580.7	-	-	-
HCM Lane LOS	F	-	-	-
HCM 95th %tile Q(veh)	47.1	-	-	-

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)	20	80	150	190	160	50	50	250	150	20	170	40
Future Volume (veh/h)	20	80	150	190	160	50	50	250	150	20	170	40
Number	5	2	12	1	6	16	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		0.98	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	1845	1845	1845	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	23	92	38	218	184	24	57	287	98	23	195	30
Adj No. of Lanes	1	2	1	1	3	0	2	2	0	1	2	0
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	48	534	234	271	1265	160	219	627	210	48	587	89
Arrive On Green	0.03	0.15	0.15	0.15	0.28	0.28	0.06	0.24	0.24	0.03	0.19	0.19
Sat Flow, veh/h	1757	3505	1537	1757	4527	573	3408	2581	863	1757	3052	462
Grp Volume(v), veh/h	23	92	38	218	135	73	57	193	192	23	111	114
Grp Sat Flow(s),veh/h/ln	1757	1752	1537	1757	1679	1743	1704	1752	1692	1757	1752	1762
Q Serve(g_s), s	0.7	1.2	1.1	6.3	1.6	1.7	0.8	4.9	5.1	0.7	2.9	2.9
Cycle Q Clear(g_c), s	0.7	1.2	1.1	6.3	1.6	1.7	0.8	4.9	5.1	0.7	2.9	2.9
Prop In Lane	1.00		1.00	1.00		0.33	1.00		0.51	1.00		0.26
Lane Grp Cap(c), veh/h	48	534	234	271	938	487	219	425	411	48	337	339
V/C Ratio(X)	0.48	0.17	0.16	0.80	0.14	0.15	0.26	0.45	0.47	0.48	0.33	0.34
Avail Cap(c_a), veh/h	335	2876	1261	503	961	499	1626	1304	1259	335	669	672
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	25.1	19.3	19.3	21.4	14.2	14.2	23.3	16.9	17.0	25.1	18.3	18.3
Incr Delay (d2), s/veh	2.8	0.1	0.1	2.1	0.0	0.1	0.8	1.1	1.2	2.8	0.8	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.6	0.5	3.2	0.7	0.8	0.4	2.5	2.5	0.4	1.5	1.5
LnGrp Delay(d),s/veh	27.9	19.4	19.4	23.5	14.2	14.3	24.1	18.0	18.1	27.9	19.1	19.1
LnGrp LOS	C	B	B	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		153			426			442			248	
Approach Delay, s/veh		20.7			19.0			18.8			19.9	
Approach LOS		C			B			B			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	13.3	13.9	6.6	18.6	6.6	20.5	9.3	16.0
Change Period (Y+Rc), s	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9	5.9	* 5.9
Max Green Setting (Gmax), s	* 15	43.0	* 10	39.0	* 10	15.0	25.0	* 20
Max Q Clear Time (g_c+I1), s	8.3	3.2	2.7	7.1	2.7	3.7	2.8	4.9
Green Ext Time (p_c), s	0.2	1.2	0.0	3.4	0.0	0.9	3.1	1.3

Intersection Summary	
HCM 2010 Ctrl Delay	19.3
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	240	790	620	470	90	650	280	120	10	370	130
Future Volume (veh/h)	70	240	790	620	470	90	650	280	120	10	370	130
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	1845	1845	1845	1845	1845	1900	1845	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	77	264	790	430	867	94	714	308	50	11	407	125
Adj No. of Lanes	1	1	2	1	2	0	2	2	1	1	2	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	404	424	1239	513	955	104	563	1205	538	21	505	153
Arrive On Green	0.23	0.23	0.23	0.29	0.29	0.29	0.17	0.34	0.34	0.01	0.19	0.19
Sat Flow, veh/h	1757	1845	3136	1757	3272	355	3408	3505	1565	1757	2650	805
Grp Volume(v), veh/h	77	264	790	430	489	472	714	308	50	11	268	264
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	1845	1782	1704	1752	1565	1757	1752	1703
Q Serve(g_s), s	6.4	23.4	37.0	41.7	46.4	46.4	30.0	11.5	3.9	1.1	26.5	27.0
Cycle Q Clear(g_c), s	6.4	23.4	37.0	41.7	46.4	46.4	30.0	11.5	3.9	1.1	26.5	27.0
Prop In Lane	1.00		1.00	1.00		0.20	1.00		1.00	1.00		0.47
Lane Grp Cap(c), veh/h	404	424	1239	513	538	520	563	1205	538	21	334	324
V/C Ratio(X)	0.19	0.62	0.64	0.84	0.91	0.91	1.27	0.26	0.09	0.53	0.80	0.81
Avail Cap(c_a), veh/h	435	457	1294	532	558	539	563	1205	538	242	434	422
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	56.4	62.9	44.5	60.3	62.0	62.0	75.9	42.9	40.4	89.3	70.3	70.5
Incr Delay (d2), s/veh	0.2	2.3	1.0	11.6	18.8	19.3	134.6	0.4	0.3	7.8	15.5	17.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	12.2	16.2	22.0	26.4	25.6	24.6	5.6	1.7	0.6	14.3	14.3
LnGrp Delay(d),s/veh	56.6	65.2	45.5	71.9	80.8	81.3	210.5	43.3	40.7	97.1	85.8	87.5
LnGrp LOS	E	E	D	E	F	F	F	D	D	F	F	F
Approach Vol, veh/h		1131			1391			1072			543	
Approach Delay, s/veh		50.8			78.2			154.5			86.9	
Approach LOS		D			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	7.3	68.4		58.6	35.2	40.5		47.4
Change Period (Y+Rc), s	* 5.2	5.9		5.6	* 5.2	5.9		5.6
Max Green Setting (Gmax), s	* 25	45.0		55.0	* 30	45.0		45.0
Max Q Clear Time (g_c+I1), s	13.1	13.5		48.4	32.0	29.0		39.0
Green Ext Time (p_c), s	0.0	14.0		4.6	0.0	5.6		2.7

Intersection Summary	
HCM 2010 Ctrl Delay	91.6
HCM 2010 LOS	F

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	370	0	0	590	590	20
Future Volume (veh/h)	370	0	0	590	590	20
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	0	0	1845	1845	1900
Adj Flow Rate, veh/h	374	0	0	596	610	0
Adj No. of Lanes	2	0	0	2	2	1
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	3	0	0	3	3	0
Cap, veh/h	1343	0	0	1343	1005	462
Arrive On Green	0.38	0.00	0.00	0.38	0.29	0.00
Sat Flow, veh/h	3689	0	0	3689	3514	1615
Grp Volume(v), veh/h	374	0	0	596	610	0
Grp Sat Flow(s),veh/h/ln	1752	0	0	1752	1757	1615
Q Serve(g_s), s	2.2	0.0	0.0	3.8	4.5	0.0
Cycle Q Clear(g_c), s	2.2	0.0	0.0	3.8	4.5	0.0
Prop In Lane		0.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	1343	0	0	1343	1005	462
V/C Ratio(X)	0.28	0.00	0.00	0.44	0.61	0.00
Avail Cap(c_a), veh/h	2668	0	0	2668	3722	1711
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	0.00
Uniform Delay (d), s/veh	6.4	0.0	0.0	6.9	9.3	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.2	0.6	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	1.1	0.0	0.0	1.9	2.2	0.0
LnGrp Delay(d),s/veh	6.5	0.0	0.0	7.2	9.9	0.0
LnGrp LOS	A			A	A	
Approach Vol, veh/h	374			596	610	
Approach Delay, s/veh	6.5			7.2	9.9	
Approach LOS	A			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		16.6				16.6		13.6
Change Period (Y+Rc), s		5.0				5.0		5.0
Max Green Setting (Gmax), s		23.0				23.0		32.0
Max Q Clear Time (g_c+I1), s		4.2				5.8		6.5
Green Ext Time (p_c), s		6.0				5.8		2.2

Intersection Summary	
HCM 2010 Ctrl Delay	8.1
HCM 2010 LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	130	1050	1010	770
Future Volume (veh/h)	0	0	130	1050	1010	770
Number			5	2	6	16
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)			1.00			1.00
Parking Bus, Adj			1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln			1845	1845	1845	1845
Adj Flow Rate, veh/h			143	1154	1110	695
Adj No. of Lanes			2	1	1	1
Peak Hour Factor			0.91	0.91	0.91	0.91
Percent Heavy Veh, %			3	3	3	3
Cap, veh/h			371	1674	1316	1118
Arrive On Green			0.11	0.91	0.71	0.71
Sat Flow, veh/h			3408	1845	1845	1568
Grp Volume(v), veh/h			143	1154	1110	695
Grp Sat Flow(s),veh/h/ln			1704	1845	1845	1568
Q Serve(g_s), s			2.1	8.5	23.9	12.6
Cycle Q Clear(g_c), s			2.1	8.5	23.9	12.6
Prop In Lane			1.00			1.00
Lane Grp Cap(c), veh/h			371	1674	1316	1118
V/C Ratio(X)			0.39	0.69	0.84	0.62
Avail Cap(c_a), veh/h			1547	1674	1674	1423
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh			22.8	0.6	5.7	4.1
Incr Delay (d2), s/veh			0.4	1.6	3.3	0.6
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			1.0	4.3	12.9	5.4
LnGrp Delay(d),s/veh			23.2	2.2	9.0	4.6
LnGrp LOS			C	A	A	A
Approach Vol, veh/h				1297	1805	
Approach Delay, s/veh				4.5	7.3	
Approach LOS				A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		
Phs Duration (G+Y+Rc), s		55.1			10.7	44.4		
Change Period (Y+Rc), s		5.1			* 4.7	5.1		
Max Green Setting (Gmax), s		25.0			* 25	50.0		
Max Q Clear Time (g_c+I1), s		10.5			4.1	25.9		
Green Ext Time (p_c), s		13.9			0.2	13.4		

Intersection Summary	
HCM 2010 Ctrl Delay	6.2
HCM 2010 LOS	A

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	540	130	230	640	410	600
Future Volume (veh/h)	540	130	230	640	410	600
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	562	82	240	667	427	209
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	608	796	285	957	542	460
Arrive On Green	0.35	0.35	0.16	0.52	0.29	0.29
Sat Flow, veh/h	1757	1568	1757	1845	1845	1568
Grp Volume(v), veh/h	562	82	240	667	427	209
Grp Sat Flow(s),veh/h/ln	1757	1568	1757	1845	1845	1568
Q Serve(g_s), s	22.9	2.0	9.9	20.3	15.9	8.1
Cycle Q Clear(g_c), s	22.9	2.0	9.9	20.3	15.9	8.1
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	608	796	285	957	542	460
V/C Ratio(X)	0.92	0.10	0.84	0.70	0.79	0.45
Avail Cap(c_a), veh/h	778	948	636	1113	767	652
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.5	9.5	30.3	13.5	24.2	21.5
Incr Delay (d2), s/veh	12.9	0.0	2.6	1.1	2.2	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	13.3	2.5	5.0	10.5	8.4	3.5
LnGrp Delay(d),s/veh	36.4	9.5	32.9	14.7	26.4	21.7
LnGrp LOS	D	A	C	B	C	C
Approach Vol, veh/h	644			907	636	
Approach Delay, s/veh	33.0			19.5	24.9	
Approach LOS	C			B	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		44.1		30.5	16.8	27.3		
Change Period (Y+Rc), s		5.4		* 4.7	* 4.7	5.4		
Max Green Setting (Gmax), s		45.0		* 33	* 27	31.0		
Max Q Clear Time (g_c+I1), s		22.3		24.9	11.9	17.9		
Green Ext Time (p_c), s		4.7		0.8	0.3	4.0		

Intersection Summary	
HCM 2010 Ctrl Delay	25.0
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	0	190	0	290	20	20	30	0	0	80	130
Future Volume (veh/h)	70	0	190	0	290	20	20	30	0	0	80	130
Number	1	6	16	5	2	12	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		0.96
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	0	1845	1900	1845	1845	0	0	1845	1900
Adj Flow Rate, veh/h	85	0	144	0	354	22	20	42	0	0	98	25
Adj No. of Lanes	2	1	2	0	1	0	1	2	0	0	2	0
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	3	3	3	0	3	3	3	3	0	0	3	3
Cap, veh/h	265	884	1467	0	484	30	111	232	0	0	272	67
Arrive On Green	0.08	0.00	0.48	0.00	0.28	0.28	0.06	0.06	0.00	0.00	0.10	0.10
Sat Flow, veh/h	3408	1845	2697	0	1719	107	1757	3689	0	0	2862	679
Grp Volume(v), veh/h	85	0	144	0	0	376	20	42	0	0	61	62
Grp Sat Flow(s),veh/h/ln	1704	1845	1349	0	0	1826	1757	1845	0	0	1752	1696
Q Serve(g_s), s	0.9	0.0	1.0	0.0	0.0	7.1	0.4	0.4	0.0	0.0	1.2	1.3
Cycle Q Clear(g_c), s	0.9	0.0	1.0	0.0	0.0	7.1	0.4	0.4	0.0	0.0	1.2	1.3
Prop In Lane	1.00		1.00	0.00		0.06	1.00		0.00	0.00		0.40
Lane Grp Cap(c), veh/h	265	884	1467	0	0	515	111	232	0	0	172	166
V/C Ratio(X)	0.32	0.00	0.10	0.00	0.00	0.73	0.18	0.18	0.00	0.00	0.35	0.38
Avail Cap(c_a), veh/h	2220	1201	1931	0	0	1189	1144	2403	0	0	1141	1105
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	16.7	0.0	4.2	0.0	0.0	12.5	17.0	17.0	0.0	0.0	16.2	16.2
Incr Delay (d2), s/veh	0.7	0.0	0.0	0.0	0.0	2.0	0.8	0.4	0.0	0.0	1.2	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.4	0.0	0.0	3.8	0.2	0.2	0.0	0.0	0.6	0.7
LnGrp Delay(d),s/veh	17.4	0.0	4.3	0.0	0.0	14.5	17.8	17.4	0.0	0.0	17.4	17.6
LnGrp LOS	B		A			B	B	B			B	B
Approach Vol, veh/h		229			376			62			123	
Approach Delay, s/veh		9.2			14.5			17.5			17.5	
Approach LOS		A			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	7.6	15.4		8.4		23.0		7.0
Change Period (Y+Rc), s	4.6	4.6		4.6		4.6		4.6
Max Green Setting (Gmax), s	25.0	25.0		25.0		25.0		25.0
Max Q Clear Time (g_c+I1), s	2.9	9.1		3.3		3.0		2.4
Green Ext Time (p_c), s	0.8	1.9		0.6		0.8		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	13.7
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	540	0	0	300	10	0	0	0	230	0	40
Future Volume (veh/h)	40	540	0	0	300	10	0	0	0	230	0	40
Number	3	8	18	7	4	14				5	2	12
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	1845	1845	0	1845	1845	1900				1845	0	1845
Adj Flow Rate, veh/h	55	740	0	0	411	11				315	0	17
Adj No. of Lanes	2	2	0	1	2	0				1	0	1
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73				0.73	0.73	0.73
Percent Heavy Veh, %	3	3	0	3	3	3				3	0	3
Cap, veh/h	199	1840	0	5	1231	33				417	0	372
Arrive On Green	0.06	0.52	0.00	0.00	0.35	0.35				0.24	0.00	0.24
Sat Flow, veh/h	3408	3597	0	1757	3487	93				1757	0	1568
Grp Volume(v), veh/h	55	740	0	0	206	216				315	0	17
Grp Sat Flow(s),veh/h/ln	1704	1752	0	1757	1752	1828				1757	0	1568
Q Serve(g_s), s	0.6	4.7	0.0	0.0	3.2	3.2				6.2	0.0	0.3
Cycle Q Clear(g_c), s	0.6	4.7	0.0	0.0	3.2	3.2				6.2	0.0	0.3
Prop In Lane	1.00		0.00	1.00		0.05				1.00		1.00
Lane Grp Cap(c), veh/h	199	1840	0	5	619	645				417	0	372
V/C Ratio(X)	0.28	0.40	0.00	0.00	0.33	0.33				0.76	0.00	0.05
Avail Cap(c_a), veh/h	1842	2841	0	949	1421	1482				1187	0	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	1.00	0.00	0.00	1.00	1.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	16.7	5.3	0.0	0.0	8.8	8.8				13.1	0.0	10.9
Incr Delay (d2), s/veh	0.7	0.1	0.0	0.0	0.3	0.3				2.8	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
%ile BackOfQ(50%),veh/ln	0.3	2.3	0.0	0.0	1.6	1.7				3.3	0.0	0.1
LnGrp Delay(d),s/veh	17.4	5.4	0.0	0.0	9.1	9.1				15.9	0.0	10.9
LnGrp LOS	B	A			A	A				B		B
Approach Vol, veh/h		795			422						332	
Approach Delay, s/veh		6.3			9.1						15.7	
Approach LOS		A			A						B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4			7	8
Phs Duration (G+Y+Rc), s		13.0	6.4	17.7			0.0	24.0
Change Period (Y+Rc), s		* 4.2	* 4.2	4.6			* 4.2	4.6
Max Green Setting (Gmax), s		* 25	* 20	30.0			* 20	30.0
Max Q Clear Time (g_c+I1), s		8.2	2.6	5.2			0.0	6.7
Green Ext Time (p_c), s		0.9	0.1	7.9			0.0	7.7

Intersection Summary	
HCM 2010 Ctrl Delay	9.1
HCM 2010 LOS	A

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	560	0	20	390	10	0	0	0	20	0	20
Future Vol, veh/h	10	560	0	20	390	10	0	0	0	20	0	20
Conflicting Peds, #/hr	2	0	0	0	0	2	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	-	-	130	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	12	691	0	25	481	12	0	0	0	25	0	25

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	496	0	0	691	0	0	1006	1261	346	909	1255	249
Stage 1	-	-	-	-	-	-	716	716	-	539	539	-
Stage 2	-	-	-	-	-	-	290	545	-	370	716	-
Critical Hdwy	4.16	-	-	4.16	-	-	7.56	6.56	6.96	7.56	6.56	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Follow-up Hdwy	2.23	-	-	2.23	-	-	3.53	4.03	3.33	3.53	4.03	3.33
Pot Cap-1 Maneuver	1057	-	-	893	-	-	194	168	647	228	169	748
Stage 1	-	-	-	-	-	-	385	430	-	492	518	-
Stage 2	-	-	-	-	-	-	691	514	-	620	430	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1057	-	-	893	-	-	182	161	647	221	162	747
Mov Cap-2 Maneuver	-	-	-	-	-	-	182	161	-	221	162	-
Stage 1	-	-	-	-	-	-	381	425	-	486	503	-
Stage 2	-	-	-	-	-	-	649	499	-	613	425	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.4	0	17.3
HCM LOS			A	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1057	-	-	893	-	-	341
HCM Lane V/C Ratio	-	0.012	-	-	0.028	-	-	0.145
HCM Control Delay (s)	0	8.4	-	-	9.1	-	-	17.3
HCM Lane LOS	A	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	-	0	-	-	0.1	-	-	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	40	70	30	40	50	70	650	50	30	470	70
Future Volume (veh/h)	70	40	70	30	40	50	70	650	50	30	470	70
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		0.99
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	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	80	46	31	34	46	9	80	747	54	34	540	69
Adj No. of Lanes	1	1	0	1	2	0	1	3	0	1	3	0
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	124	90	61	68	163	31	124	2127	153	68	1862	234
Arrive On Green	0.07	0.09	0.09	0.04	0.06	0.06	0.07	0.44	0.44	0.04	0.41	0.41
Sat Flow, veh/h	1757	1029	693	1757	2940	559	1757	4795	345	1757	4524	569
Grp Volume(v), veh/h	80	0	77	34	27	28	80	522	279	34	399	210
Grp Sat Flow(s),veh/h/ln	1757	0	1722	1757	1752	1746	1757	1679	1782	1757	1679	1736
Q Serve(g_s), s	2.0	0.0	1.9	0.8	0.7	0.7	2.0	4.6	4.6	0.8	3.5	3.6
Cycle Q Clear(g_c), s	2.0	0.0	1.9	0.8	0.7	0.7	2.0	4.6	4.6	0.8	3.5	3.6
Prop In Lane	1.00		0.40	1.00		0.32	1.00		0.19	1.00		0.33
Lane Grp Cap(c), veh/h	124	0	150	68	97	97	124	1489	791	68	1382	715
V/C Ratio(X)	0.65	0.00	0.51	0.50	0.28	0.29	0.65	0.35	0.35	0.50	0.29	0.29
Avail Cap(c_a), veh/h	787	0	1736	984	1766	1760	787	2782	1477	787	2632	1361
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.2	0.0	19.5	21.0	20.2	20.2	20.2	8.2	8.2	21.0	8.8	8.8
Incr Delay (d2), s/veh	5.5	0.0	2.7	5.7	1.5	1.6	5.5	0.2	0.3	2.1	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	1.1	0.0	1.0	0.5	0.4	0.4	1.1	2.1	2.3	0.4	1.6	1.7
LnGrp Delay(d),s/veh	25.8	0.0	22.1	26.7	21.8	21.9	25.8	8.4	8.5	23.2	8.9	9.1
LnGrp LOS	C		C	C	C	C	C	A	A	C	A	A
Approach Vol, veh/h		157			89			881			643	
Approach Delay, s/veh		24.0			23.7			10.0			9.7	
Approach LOS		C			C			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.9	24.4	5.9	8.4	7.3	23.0	7.3	7.0
Change Period (Y+Rc), s	* 4.2	4.6	* 4.2	4.5	* 4.2	4.6	* 4.2	4.5
Max Green Setting (Gmax), s	* 20	37.0	* 25	45.0	* 20	35.0	* 20	45.0
Max Q Clear Time (g_c+I1), s	2.8	6.6	2.8	3.9	4.0	5.6	4.0	2.7
Green Ext Time (p_c), s	0.0	12.6	0.1	0.8	0.1	12.4	0.1	0.8

Intersection Summary	
HCM 2010 Ctrl Delay	11.8
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	340	300	80	200	20	230	620	130	20	370	180
Future Volume (veh/h)	130	340	300	80	200	20	230	620	130	20	370	180
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		0.98	1.00		1.00	1.00		1.00	1.00		0.98
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	1900	1845	1845	1900	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	143	374	197	88	220	12	253	681	76	22	407	51
Adj No. of Lanes	2	3	0	2	3	0	2	2	1	2	2	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	242	746	343	281	1143	62	379	1194	533	119	926	408
Arrive On Green	0.07	0.22	0.22	0.08	0.23	0.23	0.11	0.34	0.34	0.03	0.26	0.26
Sat Flow, veh/h	3408	3357	1543	3408	4891	263	3408	3505	1565	3408	3505	1543
Grp Volume(v), veh/h	143	374	197	88	150	82	253	681	76	22	407	51
Grp Sat Flow(s),veh/h/ln	1704	1679	1543	1704	1679	1797	1704	1752	1565	1704	1752	1543
Q Serve(g_s), s	2.8	6.8	7.9	1.7	2.5	2.5	4.9	11.0	2.3	0.4	6.7	1.7
Cycle Q Clear(g_c), s	2.8	6.8	7.9	1.7	2.5	2.5	4.9	11.0	2.3	0.4	6.7	1.7
Prop In Lane	1.00		1.00	1.00		0.15	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	242	746	343	281	785	420	379	1194	533	119	926	408
V/C Ratio(X)	0.59	0.50	0.57	0.31	0.19	0.19	0.67	0.57	0.14	0.19	0.44	0.13
Avail Cap(c_a), veh/h	982	1209	556	982	2031	1087	982	1515	676	982	1515	667
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.3	23.6	24.1	30.0	21.3	21.4	29.6	18.7	15.9	32.5	21.3	19.4
Incr Delay (d2), s/veh	2.8	0.6	1.8	0.8	0.1	0.3	2.4	0.5	0.1	0.9	0.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	3.2	3.5	0.8	1.2	1.3	2.4	5.4	1.0	0.2	3.3	0.8
LnGrp Delay(d),s/veh	34.0	24.3	25.9	30.8	21.5	21.6	32.0	19.3	16.0	33.4	21.7	19.6
LnGrp LOS	C	C	C	C	C	C	C	B	B	C	C	B
Approach Vol, veh/h		714			320			1010			480	
Approach Delay, s/veh		26.7			24.1			22.2			22.0	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.1	22.1	7.6	29.5	10.9	21.3	12.9	24.2
Change Period (Y+Rc), s	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9
Max Green Setting (Gmax), s	* 20	42.0	* 20	30.0	* 20	25.0	* 20	30.0
Max Q Clear Time (g_c+I1), s	4.8	4.5	2.4	13.0	3.7	9.9	6.9	8.7
Green Ext Time (p_c), s	0.4	6.8	0.0	8.0	0.2	5.1	0.8	9.0

Intersection Summary	
HCM 2010 Ctrl Delay	23.7
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	37.1
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	410	0	300	0	0	0	100	570	0	0	700	50
Future Vol, veh/h	410	0	300	0	0	0	100	570	0	0	700	50
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
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	418	0	306	0	0	0	102	582	0	0	714	51
Number of Lanes	1	1	1	0	0	0	1	2	0	0	2	1

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	3	3
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	3	3	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	3	0	3
HCM Control Delay	22.7	29.3	57.6
HCM LOS	C	D	F

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	100%	100%	0%	0%	0%	0%
Vol Thru, %	0%	100%	100%	0%	0%	0%	100%	100%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	100	285	285	205	205	300	350	350	50
LT Vol	100	0	0	205	205	0	0	0	0
Through Vol	0	285	285	0	0	0	350	350	0
RT Vol	0	0	0	0	0	300	0	0	50
Lane Flow Rate	102	291	291	209	209	306	357	357	51
Geometry Grp	8	8	8	7	7	7	8	8	8
Degree of Util (X)	0.288	0.78	0.634	0.525	0.525	0.665	0.929	0.929	0.097
Departure Headway (Hd)	10.166	9.65	7.843	9.039	9.039	7.817	9.364	9.364	6.837
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	353	375	459	402	402	465	386	386	521
Service Time	7.947	7.43	5.623	6.739	6.739	5.517	7.142	7.142	4.615
HCM Lane V/C Ratio	0.289	0.776	0.634	0.52	0.52	0.658	0.925	0.925	0.098
HCM Control Delay	17	39.5	23.4	21.3	21.3	24.7	61	61	10.4
HCM Lane LOS	C	E	C	C	C	C	F	F	B
HCM 95th-tile Q	1.2	6.5	4.3	2.9	2.9	4.8	10	10	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	320	10	290	0	0	0	0	350	430	500	500	0
Future Volume (veh/h)	320	10	290	0	0	0	0	350	430	500	500	0
Number	3	8	18				1	6	16	5	2	12
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	1900	1845	1845				0	1845	1845	1845	1845	0
Adj Flow Rate, veh/h	356	11	193				0	389	152	556	556	0
Adj No. of Lanes	0	1	1				0	1	1	2	1	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, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	460	14	423				0	500	424	719	1025	0
Arrive On Green	0.27	0.27	0.27				0.00	0.27	0.27	0.21	0.56	0.00
Sat Flow, veh/h	1707	53	1568				0	1845	1564	3408	1845	0
Grp Volume(v), veh/h	367	0	193				0	389	152	556	556	0
Grp Sat Flow(s),veh/h/ln	1759	0	1568				0	1845	1564	1704	1845	0
Q Serve(g_s), s	9.7	0.0	5.2				0.0	9.8	4.0	7.8	9.7	0.0
Cycle Q Clear(g_c), s	9.7	0.0	5.2				0.0	9.8	4.0	7.8	9.7	0.0
Prop In Lane	0.97		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	475	0	423				0	500	424	719	1025	0
V/C Ratio(X)	0.77	0.00	0.46				0.00	0.78	0.36	0.77	0.54	0.00
Avail Cap(c_a), veh/h	2269	0	2022				0	952	807	1352	1025	0
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	1.00	1.00	0.00
Uniform Delay (d), s/veh	17.0	0.0	15.3				0.0	17.0	14.8	18.7	7.1	0.0
Incr Delay (d2), s/veh	1.0	0.0	0.3				0.0	1.0	0.2	0.7	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	0.0	2.2				0.0	5.1	1.7	3.7	4.9	0.0
LnGrp Delay(d),s/veh	18.0	0.0	15.6				0.0	18.0	15.0	19.4	7.5	0.0
LnGrp LOS	B		B					B	B	B	A	
Approach Vol, veh/h		560						541			1112	
Approach Delay, s/veh		17.2						17.1			13.4	
Approach LOS		B						B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		32.6			14.3	18.3		17.8
Change Period (Y+Rc), s		4.6			3.7	4.6		4.2
Max Green Setting (Gmax), s		24.0			20.0	26.0		65.0
Max Q Clear Time (g_c+I1), s		11.7			9.8	11.8		11.7
Green Ext Time (p_c), s		3.5			0.9	1.7		1.9

Intersection Summary	
HCM 2010 Ctrl Delay	15.3
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	330	40	20	40	30	140	10	220	40	170	300	230
Future Volume (veh/h)	330	40	20	40	30	140	10	220	40	170	300	230
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	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	344	42	9	42	31	14	10	229	30	177	312	151
Adj No. of Lanes	1	1	0	1	1	0	1	2	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	0.96	0.96	0.96
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	426	357	77	123	84	38	23	627	81	228	734	347
Arrive On Green	0.24	0.24	0.24	0.07	0.07	0.07	0.01	0.20	0.20	0.13	0.32	0.32
Sat Flow, veh/h	1757	1472	315	1757	1205	544	1757	3121	404	1757	2309	1093
Grp Volume(v), veh/h	344	0	51	42	0	45	10	127	132	177	235	228
Grp Sat Flow(s),veh/h/ln	1757	0	1788	1757	0	1749	1757	1752	1772	1757	1752	1650
Q Serve(g_s), s	9.3	0.0	1.1	1.1	0.0	1.2	0.3	3.2	3.2	4.9	5.3	5.5
Cycle Q Clear(g_c), s	9.3	0.0	1.1	1.1	0.0	1.2	0.3	3.2	3.2	4.9	5.3	5.5
Prop In Lane	1.00		0.18	1.00		0.31	1.00		0.23	1.00		0.66
Lane Grp Cap(c), veh/h	426	0	434	123	0	122	23	352	356	228	557	524
V/C Ratio(X)	0.81	0.00	0.12	0.34	0.00	0.37	0.44	0.36	0.37	0.78	0.42	0.43
Avail Cap(c_a), veh/h	1045	0	1063	1045	0	1040	870	1042	1054	1045	1042	981
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.0	0.0	14.9	22.4	0.0	22.4	24.7	17.4	17.4	21.2	13.6	13.6
Incr Delay (d2), s/veh	1.4	0.0	0.0	0.6	0.0	0.7	4.9	0.2	0.2	2.2	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	4.7	0.0	0.6	0.6	0.0	0.6	0.2	1.5	1.6	2.5	2.6	2.5
LnGrp Delay(d),s/veh	19.4	0.0	14.9	23.0	0.0	23.1	29.6	17.6	17.6	23.4	13.8	13.8
LnGrp LOS	B		B	C		C	C	B	B	C	B	B
Approach Vol, veh/h		395			87			269			640	
Approach Delay, s/veh		18.8			23.0			18.1			16.5	
Approach LOS		B			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.7	14.7		16.8	4.9	20.6		8.1
Change Period (Y+Rc), s	* 4.2	4.6		4.6	* 4.2	4.6		4.6
Max Green Setting (Gmax), s	* 6	30.0		30.0	* 25	30.0		30.0
Max Q Clear Time (g_c+I1), s	10.9	5.2		11.3	2.3	7.5		3.2
Green Ext Time (p_c), s	0.2	2.8		0.6	0.0	2.7		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	17.8
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	9.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	130	420	140	10	50	300
Future Vol, veh/h	130	420	140	10	50	300
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	163	525	175	13	63	375

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	188	0	-	0	1031	181
Stage 1	-	-	-	-	181	-
Stage 2	-	-	-	-	850	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1380	-	-	-	257	859
Stage 1	-	-	-	-	848	-
Stage 2	-	-	-	-	417	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1380	-	-	-	214	859
Mov Cap-2 Maneuver	-	-	-	-	214	-
Stage 1	-	-	-	-	848	-
Stage 2	-	-	-	-	347	-

Approach	EB	WB	SB
HCM Control Delay, s	1.9	0	25.4
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1380	-	-	-	600
HCM Lane V/C Ratio	0.118	-	-	-	0.729
HCM Control Delay (s)	8	0	-	-	25.4
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	0.4	-	-	-	6.2

Intersection	
Int Delay, s/veh	42.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	230	240	630	390	150	320
Future Vol, veh/h	230	240	630	390	150	320
Conflicting Peds, #/hr	2	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	315	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	258	270	708	438	169	360

Major/Minor	Minor1		Major1		Minor2	
Conflicting Flow All	890	708	0	0	843	708
Stage 1	708	-	-	-	0	0
Stage 2	182	-	-	-	843	708
Critical Hdwy	7.13	6.23	-	-	7.13	6.53
Critical Hdwy Stg 1	6.13	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	6.13	5.53
Follow-up Hdwy	3.527	3.327	-	-	3.527	4.027
Pot Cap-1 Maneuver	262	433	-	-	282	~ 358
Stage 1	424	-	-	-	-	-
Stage 2	-	-	-	-	357	436
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	-	433	-	-	~ 106	~ 358
Mov Cap-2 Maneuver	-	-	-	-	~ 106	~ 358
Stage 1	424	-	-	-	-	-
Stage 2	-	-	-	-	~ 135	436

Approach	WB	NB	SB
HCM Control Delay, s		0	177
HCM LOS	-		F

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBLn1	SBLn2
Capacity (veh/h)	-	-	-	106	358
HCM Lane V/C Ratio	-	-	-	1.59	1.004
HCM Control Delay (s)	-	-	-$	376.5	83.5
HCM Lane LOS	-	-	-	F	F
HCM 95th %tile Q(veh)	-	-	-	12.8	11.7

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

Intersection	
Int Delay, s/veh	212.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	350	670	10	30	490
Future Vol, veh/h	10	350	670	10	30	490
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Free	Free
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, %	3	3	3	3	3	3
Mvmt Flow	12	407	779	12	35	570

Major/Minor	Minor1		Minor2		Major2	
Conflicting Flow All	1035	0	640	570	0	0
Stage 1	0	-	640	-	-	-
Stage 2	1035	-	0	-	-	-
Critical Hdwy	7.13	6.23	6.53	6.23	4.13	-
Critical Hdwy Stg 1	-	-	5.53	-	-	-
Critical Hdwy Stg 2	6.13	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	4.027	3.327	2.227	-
Pot Cap-1 Maneuver	209	-	~ 392	519	-	-
Stage 1	-	-	~ 468	-	-	-
Stage 2	279	-	-	-	-	-
Platoon blocked, %						-
Mov Cap-1 Maneuver	-	-	~ 392	519	-	-
Mov Cap-2 Maneuver	-	-	~ 392	-	-	-
Stage 1	-	-	~ 468	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s		$ 487.1	
HCM LOS	-	F	

Minor Lane/Major Mvmt	NBLn1	WBLn1	SBL	SBT
Capacity (veh/h)	393	-	-	-
HCM Lane V/C Ratio	2.012	-	-	-
HCM Control Delay (s)	$ 487.1	-	-	-
HCM Lane LOS	F	-	-	-
HCM 95th %tile Q(veh)	55.1	-	-	-

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)	40	270	420	190	240	70	120	310	160	110	580	120
Future Volume (veh/h)	40	270	420	190	240	70	120	310	160	110	580	120
Number	5	2	12	1	6	16	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		0.99	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	1845	1845	1845	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	43	293	258	207	261	31	130	337	126	120	630	116
Adj No. of Lanes	1	2	1	1	3	0	2	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	66	825	365	243	1539	178	260	768	282	103	829	152
Arrive On Green	0.04	0.24	0.24	0.14	0.34	0.34	0.08	0.31	0.31	0.06	0.28	0.28
Sat Flow, veh/h	1757	3505	1552	1757	4578	531	3408	2508	921	1757	2958	544
Grp Volume(v), veh/h	43	293	258	207	190	102	130	234	229	120	373	373
Grp Sat Flow(s),veh/h/ln	1757	1752	1552	1757	1679	1751	1704	1752	1677	1757	1752	1749
Q Serve(g_s), s	2.1	5.9	13.0	9.8	3.4	3.5	3.1	9.1	9.3	5.0	16.5	16.6
Cycle Q Clear(g_c), s	2.1	5.9	13.0	9.8	3.4	3.5	3.1	9.1	9.3	5.0	16.5	16.6
Prop In Lane	1.00		1.00	1.00		0.30	1.00		0.55	1.00		0.31
Lane Grp Cap(c), veh/h	66	825	365	243	1129	589	260	536	513	103	491	490
V/C Ratio(X)	0.65	0.36	0.71	0.85	0.17	0.17	0.50	0.44	0.45	1.16	0.76	0.76
Avail Cap(c_a), veh/h	186	1815	804	306	1968	1026	397	804	770	103	703	702
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	40.3	27.1	29.8	35.7	19.8	19.9	37.7	23.6	23.7	40.0	27.9	28.0
Incr Delay (d2), s/veh	4.0	0.1	0.9	14.1	0.0	0.1	1.8	0.8	0.9	138.2	3.9	4.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	2.9	5.6	5.7	1.6	1.7	1.5	4.5	4.5	6.4	8.5	8.5
LnGrp Delay(d),s/veh	44.4	27.2	30.7	49.8	19.9	19.9	39.5	24.4	24.6	178.2	31.8	31.9
LnGrp LOS	D	C	C	D	B	B	D	C	C	F	C	C
Approach Vol, veh/h		594			499			593			866	
Approach Delay, s/veh		30.0			32.3			27.8			52.2	
Approach LOS		C			C			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.0	25.9	10.2	31.9	8.4	34.5	12.4	29.7
Change Period (Y+Rc), s	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9	5.9	* 5.9
Max Green Setting (Gmax), s	* 15	44.0	* 5	39.0	* 9	49.8	9.9	* 34
Max Q Clear Time (g_c+I1), s	11.8	15.0	7.0	11.3	4.1	5.5	5.1	18.6
Green Ext Time (p_c), s	0.1	2.7	0.0	4.4	0.0	2.7	1.7	5.2

Intersection Summary	
HCM 2010 Ctrl Delay	37.5
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	90	440	160	80	60	750	480	480	60	1060	70
Future Volume (veh/h)	50	90	440	160	80	60	750	480	480	60	1060	70
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	1845	1845	1845	1845	1845	1900	1845	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	53	95	121	185	60	29	789	505	201	63	1116	72
Adj No. of Lanes	1	1	2	2	1	0	2	2	1	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	214	225	643	428	143	69	283	1532	683	82	1339	86
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.08	0.44	0.44	0.05	0.40	0.40
Sat Flow, veh/h	1757	1845	3136	3514	1176	568	3408	3505	1563	1757	3343	216
Grp Volume(v), veh/h	53	95	121	185	0	89	789	505	201	63	585	603
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	0	1744	1704	1752	1563	1757	1752	1807
Q Serve(g_s), s	2.2	3.9	2.6	4.0	0.0	3.9	6.8	7.8	6.8	2.9	24.6	24.6
Cycle Q Clear(g_c), s	2.2	3.9	2.6	4.0	0.0	3.9	6.8	7.8	6.8	2.9	24.6	24.6
Prop In Lane	1.00		1.00	1.00		0.33	1.00		1.00	1.00		0.12
Lane Grp Cap(c), veh/h	214	225	643	428	0	213	283	1532	683	82	702	724
V/C Ratio(X)	0.25	0.42	0.19	0.43	0.00	0.42	2.79	0.33	0.29	0.77	0.83	0.83
Avail Cap(c_a), veh/h	966	1014	1985	1588	0	789	283	1532	683	135	726	748
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.5	33.3	26.9	33.3	0.0	33.2	37.5	15.1	14.9	38.6	22.1	22.1
Incr Delay (d2), s/veh	0.6	1.3	0.1	1.0	0.0	1.9	813.7	0.5	0.9	5.6	10.3	10.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	2.1	1.1	2.0	0.0	2.0	35.1	3.8	3.1	1.5	13.9	14.3
LnGrp Delay(d),s/veh	33.1	34.5	27.0	34.3	0.0	35.1	851.2	15.6	15.7	44.2	32.4	32.1
LnGrp LOS	C	C	C	C		D	F	B	B	D	C	C
Approach Vol, veh/h		269			274			1495			1251	
Approach Delay, s/veh		30.9			34.6			456.6			32.9	
Approach LOS		C			C			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.0	41.7		15.6	12.0	38.7		15.6
Change Period (Y+Rc), s	* 5.2	5.9		5.6	* 5.2	5.9		5.6
Max Green Setting (Gmax), s	* 6.3	34.4		37.0	* 6.8	33.9		45.0
Max Q Clear Time (g_c+I1), s	4.9	9.8		6.0	8.8	26.6		5.9
Green Ext Time (p_c), s	0.0	21.9		1.7	0.0	6.2		1.2

Intersection Summary	
HCM 2010 Ctrl Delay	225.5
HCM 2010 LOS	F

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	960	0	730	140	980	0	0	1040	620
Future Volume (veh/h)	0	0	0	960	0	730	140	980	0	0	1040	620
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		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				1845	1845	1845	1845	1845	0	0	1845	1900
Adj Flow Rate, veh/h				1230	0	469	147	1032	0	0	1095	564
Adj No. of Lanes				2	0	1	1	3	0	0	3	0
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				1450	0	647	174	2517	0	0	1193	557
Arrive On Green				0.41	0.00	0.41	0.10	0.50	0.00	0.00	0.36	0.37
Sat Flow, veh/h				3514	0	1568	1757	5202	0	0	3523	1568
Grp Volume(v), veh/h				1230	0	469	147	1032	0	0	1095	564
Grp Sat Flow(s),veh/h/ln				1757	0	1568	1757	1679	0	0	1679	1568
Q Serve(g_s), s				32.9	0.0	26.0	8.5	13.4	0.0	0.0	32.4	36.9
Cycle Q Clear(g_c), s				32.9	0.0	26.0	8.5	13.4	0.0	0.0	32.4	36.9
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				1450	0	647	174	2517	0	0	1193	557
V/C Ratio(X)				0.85	0.00	0.73	0.84	0.41	0.00	0.00	0.92	1.01
Avail Cap(c_a), veh/h				1996	0	891	174	2517	0	0	1193	557
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	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				27.6	0.0	25.6	46.0	16.3	0.0	0.0	32.0	32.9
Incr Delay (d2), s/veh				2.7	0.0	1.9	28.6	0.2	0.0	0.0	11.3	41.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				16.4	0.0	11.5	5.6	6.3	0.0	0.0	16.8	22.2
LnGrp Delay(d),s/veh				30.2	0.0	27.4	74.6	16.6	0.0	0.0	43.3	74.1
LnGrp LOS				C		C	E	B			D	F
Approach Vol, veh/h					1699			1179			1659	
Approach Delay, s/veh					29.5			23.8			53.8	
Approach LOS					C			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		57.0			15.0	42.0		46.8
Change Period (Y+Rc), s		5.1			* 4.7	5.1		4.0
Max Green Setting (Gmax), s		51.9			* 10	36.9		59.0
Max Q Clear Time (g_c+I1), s		15.4			10.5	38.9		34.9
Green Ext Time (p_c), s		30.3			0.0	0.0		8.0

Intersection Summary		
HCM 2010 Ctrl Delay		36.9
HCM 2010 LOS		D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	490	110	310	630	1210	790
Future Volume (veh/h)	490	110	310	630	1210	790
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	533	107	337	685	1315	531
Adj No. of Lanes	2	1	2	3	3	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	651	504	444	3373	2391	745
Arrive On Green	0.19	0.19	0.13	0.67	0.47	0.47
Sat Flow, veh/h	3408	1568	3408	5202	5202	1568
Grp Volume(v), veh/h	533	107	337	685	1315	531
Grp Sat Flow(s),veh/h/ln	1704	1568	1704	1679	1679	1568
Q Serve(g_s), s	10.9	3.6	6.9	3.8	13.5	19.5
Cycle Q Clear(g_c), s	10.9	3.6	6.9	3.8	13.5	19.5
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	651	504	444	3373	2391	745
V/C Ratio(X)	0.82	0.21	0.76	0.20	0.55	0.71
Avail Cap(c_a), veh/h	1000	664	1094	5451	3509	1093
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.2	17.9	30.5	4.6	13.6	15.1
Incr Delay (d2), s/veh	1.7	0.1	1.0	0.0	0.1	0.5
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	3.6	3.3	1.7	6.2	8.5
LnGrp Delay(d),s/veh	29.9	18.0	31.5	4.6	13.6	15.6
LnGrp LOS	C	B	C	A	B	B
Approach Vol, veh/h	640			1022	1846	
Approach Delay, s/veh	27.9			13.5	14.2	
Approach LOS	C			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		54.0		18.6	14.2	39.9		
Change Period (Y+Rc), s		5.4		* 4.7	* 4.7	5.4		
Max Green Setting (Gmax), s		78.6		* 21	* 23	50.6		
Max Q Clear Time (g_c+I1), s		5.8		12.9	8.9	21.5		
Green Ext Time (p_c), s		16.0		1.0	0.5	13.0		

Intersection Summary	
HCM 2010 Ctrl Delay	16.5
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	0	400	0	360	110	170	90	0	0	70	130
Future Volume (veh/h)	110	0	400	0	360	110	170	90	0	0	70	130
Number	1	6	16	5	2	12	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		1.00	1.00		1.00	1.00		0.99
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	0	1845	1900	1845	1845	0	0	1845	1900
Adj Flow Rate, veh/h	120	0	65	0	391	112	185	98	0	0	76	17
Adj No. of Lanes	2	1	2	0	1	0	2	1	0	0	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, %	3	3	3	0	3	3	3	3	0	0	3	3
Cap, veh/h	279	978	1760	0	490	140	378	199	0	0	235	51
Arrive On Green	0.08	0.00	0.53	0.00	0.36	0.36	0.11	0.11	0.00	0.00	0.08	0.08
Sat Flow, veh/h	3408	1845	2760	0	1380	395	3514	1845	0	0	2951	619
Grp Volume(v), veh/h	120	0	65	0	0	503	185	98	0	0	46	47
Grp Sat Flow(s),veh/h/ln	1704	1845	1380	0	0	1775	1757	1845	0	0	1752	1725
Q Serve(g_s), s	1.7	0.0	0.4	0.0	0.0	12.6	2.4	2.5	0.0	0.0	1.2	1.3
Cycle Q Clear(g_c), s	1.7	0.0	0.4	0.0	0.0	12.6	2.4	2.5	0.0	0.0	1.2	1.3
Prop In Lane	1.00		1.00	0.00		0.22	1.00		0.00	0.00		0.36
Lane Grp Cap(c), veh/h	279	978	1760	0	0	630	378	199	0	0	144	142
V/C Ratio(X)	0.43	0.00	0.04	0.00	0.00	0.80	0.49	0.49	0.00	0.00	0.32	0.33
Avail Cap(c_a), veh/h	1729	2366	3837	0	0	1210	1284	674	0	0	889	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	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	21.5	0.0	3.3	0.0	0.0	14.3	20.7	20.7	0.0	0.0	21.3	21.3
Incr Delay (d2), s/veh	1.0	0.0	0.0	0.0	0.0	2.4	1.0	1.9	0.0	0.0	1.3	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.2	0.0	0.0	6.4	1.2	1.4	0.0	0.0	0.6	0.7
LnGrp Delay(d),s/veh	22.6	0.0	3.3	0.0	0.0	16.7	21.7	22.6	0.0	0.0	22.6	22.7
LnGrp LOS	C		A			B	C	C			C	C
Approach Vol, veh/h		185			503			283			93	
Approach Delay, s/veh		15.8			16.7			22.0			22.6	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	8.6	22.1		8.6		30.7		9.9
Change Period (Y+Rc), s	4.6	4.6		4.6		4.6		4.6
Max Green Setting (Gmax), s	25.0	33.6		25.0		63.2		18.0
Max Q Clear Time (g_c+I1), s	3.7	14.6		3.3		2.4		4.5
Green Ext Time (p_c), s	0.6	2.9		0.4		0.7		0.9

Intersection Summary	
HCM 2010 Ctrl Delay	18.5
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	310	0	0	690	20	0	0	0	390	0	80
Future Volume (veh/h)	60	310	0	0	690	20	0	0	0	390	0	80
Number	3	8	18	7	4	14				5	2	12
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	1845	1845	0	1845	1845	1900				1845	0	1845
Adj Flow Rate, veh/h	65	337	0	0	750	19				424	0	32
Adj No. of Lanes	2	2	0	1	2	0				1	0	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, %	3	3	0	3	3	3				3	0	3
Cap, veh/h	208	1802	0	4	1268	32				522	0	466
Arrive On Green	0.06	0.51	0.00	0.00	0.36	0.36				0.30	0.00	0.30
Sat Flow, veh/h	3408	3597	0	1757	3493	88				1757	0	1568
Grp Volume(v), veh/h	65	337	0	0	376	393				424	0	32
Grp Sat Flow(s),veh/h/ln	1704	1752	0	1757	1752	1829				1757	0	1568
Q Serve(g_s), s	0.9	2.4	0.0	0.0	8.1	8.1				10.4	0.0	0.7
Cycle Q Clear(g_c), s	0.9	2.4	0.0	0.0	8.1	8.1				10.4	0.0	0.7
Prop In Lane	1.00		0.00	1.00		0.05				1.00		1.00
Lane Grp Cap(c), veh/h	208	1802	0	4	636	664				522	0	466
V/C Ratio(X)	0.31	0.19	0.00	0.00	0.59	0.59				0.81	0.00	0.07
Avail Cap(c_a), veh/h	424	2421	0	188	1180	1232				1500	0	1339
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	1.00	0.00	0.00	1.00	1.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	21.0	6.1	0.0	0.0	12.0	12.0				15.2	0.0	11.8
Incr Delay (d2), s/veh	0.8	0.0	0.0	0.0	0.9	0.8				3.1	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
%ile BackOfQ(50%),veh/ln	0.4	1.2	0.0	0.0	4.0	4.2				5.4	0.0	0.3
LnGrp Delay(d),s/veh	21.8	6.1	0.0	0.0	12.9	12.9				18.3	0.0	11.8
LnGrp LOS	C	A			B	B				B		B
Approach Vol, veh/h		402			769						456	
Approach Delay, s/veh		8.7			12.9						17.8	
Approach LOS		A			B						B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4			7	8
Phs Duration (G+Y+Rc), s		18.1	7.0	21.5			0.0	28.6
Change Period (Y+Rc), s		* 4.2	* 4.2	4.6			* 4.2	4.6
Max Green Setting (Gmax), s		* 40	* 5.8	31.4			* 5	32.2
Max Q Clear Time (g_c+I1), s		12.4	2.9	10.1			0.0	4.4
Green Ext Time (p_c), s		1.5	0.0	6.8			0.0	7.4

Intersection Summary	
HCM 2010 Ctrl Delay	13.2
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	350	0	20	730	20	0	0	0	20	0	0
Future Vol, veh/h	30	350	0	20	730	20	0	0	0	20	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	130	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	33	380	0	22	793	22	0	0	0	22	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	815	0	0	380	0	0	886	1305	190	1103	1294	408
Stage 1	-	-	-	-	-	-	446	446	-	848	848	-
Stage 2	-	-	-	-	-	-	440	859	-	255	446	-
Critical Hdwy	4.16	-	-	4.16	-	-	7.56	6.56	6.96	7.56	6.56	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Follow-up Hdwy	2.23	-	-	2.23	-	-	3.53	4.03	3.33	3.53	4.03	3.33
Pot Cap-1 Maneuver	802	-	-	1168	-	-	237	158	816	165	160	590
Stage 1	-	-	-	-	-	-	559	570	-	320	373	-
Stage 2	-	-	-	-	-	-	563	369	-	724	570	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	802	-	-	1168	-	-	226	149	816	158	151	590
Mov Cap-2 Maneuver	-	-	-	-	-	-	226	149	-	158	151	-
Stage 1	-	-	-	-	-	-	536	547	-	307	366	-
Stage 2	-	-	-	-	-	-	552	362	-	694	547	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	0.2	0	31.4
HCM LOS			A	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	802	-	-	1168	-	-	158
HCM Lane V/C Ratio	-	0.041	-	-	0.019	-	-	0.138
HCM Control Delay (s)	0	9.7	-	-	8.1	-	-	31.4
HCM Lane LOS	A	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	-	0.1	-	-	0.1	-	-	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	60	70	50	60	130	80	780	160	150	400	80
Future Volume (veh/h)	110	60	70	50	60	130	80	780	160	150	400	80
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	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	120	65	40	54	65	23	87	848	153	163	435	69
Adj No. of Lanes	1	1	0	1	2	0	1	3	0	1	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	157	117	72	88	182	61	113	1824	327	208	2103	326
Arrive On Green	0.09	0.11	0.11	0.05	0.07	0.07	0.06	0.42	0.42	0.12	0.48	0.48
Sat Flow, veh/h	1757	1062	653	1757	2573	867	1757	4294	770	1757	4397	682
Grp Volume(v), veh/h	120	0	105	54	43	45	87	662	339	163	330	174
Grp Sat Flow(s),veh/h/ln	1757	0	1715	1757	1752	1688	1757	1679	1707	1757	1679	1722
Q Serve(g_s), s	3.9	0.0	3.4	1.8	1.4	1.5	2.9	8.3	8.4	5.3	3.3	3.5
Cycle Q Clear(g_c), s	3.9	0.0	3.4	1.8	1.4	1.5	2.9	8.3	8.4	5.3	3.3	3.5
Prop In Lane	1.00		0.38	1.00		0.51	1.00		0.45	1.00		0.40
Lane Grp Cap(c), veh/h	157	0	189	88	124	119	113	1426	725	208	1606	824
V/C Ratio(X)	0.77	0.00	0.56	0.62	0.35	0.38	0.77	0.46	0.47	0.79	0.21	0.21
Avail Cap(c_a), veh/h	471	0	1413	367	1340	1290	522	2332	1186	621	2521	1293
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.2	0.0	24.8	27.4	26.1	26.1	27.1	12.1	12.2	25.2	8.9	8.9
Incr Delay (d2), s/veh	7.5	0.0	2.6	6.9	1.7	2.0	10.3	0.3	0.6	2.5	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	2.2	0.0	1.7	1.0	0.7	0.8	1.7	3.8	4.1	2.7	1.6	1.7
LnGrp Delay(d),s/veh	33.8	0.0	27.4	34.3	27.7	28.1	37.4	12.4	12.7	27.7	9.0	9.1
LnGrp LOS	C		C	C	C	C	D	B	B	C	A	A
Approach Vol, veh/h		225			142			1088			667	
Approach Delay, s/veh		30.8			30.3			14.5			13.6	
Approach LOS		C			C			B			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	11.2	29.6	7.1	11.0	8.0	32.8	9.5	8.7
Change Period (Y+Rc), s	* 4.2	4.6	* 4.2	4.5	* 4.2	4.6	* 4.2	4.5
Max Green Setting (Gmax), s	* 21	40.9	* 12	48.5	* 18	44.2	* 16	45.0
Max Q Clear Time (g_c+I1), s	7.3	10.4	3.8	5.4	4.9	5.5	5.9	3.5
Green Ext Time (p_c), s	0.2	13.9	0.1	1.2	0.1	15.3	0.2	1.2

Intersection Summary	
HCM 2010 Ctrl Delay	17.0
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	120	500	440	390	30	560	910	550	20	320	180
Future Volume (veh/h)	80	120	500	440	390	30	560	910	550	20	320	180
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		0.99	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	1845	1845	1900	1845	1845	1900	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	84	126	126	463	411	26	589	958	498	21	337	43
Adj No. of Lanes	2	3	0	2	3	0	2	2	1	2	2	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	153	480	221	565	1279	80	714	1545	691	105	919	411
Arrive On Green	0.04	0.14	0.14	0.17	0.26	0.26	0.21	0.44	0.44	0.03	0.26	0.26
Sat Flow, veh/h	3408	3357	1547	3408	4844	303	3408	3505	1568	3408	3505	1568
Grp Volume(v), veh/h	84	126	126	463	284	153	589	958	498	21	337	43
Grp Sat Flow(s),veh/h/ln	1704	1679	1547	1704	1679	1790	1704	1752	1568	1704	1752	1568
Q Serve(g_s), s	2.4	3.4	7.7	13.3	6.9	7.0	16.7	21.3	26.3	0.6	7.9	2.1
Cycle Q Clear(g_c), s	2.4	3.4	7.7	13.3	6.9	7.0	16.7	21.3	26.3	0.6	7.9	2.1
Prop In Lane	1.00		1.00	1.00		0.17	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	153	480	221	565	887	473	714	1545	691	105	919	411
V/C Ratio(X)	0.55	0.26	0.57	0.82	0.32	0.32	0.82	0.62	0.72	0.20	0.37	0.10
Avail Cap(c_a), veh/h	253	880	405	849	1467	782	1176	2048	916	236	1081	484
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	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	47.3	38.6	40.4	40.7	29.9	30.0	38.2	21.8	23.2	47.8	30.5	28.3
Incr Delay (d2), s/veh	3.7	0.3	2.8	4.5	0.2	0.5	3.0	0.5	2.1	1.1	0.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	1.6	3.5	6.6	3.2	3.5	8.2	10.4	11.7	0.3	3.9	0.9
LnGrp Delay(d),s/veh	51.0	38.9	43.2	45.2	30.2	30.4	41.2	22.3	25.3	48.9	30.8	28.4
LnGrp LOS	D	D	D	D	C	C	D	C	C	D	C	C
Approach Vol, veh/h		336			900			2045			401	
Approach Delay, s/veh		43.6			37.9			28.5			31.5	
Approach LOS		D			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.7	32.6	8.3	50.5	22.0	20.4	26.4	32.4
Change Period (Y+Rc), s	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9
Max Green Setting (Gmax), s	* 7.5	44.2	* 7	59.1	* 25	26.5	* 35	31.2
Max Q Clear Time (g_c+I1), s	4.4	9.0	2.6	28.3	15.3	9.7	18.7	9.9
Green Ext Time (p_c), s	0.1	5.5	0.0	16.3	1.5	4.5	2.5	13.1

Intersection Summary	
HCM 2010 Ctrl Delay	32.5
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	272.8
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1080	0	290	0	0	0	370	940	0	20	630	610
Future Vol, veh/h	1080	0	290	0	0	0	370	940	0	20	630	610
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
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	1137	0	305	0	0	0	389	989	0	21	663	642
Number of Lanes	1	1	1	0	0	0	1	2	0	0	2	1

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	3	3
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	3	3	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	3	0	3
HCM Control Delay	221.5	265.2	336.5
HCM LOS	F	F	F

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	100%	100%	0%	9%	0%	0%
Vol Thru, %	0%	100%	100%	0%	0%	0%	91%	100%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	370	470	470	540	540	290	230	420	610
LT Vol	370	0	0	540	540	0	20	0	0
Through Vol	0	470	470	0	0	0	210	420	0
RT Vol	0	0	0	0	0	290	0	0	610
Lane Flow Rate	389	495	495	568	568	305	242	442	642
Geometry Grp	8	8	8	7	7	7	8	8	8
Degree of Util (X)	1.372	1.675	1.435	1.503	1.503	0.706	0.833	1.516	2.076
Departure Headway (Hd)	10.651	10.136	8.331	11.731	11.731	10.507	6.577	6.532	5.808
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	343	361	440	313	313	348	552	557	629
Service Time	8.351	7.836	6.031	9.431	9.431	8.207	4.277	4.232	3.508
HCM Lane V/C Ratio	1.134	1.371	1.125	1.815	1.815	0.876	0.438	0.794	1.021
HCM Control Delay	213.6	339.9	231.2	271.6	271.6	34.9	34	259.3	503.7
HCM Lane LOS	F	F	F	F	F	D	D	F	F
HCM 95th-tile Q	23.2	36.1	31	26	26	5.1	8.6	42.9	88.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	870	20	250	0	0	0	0	440	370	360	560	0
Future Volume (veh/h)	870	20	250	0	0	0	0	440	370	360	560	0
Number	3	8	18				1	6	16	5	2	12
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	1900	1845	1845				0	1845	1845	1845	1845	0
Adj Flow Rate, veh/h	916	21	183				0	463	109	379	589	0
Adj No. of Lanes	0	1	1				0	1	1	2	1	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	889	20	811				0	493	418	379	755	0
Arrive On Green	0.52	0.52	0.52				0.00	0.27	0.27	0.11	0.41	0.00
Sat Flow, veh/h	1719	39	1568				0	1845	1566	3408	1845	0
Grp Volume(v), veh/h	937	0	183				0	463	109	379	589	0
Grp Sat Flow(s),veh/h/ln	1759	0	1568				0	1845	1566	1704	1845	0
Q Serve(g_s), s	61.8	0.0	7.6				0.0	29.4	6.6	13.3	33.1	0.0
Cycle Q Clear(g_c), s	61.8	0.0	7.6				0.0	29.4	6.6	13.3	33.1	0.0
Prop In Lane	0.98		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	909	0	811				0	493	418	379	755	0
V/C Ratio(X)	1.03	0.00	0.23				0.00	0.94	0.26	1.00	0.78	0.00
Avail Cap(c_a), veh/h	909	0	811				0	500	425	379	762	0
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	1.00	1.00	0.00
Uniform Delay (d), s/veh	28.9	0.0	15.8				0.0	42.9	34.5	53.1	30.6	0.0
Incr Delay (d2), s/veh	37.9	0.0	0.1				0.0	25.4	0.1	46.0	4.7	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	39.4	0.0	3.3				0.0	18.4	2.9	8.6	17.8	0.0
LnGrp Delay(d),s/veh	66.8	0.0	15.8				0.0	68.3	34.6	99.1	35.3	0.0
LnGrp LOS	F		B					E	C	F	D	
Approach Vol, veh/h		1120						572			968	
Approach Delay, s/veh		58.5						61.8			60.3	
Approach LOS		E						E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		53.5			17.0	36.5		66.0
Change Period (Y+Rc), s		4.6			3.7	4.6		4.2
Max Green Setting (Gmax), s		49.4			13.3	32.4		61.8
Max Q Clear Time (g_c+I1), s		35.1			15.3	31.4		63.8
Green Ext Time (p_c), s		4.1			0.0	0.6		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	59.9
HCM 2010 LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	330	40	20	30	50	190	30	230	30	100	190	420
Future Volume (veh/h)	330	40	20	30	50	190	30	230	30	100	190	420
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	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	359	43	6	33	54	73	33	250	24	109	207	131
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	433	391	55	191	77	104	65	658	63	140	518	314
Arrive On Green	0.25	0.25	0.25	0.11	0.11	0.11	0.04	0.20	0.20	0.08	0.25	0.25
Sat Flow, veh/h	1757	1585	221	1757	712	963	1757	3233	308	1757	2101	1272
Grp Volume(v), veh/h	359	0	49	33	0	127	33	135	139	109	171	167
Grp Sat Flow(s),veh/h/ln	1757	0	1806	1757	0	1675	1757	1752	1789	1757	1752	1620
Q Serve(g_s), s	9.6	0.0	1.0	0.8	0.0	3.6	0.9	3.3	3.4	3.0	4.1	4.3
Cycle Q Clear(g_c), s	9.6	0.0	1.0	0.8	0.0	3.6	0.9	3.3	3.4	3.0	4.1	4.3
Prop In Lane	1.00		0.12	1.00		0.57	1.00		0.17	1.00		0.79
Lane Grp Cap(c), veh/h	433	0	445	191	0	182	65	357	364	140	432	400
V/C Ratio(X)	0.83	0.00	0.11	0.17	0.00	0.70	0.51	0.38	0.38	0.78	0.40	0.42
Avail Cap(c_a), veh/h	1249	0	1284	783	0	747	226	732	747	480	985	911
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.8	0.0	14.5	20.2	0.0	21.4	23.5	17.1	17.1	22.5	15.7	15.8
Incr Delay (d2), s/veh	1.6	0.0	0.0	0.2	0.0	1.8	2.3	0.2	0.2	3.5	0.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	0.0	0.5	0.4	0.0	1.7	0.5	1.6	1.7	1.6	2.0	1.9
LnGrp Delay(d),s/veh	19.3	0.0	14.6	20.3	0.0	23.2	25.8	17.3	17.4	26.0	15.9	16.0
LnGrp LOS	B		B	C		C	C	B	B	C	B	B
Approach Vol, veh/h		408			160			307			447	
Approach Delay, s/veh		18.8			22.6			18.3			18.4	
Approach LOS		B			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.2	14.7		16.9	6.0	16.9		10.0
Change Period (Y+Rc), s	* 4.2	4.6		4.6	* 4.2	4.6		4.6
Max Green Setting (Gmax), s	* 4	20.8		35.4	* 6.4	28.0		22.2
Max Q Clear Time (g_c+I1), s	5.6	5.4		11.6	2.9	6.3		5.6
Green Ext Time (p_c), s	0.1	2.1		0.7	0.0	2.2		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	19.0
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	11

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	340	140	300	20	30	330
Future Vol, veh/h	340	140	300	20	30	330
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	358	147	316	21	32	347

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	337	0	-	0	1189	326
Stage 1	-	-	-	-	326	-
Stage 2	-	-	-	-	863	-
Critical Hdwy	4.14	-	-	-	6.44	6.24
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	2.236	-	-	-	3.536	3.336
Pot Cap-1 Maneuver	1211	-	-	-	206	711
Stage 1	-	-	-	-	727	-
Stage 2	-	-	-	-	410	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1211	-	-	-	140	711
Mov Cap-2 Maneuver	-	-	-	-	140	-
Stage 1	-	-	-	-	727	-
Stage 2	-	-	-	-	278	-

Approach	EB	WB	SB
HCM Control Delay, s	6.5	0	26.9
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1211	-	-	-	531
HCM Lane V/C Ratio	0.296	-	-	-	0.714
HCM Control Delay (s)	9.2	0	-	-	26.9
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	1.2	-	-	-	5.7

Intersection	
Int Delay, s/veh	401.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	360	360	600	330	120	1150
Future Vol, veh/h	360	360	600	330	120	1150
Conflicting Peds, #/hr	5	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	315	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	379	379	632	347	126	1211

Major/Minor	Minor1		Major1		Minor2	
Conflicting Flow All	1242	632	0	0	821	632
Stage 1	632	-	-	-	0	0
Stage 2	610	-	-	-	821	632
Critical Hdwy	7.13	6.23	-	-	7.13	6.53
Critical Hdwy Stg 1	6.13	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	6.13	5.53
Follow-up Hdwy	3.527	3.327	-	-	3.527	4.027
Pot Cap-1 Maneuver	~ 151	479	-	-	292	~ 396
Stage 1	467	-	-	-	-	-
Stage 2	-	-	-	-	367	~ 472
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	-	479	-	-	~ 61	~ 396
Mov Cap-2 Maneuver	-	-	-	-	~ 61	~ 396
Stage 1	467	-	-	-	-	-
Stage 2	-	-	-	-	~ 77	~ 472

Approach	WB	NB	SB
HCM Control Delay, s		0	$ 923.5
HCM LOS	-		F

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBLn1	SBLn2
Capacity (veh/h)	-	-	-	61	396
HCM Lane V/C Ratio	-	-	-	2.071	3.057
HCM Control Delay (s)	-	-	-	$ 641.1	$ 953
HCM Lane LOS	-	-	-	F	F
HCM 95th %tile Q(veh)	-	-	-	12.1	106.1

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

Intersection	
Int Delay, s/veh	1207.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	90	40	890	20	60	1320
Future Vol, veh/h	90	40	890	20	60	1320
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	95	42	937	21	63	1389

Major/Minor	Minor1		Minor2		Major2	
Conflicting Flow All	1995	0	1516	1389	0	0
Stage 1	0	-	1516	-	-	-
Stage 2	1995	-	0	-	-	-
Critical Hdwy	7.13	6.23	6.53	6.23	4.13	-
Critical Hdwy Stg 1	-	-	5.53	-	-	-
Critical Hdwy Stg 2	6.13	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	4.027	3.327	2.227	-
Pot Cap-1 Maneuver	~ 45	-	~ 119	174	-	-
Stage 1	-	-	~ 181	-	-	-
Stage 2	~ 78	-	-	-	-	-
Platoon blocked, %						-
Mov Cap-1 Maneuver	-	-	~ 119	174	-	-
Mov Cap-2 Maneuver	-	-	~ 119	-	-	-
Stage 1	-	-	~ 181	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s		$ 3211	
HCM LOS	-	F	

Minor Lane/Major Mvmt	NBLn1	WBLn1	SBL	SBT
Capacity (veh/h)	120	-	-	-
HCM Lane V/C Ratio	7.982	-	-	-
HCM Control Delay (s)	$ 3211	-	-	-
HCM Lane LOS	F	-	-	-
HCM 95th %tile Q(veh)	108.1	-	-	-

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)	30	90	160	210	170	110	180	520	180	60	300	50
Future Volume (veh/h)	30	90	160	210	170	110	180	520	180	60	300	50
Number	5	2	12	1	6	16	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		0.98	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	1845	1845	1845	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	33	98	29	228	185	38	196	565	168	65	326	43
Adj No. of Lanes	1	2	1	1	3	0	2	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	60	461	202	274	1070	210	671	867	257	92	531	69
Arrive On Green	0.03	0.13	0.13	0.16	0.25	0.25	0.20	0.33	0.33	0.05	0.17	0.17
Sat Flow, veh/h	1757	3505	1532	1757	4226	829	3408	2667	791	1757	3117	408
Grp Volume(v), veh/h	33	98	29	228	145	78	196	371	362	65	182	187
Grp Sat Flow(s),veh/h/ln	1757	1752	1532	1757	1679	1697	1704	1752	1705	1757	1752	1772
Q Serve(g_s), s	1.2	1.7	1.1	8.3	2.2	2.4	3.3	12.0	12.1	2.4	6.4	6.5
Cycle Q Clear(g_c), s	1.2	1.7	1.1	8.3	2.2	2.4	3.3	12.0	12.1	2.4	6.4	6.5
Prop In Lane	1.00		1.00	1.00		0.49	1.00		0.46	1.00		0.23
Lane Grp Cap(c), veh/h	60	461	202	274	850	430	671	570	554	92	299	302
V/C Ratio(X)	0.55	0.21	0.14	0.83	0.17	0.18	0.29	0.65	0.65	0.70	0.61	0.62
Avail Cap(c_a), veh/h	177	2272	993	419	2637	1333	671	1031	1003	132	819	828
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.5	25.7	25.5	27.1	19.3	19.4	22.7	19.2	19.2	30.9	25.5	25.5
Incr Delay (d2), s/veh	2.9	0.1	0.1	5.0	0.0	0.1	0.3	1.8	1.9	3.6	2.9	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.8	0.5	4.4	1.0	1.1	1.6	6.0	5.9	1.3	3.3	3.4
LnGrp Delay(d),s/veh	34.4	25.8	25.6	32.1	19.4	19.5	23.0	21.0	21.0	34.5	28.3	28.5
LnGrp LOS	C	C	C	C	B	B	C	C	C	C	C	C
Approach Vol, veh/h		160			451			929			434	
Approach Delay, s/veh		27.5			25.8			21.4			29.3	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.5	14.6	8.7	27.5	7.5	22.7	19.0	17.2
Change Period (Y+Rc), s	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9	5.9	* 5.9
Max Green Setting (Gmax), s	* 16	43.0	* 5	39.0	* 6.7	52.1	13.0	* 31
Max Q Clear Time (g_c+I1), s	10.3	3.7	4.4	14.1	3.2	4.4	5.3	8.5
Green Ext Time (p_c), s	0.2	1.2	0.0	7.3	0.0	1.2	3.8	2.7

Intersection Summary	
HCM 2010 Ctrl Delay	24.7
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	390	880	340	200	70	1090	680	270	30	460	180
Future Volume (veh/h)	130	390	880	340	200	70	1090	680	270	30	460	180
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	1845	1845	1845	1845	1845	1900	1845	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	137	411	787	210	418	62	1147	716	98	32	484	162
Adj No. of Lanes	1	1	2	1	2	0	2	2	1	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	506	531	1115	324	581	86	231	1072	479	49	688	229
Arrive On Green	0.29	0.29	0.29	0.18	0.18	0.18	0.07	0.31	0.31	0.03	0.27	0.27
Sat Flow, veh/h	1757	1845	3136	1757	3144	463	3408	3505	1565	1757	2585	860
Grp Volume(v), veh/h	137	411	787	210	244	236	1147	716	98	32	327	319
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	1845	1763	1704	1752	1565	1757	1752	1693
Q Serve(g_s), s	6.9	23.5	24.9	12.7	14.3	14.5	7.8	20.5	5.3	2.1	19.4	19.6
Cycle Q Clear(g_c), s	6.9	23.5	24.9	12.7	14.3	14.5	7.8	20.5	5.3	2.1	19.4	19.6
Prop In Lane	1.00		1.00	1.00		0.26	1.00		1.00	1.00		0.51
Lane Grp Cap(c), veh/h	506	531	1115	324	341	326	231	1072	479	49	466	450
V/C Ratio(X)	0.27	0.77	0.71	0.65	0.72	0.72	4.97	0.67	0.20	0.65	0.70	0.71
Avail Cap(c_a), veh/h	687	721	1438	565	593	567	231	1072	479	92	501	484
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.7	37.6	31.9	43.5	44.1	44.2	53.7	34.8	29.6	55.4	38.1	38.2
Incr Delay (d2), s/veh	0.3	3.7	1.1	3.1	4.0	4.3	1794.7	2.8	0.8	5.4	7.3	7.8
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	3.4	12.5	10.9	6.5	7.7	7.5	61.2	10.4	2.4	1.1	10.3	10.1
LnGrp Delay(d),s/veh	31.9	41.2	33.0	46.5	48.1	48.5	1848.4	37.7	30.3	60.8	45.5	46.0
LnGrp LOS	C	D	C	D	D	D	F	D	C	E	D	D
Approach Vol, veh/h		1335			690			1961			678	
Approach Delay, s/veh		35.4			47.7			1096.4			46.5	
Approach LOS		D			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	8.4	41.1		26.9	13.0	36.5		38.7
Change Period (Y+Rc), s	* 5.2	5.9		5.6	* 5.2	5.9		5.6
Max Green Setting (Gmax), s	* 6	34.7		37.0	* 7.8	32.9		45.0
Max Q Clear Time (g_c+I1), s	4.1	22.5		16.5	9.8	21.6		26.9
Green Ext Time (p_c), s	0.0	10.3		4.8	0.0	9.0		6.3

Intersection Summary	
HCM 2010 Ctrl Delay	484.9
HCM 2010 LOS	F

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	1040	0	650	140	1390	0	0	1140	540
Future Volume (veh/h)	0	0	0	1040	0	650	140	1390	0	0	1140	540
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		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				1845	1845	1845	1845	1845	0	0	1845	1900
Adj Flow Rate, veh/h				1289	0	416	147	1463	0	0	1200	497
Adj No. of Lanes				2	0	1	1	3	0	0	3	0
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				1514	0	676	104	2416	0	0	1312	542
Arrive On Green				0.43	0.00	0.43	0.06	0.48	0.00	0.00	0.37	0.37
Sat Flow, veh/h				3514	0	1568	1757	5202	0	0	3668	1445
Grp Volume(v), veh/h				1289	0	416	147	1463	0	0	1150	547
Grp Sat Flow(s),veh/h/ln				1757	0	1568	1757	1679	0	0	1679	1590
Q Serve(g_s), s				33.6	0.0	20.9	6.0	21.7	0.0	0.0	33.2	33.4
Cycle Q Clear(g_c), s				33.6	0.0	20.9	6.0	21.7	0.0	0.0	33.2	33.4
Prop In Lane				1.00		1.00	1.00		0.00	0.00		0.91
Lane Grp Cap(c), veh/h				1514	0	676	104	2416	0	0	1258	596
V/C Ratio(X)				0.85	0.00	0.62	1.42	0.61	0.00	0.00	0.91	0.92
Avail Cap(c_a), veh/h				2139	0	955	104	2418	0	0	1259	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	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				26.1	0.0	22.5	47.9	19.4	0.0	0.0	30.3	30.3
Incr Delay (d2), s/veh				2.5	0.0	0.9	236.1	0.7	0.0	0.0	10.4	19.3
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				16.8	0.0	9.2	9.7	10.2	0.0	0.0	17.2	17.8
LnGrp Delay(d),s/veh				28.5	0.0	23.4	284.1	20.1	0.0	0.0	40.7	49.6
LnGrp LOS				C		C	F	C			D	D
Approach Vol, veh/h					1705			1610			1697	
Approach Delay, s/veh					27.3			44.2			43.6	
Approach LOS					C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		54.0			10.7	43.3		47.9
Change Period (Y+Rc), s		5.1			* 4.7	5.1		4.0
Max Green Setting (Gmax), s		48.9			* 6	38.2		62.0
Max Q Clear Time (g_c+I1), s		23.7			8.0	35.4		35.6
Green Ext Time (p_c), s		23.7			0.0	2.8		8.3

Intersection Summary		
HCM 2010 Ctrl Delay		38.2
HCM 2010 LOS		D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	700	140	450	830	1110	1070
Future Volume (veh/h)	700	140	450	830	1110	1070
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	737	129	474	874	1168	803
Adj No. of Lanes	2	1	2	3	3	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	773	589	506	3502	2572	801
Arrive On Green	0.23	0.23	0.15	0.70	0.51	0.51
Sat Flow, veh/h	3408	1568	3408	5202	5202	1568
Grp Volume(v), veh/h	737	129	474	874	1168	803
Grp Sat Flow(s),veh/h/ln	1704	1568	1704	1679	1679	1568
Q Serve(g_s), s	27.7	7.3	17.9	8.3	19.2	66.4
Cycle Q Clear(g_c), s	27.7	7.3	17.9	8.3	19.2	66.4
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	773	589	506	3502	2572	801
V/C Ratio(X)	0.95	0.22	0.94	0.25	0.45	1.00
Avail Cap(c_a), veh/h	773	589	506	3502	2572	801
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.6	27.6	54.7	7.3	20.3	31.8
Incr Delay (d2), s/veh	21.4	0.1	24.9	0.0	0.0	32.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.3	7.5	10.2	3.8	8.9	35.7
LnGrp Delay(d),s/veh	71.0	27.7	79.6	7.3	20.3	64.3
LnGrp LOS	E	C	E	A	C	F
Approach Vol, veh/h	866			1348	1971	
Approach Delay, s/veh	64.5			32.7	38.2	
Approach LOS	E			C	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		95.8		34.2	24.0	71.8		
Change Period (Y+Rc), s		5.4		* 4.7	* 4.7	5.4		
Max Green Setting (Gmax), s		90.4		* 30	* 19	66.4		
Max Q Clear Time (g_c+I1), s		10.3		29.7	19.9	68.4		
Green Ext Time (p_c), s		19.2		0.0	0.0	0.0		

Intersection Summary	
HCM 2010 Ctrl Delay	41.9
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	0	500	0	350	30	50	40	0	0	90	140
Future Volume (veh/h)	80	0	500	0	350	30	50	40	0	0	90	140
Number	1	6	16	5	2	12	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		0.96
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	0	1845	1900	1845	1845	0	0	1845	1900
Adj Flow Rate, veh/h	87	0	341	0	380	30	54	43	0	0	98	24
Adj No. of Lanes	2	1	2	0	1	0	2	1	0	0	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, %	3	3	3	0	3	3	3	3	0	0	3	3
Cap, veh/h	260	907	1551	0	514	41	285	150	0	0	263	62
Arrive On Green	0.08	0.00	0.49	0.00	0.30	0.30	0.08	0.08	0.00	0.00	0.09	0.09
Sat Flow, veh/h	3408	1845	2698	0	1688	133	3514	1845	0	0	2886	658
Grp Volume(v), veh/h	87	0	341	0	0	410	54	43	0	0	60	62
Grp Sat Flow(s),veh/h/ln	1704	1845	1349	0	0	1821	1757	1845	0	0	1752	1699
Q Serve(g_s), s	1.0	0.0	2.6	0.0	0.0	8.4	0.6	0.9	0.0	0.0	1.3	1.4
Cycle Q Clear(g_c), s	1.0	0.0	2.6	0.0	0.0	8.4	0.6	0.9	0.0	0.0	1.3	1.4
Prop In Lane	1.00		1.00	0.00		0.07	1.00		0.00	0.00		0.39
Lane Grp Cap(c), veh/h	260	907	1551	0	0	555	285	150	0	0	165	160
V/C Ratio(X)	0.33	0.00	0.22	0.00	0.00	0.74	0.19	0.29	0.00	0.00	0.36	0.39
Avail Cap(c_a), veh/h	2056	2804	4324	0	0	1468	1543	810	0	0	1057	1025
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	18.1	0.0	4.3	0.0	0.0	12.9	17.8	17.9	0.0	0.0	17.6	17.7
Incr Delay (d2), s/veh	0.7	0.0	0.1	0.0	0.0	2.0	0.3	1.0	0.0	0.0	1.3	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	1.2	0.0	0.0	4.5	0.3	0.5	0.0	0.0	0.7	0.7
LnGrp Delay(d),s/veh	18.9	0.0	4.4	0.0	0.0	14.9	18.1	19.0	0.0	0.0	19.0	19.2
LnGrp LOS	B		A			B	B	B			B	B
Approach Vol, veh/h		428			410			97			122	
Approach Delay, s/veh		7.3			14.9			18.5			19.1	
Approach LOS		A			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	7.8	17.2		8.5		25.0		8.0
Change Period (Y+Rc), s	4.6	4.6		4.6		4.6		4.6
Max Green Setting (Gmax), s	25.0	33.4		25.0		63.0		18.2
Max Q Clear Time (g_c+I1), s	3.0	10.4		3.4		4.6		2.9
Green Ext Time (p_c), s	1.6	2.4		0.6		1.7		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	12.6
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	840	0	0	410	20	0	0	0	540	0	50
Future Volume (veh/h)	70	840	0	0	410	20	0	0	0	540	0	50
Number	3	8	18	7	4	14				5	2	12
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	1845	1845	0	1845	1845	1900				1845	0	1845
Adj Flow Rate, veh/h	76	913	0	0	446	18				587	0	24
Adj No. of Lanes	2	2	0	1	2	0				1	0	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, %	3	3	0	3	3	3				3	0	3
Cap, veh/h	214	1588	0	3	1073	43				675	0	603
Arrive On Green	0.06	0.45	0.00	0.00	0.31	0.31				0.38	0.00	0.38
Sat Flow, veh/h	3408	3597	0	1757	3434	138				1757	0	1568
Grp Volume(v), veh/h	76	913	0	0	227	237				587	0	24
Grp Sat Flow(s),veh/h/ln	1704	1752	0	1757	1752	1820				1757	0	1568
Q Serve(g_s), s	1.2	10.4	0.0	0.0	5.5	5.6				16.7	0.0	0.5
Cycle Q Clear(g_c), s	1.2	10.4	0.0	0.0	5.5	5.6				16.7	0.0	0.5
Prop In Lane	1.00		0.00	1.00		0.08				1.00		1.00
Lane Grp Cap(c), veh/h	214	1588	0	3	548	569				675	0	603
V/C Ratio(X)	0.35	0.58	0.00	0.00	0.41	0.42				0.87	0.00	0.04
Avail Cap(c_a), veh/h	340	1969	0	162	971	1009				1350	0	1205
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	1.00	0.00	0.00	1.00	1.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	24.3	11.0	0.0	0.0	14.7	14.7				15.4	0.0	10.4
Incr Delay (d2), s/veh	1.0	0.3	0.0	0.0	0.5	0.5				3.6	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	0.6	5.0	0.0	0.0	2.7	2.8				8.7	0.0	0.2
LnGrp Delay(d),s/veh	25.3	11.3	0.0	0.0	15.2	15.2				19.0	0.0	10.4
LnGrp LOS	C	B			B	B				B		B
Approach Vol, veh/h		989			464						611	
Approach Delay, s/veh		12.4			15.2						18.7	
Approach LOS		B			B						B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4			7	8
Phs Duration (G+Y+Rc), s		25.0	7.6	21.5			0.0	29.1
Change Period (Y+Rc), s		* 4.2	* 4.2	4.6			* 4.2	4.6
Max Green Setting (Gmax), s		* 42	* 5.4	30.0			* 5	30.4
Max Q Clear Time (g_c+I1), s		18.7	3.2	7.6			0.0	12.4
Green Ext Time (p_c), s		2.1	0.0	9.3			0.0	8.4

Intersection Summary	
HCM 2010 Ctrl Delay	14.9
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

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	20	880	0	30	410	20	0	0	0	30	0	30
Future Vol, veh/h	20	880	0	30	410	20	0	0	0	30	0	30
Conflicting Peds, #/hr	2	0	0	0	0	2	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	-	-	130	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	22	957	0	33	446	22	0	0	0	33	0	33

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	469	0	0	957	0	0	1288	1535	478	1046	1524	236
Stage 1	-	-	-	-	-	-	1000	1000	-	524	524	-
Stage 2	-	-	-	-	-	-	288	535	-	522	1000	-
Critical Hdwy	4.16	-	-	4.16	-	-	7.56	6.56	6.96	7.56	6.56	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Follow-up Hdwy	2.23	-	-	2.23	-	-	3.53	4.03	3.33	3.53	4.03	3.33
Pot Cap-1 Maneuver	1082	-	-	708	-	-	120	114	531	181	116	763
Stage 1	-	-	-	-	-	-	259	317	-	502	526	-
Stage 2	-	-	-	-	-	-	693	520	-	503	317	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1082	-	-	708	-	-	109	106	531	172	108	762
Mov Cap-2 Maneuver	-	-	-	-	-	-	109	106	-	172	108	-
Stage 1	-	-	-	-	-	-	254	311	-	491	501	-
Stage 2	-	-	-	-	-	-	632	495	-	493	311	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.7	0	21.6
HCM LOS			A	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1082	-	-	708	-	-	281
HCM Lane V/C Ratio	-	0.02	-	-	0.046	-	-	0.232
HCM Control Delay (s)	0	8.4	-	-	10.3	-	-	21.6
HCM Lane LOS	A	A	-	-	B	-	-	C
HCM 95th %tile Q(veh)	-	0.1	-	-	0.1	-	-	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	70	170	180	80	70	80	750	170	40	570	80
Future Volume (veh/h)	80	70	170	180	80	70	80	750	170	40	570	80
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		0.99
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	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	87	76	107	196	87	21	87	815	158	43	620	73
Adj No. of Lanes	1	1	0	1	2	0	1	3	0	1	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	113	108	152	247	653	153	113	1718	331	72	1745	203
Arrive On Green	0.06	0.16	0.16	0.14	0.23	0.23	0.06	0.41	0.41	0.04	0.38	0.38
Sat Flow, veh/h	1757	694	978	1757	2821	660	1757	4238	816	1757	4568	532
Grp Volume(v), veh/h	87	0	183	196	53	55	87	644	329	43	454	239
Grp Sat Flow(s),veh/h/ln	1757	0	1672	1757	1752	1728	1757	1679	1697	1757	1679	1743
Q Serve(g_s), s	3.3	0.0	7.0	7.3	1.6	1.7	3.3	9.6	9.7	1.6	6.6	6.7
Cycle Q Clear(g_c), s	3.3	0.0	7.0	7.3	1.6	1.7	3.3	9.6	9.7	1.6	6.6	6.7
Prop In Lane	1.00		0.58	1.00		0.38	1.00		0.48	1.00		0.31
Lane Grp Cap(c), veh/h	113	0	259	247	406	400	113	1361	688	72	1282	666
V/C Ratio(X)	0.77	0.00	0.71	0.79	0.13	0.14	0.77	0.47	0.48	0.60	0.35	0.36
Avail Cap(c_a), veh/h	357	0	1121	673	1490	1470	357	2073	1048	236	1841	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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.3	0.0	27.2	28.2	20.7	20.7	31.3	14.9	14.9	32.0	15.0	15.0
Incr Delay (d2), s/veh	10.5	0.0	3.5	5.7	0.1	0.2	10.5	0.3	0.6	2.9	0.2	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	3.5	3.9	0.8	0.8	1.9	4.4	4.6	0.8	3.1	3.3
LnGrp Delay(d),s/veh	41.8	0.0	30.7	33.8	20.8	20.8	41.8	15.2	15.5	34.9	15.2	15.4
LnGrp LOS	D		C	C	C	C	D	B	B	C	B	B
Approach Vol, veh/h		270			304			1060			736	
Approach Delay, s/veh		34.3			29.2			17.5			16.4	
Approach LOS		C			C			B			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	7.0	32.1	13.8	15.0	8.6	30.5	8.6	20.2
Change Period (Y+Rc), s	* 4.2	4.6	* 4.2	4.5	* 4.2	4.6	* 4.2	4.5
Max Green Setting (Gmax), s	* 9.1	41.9	* 26	45.5	* 14	37.2	* 14	57.7
Max Q Clear Time (g_c+I1), s	3.6	11.7	9.3	9.0	5.3	8.7	5.3	3.7
Green Ext Time (p_c), s	0.0	15.5	0.5	1.8	0.1	15.1	0.1	1.9

Intersection Summary	
HCM 2010 Ctrl Delay	20.6
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	150	680	550	560	210	30	390	820	550	40	670	210
Future Volume (veh/h)	150	680	550	560	210	30	390	820	550	40	670	210
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		0.99	1.00		1.00	1.00		1.00	1.00		0.98
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	1900	1845	1845	1900	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	158	716	475	589	221	18	411	863	484	42	705	53
Adj No. of Lanes	2	3	0	2	3	0	2	2	1	2	2	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	208	943	434	632	1926	154	460	1166	521	138	835	367
Arrive On Green	0.06	0.28	0.28	0.19	0.41	0.41	0.13	0.33	0.33	0.04	0.24	0.24
Sat Flow, veh/h	3408	3357	1545	3408	4754	380	3408	3505	1565	3408	3505	1542
Grp Volume(v), veh/h	158	716	475	589	155	84	411	863	484	42	705	53
Grp Sat Flow(s),veh/h/ln	1704	1679	1545	1704	1679	1777	1704	1752	1565	1704	1752	1542
Q Serve(g_s), s	6.3	26.9	38.8	23.5	4.0	4.1	16.4	30.1	41.3	1.7	26.5	3.7
Cycle Q Clear(g_c), s	6.3	26.9	38.8	23.5	4.0	4.1	16.4	30.1	41.3	1.7	26.5	3.7
Prop In Lane	1.00		1.00	1.00		0.21	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	208	943	434	632	1360	720	460	1166	521	138	835	367
V/C Ratio(X)	0.76	0.76	1.10	0.93	0.11	0.12	0.89	0.74	0.93	0.30	0.84	0.14
Avail Cap(c_a), veh/h	274	943	434	636	1360	720	483	1172	523	173	852	375
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	63.9	45.4	49.7	55.4	25.6	25.7	58.8	40.8	44.5	64.4	50.2	41.5
Incr Delay (d2), s/veh	9.4	3.8	71.4	20.8	0.0	0.1	18.5	2.6	23.4	1.5	7.8	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	3.3	13.0	25.1	12.9	1.9	2.0	8.9	15.0	21.2	0.8	13.7	1.6
LnGrp Delay(d),s/veh	73.3	49.2	121.1	76.2	25.7	25.7	77.3	43.5	67.9	65.9	58.0	41.7
LnGrp LOS	E	D	F	E	C	C	E	D	E	E	E	D
Approach Vol, veh/h		1349			828			1758			800	
Approach Delay, s/veh		77.3			61.6			58.1			57.3	
Approach LOS		E			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	13.6	61.9	10.8	51.9	30.8	44.7	23.8	38.8
Change Period (Y+Rc), s	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9
Max Green Setting (Gmax), s	* 11	53.5	* 7	46.2	* 26	38.8	* 20	33.6
Max Q Clear Time (g_c+I1), s	8.3	6.1	3.7	43.3	25.5	40.8	18.4	28.5
Green Ext Time (p_c), s	0.1	16.1	0.0	2.6	0.1	0.0	0.2	4.4

Intersection Summary	
HCM 2010 Ctrl Delay	64.1
HCM 2010 LOS	E

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	333.3
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	740	0	320	0	0	0	150	1020	0	0	870	910
Future Vol, veh/h	740	0	320	0	0	0	150	1020	0	0	870	910
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
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	779	0	337	0	0	0	158	1074	0	0	916	958
Number of Lanes	1	1	1	0	0	0	1	2	0	0	2	1

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	3	3
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	3	3	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	3	0	3
HCM Control Delay	53.2	307.3	517.2
HCM LOS	F	F	F

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	100%	100%	0%	0%	0%	0%
Vol Thru, %	0%	100%	100%	0%	0%	0%	100%	100%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	150	510	510	370	370	320	435	435	910
LT Vol	150	0	0	370	370	0	0	0	0
Through Vol	0	510	510	0	0	0	435	435	0
RT Vol	0	0	0	0	0	320	0	0	910
Lane Flow Rate	158	537	537	389	389	337	458	458	958
Geometry Grp	8	8	8	7	7	7	8	8	8
Degree of Util (X)	0.563	1.84	1.579	1.027	1.027	0.776	1.534	1.534	2.558
Departure Headway (Hd)	9.637	9.115	7.287	5.856	5.856	4.628	13.77	13.77	11.244
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	376	403	505	619	619	781	270	270	335
Service Time	7.337	6.815	4.987	3.556	3.556	2.328	11.47	11.47	8.944
HCM Lane V/C Ratio	0.42	1.333	1.063	0.628	0.628	0.431	1.696	1.696	2.86
HCM Control Delay	24.1	408.8	289.1	67	67	21.4	291.4	291.4	733
HCM Lane LOS	C	F	F	F	F	C	F	F	F
HCM 95th-tile Q	3.3	47.2	42.6	16.5	16.5	7.7	23.8	23.8	66.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	690	20	460	0	0	0	0	480	570	660	530	0
Future Volume (veh/h)	690	20	460	0	0	0	0	480	570	660	530	0
Number	3	8	18				1	6	16	5	2	12
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	1900	1845	1845				0	1845	1845	1845	1845	0
Adj Flow Rate, veh/h	726	21	330				0	505	208	695	558	0
Adj No. of Lanes	0	1	1				0	1	1	2	1	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	710	21	651				0	513	435	690	944	0
Arrive On Green	0.41	0.41	0.41				0.00	0.28	0.28	0.20	0.51	0.00
Sat Flow, veh/h	1710	49	1568				0	1845	1565	3408	1845	0
Grp Volume(v), veh/h	747	0	330				0	505	208	695	558	0
Grp Sat Flow(s),veh/h/ln	1759	0	1568				0	1845	1565	1704	1845	0
Q Serve(g_s), s	49.8	0.0	18.7				0.0	32.6	13.3	24.3	25.4	0.0
Cycle Q Clear(g_c), s	49.8	0.0	18.7				0.0	32.6	13.3	24.3	25.4	0.0
Prop In Lane	0.97		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	730	0	651				0	513	435	690	944	0
V/C Ratio(X)	1.02	0.00	0.51				0.00	0.98	0.48	1.01	0.59	0.00
Avail Cap(c_a), veh/h	730	0	651				0	513	435	690	944	0
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	1.00	1.00	0.00
Uniform Delay (d), s/veh	35.1	0.0	26.0				0.0	43.0	36.0	47.8	20.5	0.0
Incr Delay (d2), s/veh	39.3	0.0	0.3				0.0	35.3	0.3	36.0	0.7	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	32.1	0.0	8.1				0.0	21.6	5.8	14.9	13.0	0.0
LnGrp Delay(d),s/veh	74.4	0.0	26.3				0.0	78.3	36.3	83.9	21.2	0.0
LnGrp LOS	F		C					E	D	F	C	
Approach Vol, veh/h		1077						713			1253	
Approach Delay, s/veh		59.7						66.1			56.0	
Approach LOS		E						E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		66.0			28.0	38.0		54.0
Change Period (Y+Rc), s		4.6			3.7	4.6		4.2
Max Green Setting (Gmax), s		61.4			24.3	33.4		49.8
Max Q Clear Time (g_c+I1), s		27.4			26.3	34.6		51.8
Green Ext Time (p_c), s		5.2			0.0	0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	59.6
HCM 2010 LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	550	50	30	50	40	150	20	250	50	180	440	270
Future Volume (veh/h)	550	50	30	50	40	150	20	250	50	180	440	270
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	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	579	53	12	53	42	34	21	263	38	189	463	201
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	637	528	120	120	65	52	43	505	72	233	650	280
Arrive On Green	0.36	0.36	0.36	0.07	0.07	0.07	0.02	0.16	0.16	0.13	0.27	0.27
Sat Flow, veh/h	1757	1456	330	1757	945	765	1757	3078	440	1757	2385	1028
Grp Volume(v), veh/h	579	0	65	53	0	76	21	148	153	189	339	325
Grp Sat Flow(s),veh/h/ln	1757	0	1786	1757	0	1710	1757	1752	1766	1757	1752	1661
Q Serve(g_s), s	20.7	0.0	1.6	1.9	0.0	2.9	0.8	5.1	5.2	6.9	11.5	11.7
Cycle Q Clear(g_c), s	20.7	0.0	1.6	1.9	0.0	2.9	0.8	5.1	5.2	6.9	11.5	11.7
Prop In Lane	1.00		0.18	1.00		0.45	1.00		0.25	1.00		0.62
Lane Grp Cap(c), veh/h	637	0	647	120	0	117	43	287	290	233	478	453
V/C Ratio(X)	0.91	0.00	0.10	0.44	0.00	0.65	0.49	0.52	0.53	0.81	0.71	0.72
Avail Cap(c_a), veh/h	1153	0	1172	282	0	274	133	588	593	420	874	829
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.0	0.0	13.9	29.6	0.0	30.0	31.9	25.2	25.3	27.9	21.7	21.8
Incr Delay (d2), s/veh	2.3	0.0	0.0	0.9	0.0	2.2	3.3	0.5	0.6	2.6	0.7	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	10.4	0.0	0.8	1.0	0.0	1.4	0.4	2.5	2.6	3.5	5.7	5.4
LnGrp Delay(d),s/veh	22.3	0.0	14.0	30.5	0.0	32.3	35.1	25.8	25.8	30.4	22.4	22.6
LnGrp LOS	C		B	C		C	D	C	C	C	C	C
Approach Vol, veh/h		644			129			322			853	
Approach Delay, s/veh		21.5			31.6			26.4			24.3	
Approach LOS		C			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	13.0	15.4		28.6	5.8	22.6		9.1
Change Period (Y+Rc), s	* 4.2	4.6		4.6	* 4.2	4.6		4.6
Max Green Setting (Gmax), s	* 16	22.2		43.4	* 5	33.0		10.6
Max Q Clear Time (g_c+I1), s	12.9	7.2		22.7	2.8	13.7		4.9
Green Ext Time (p_c), s	0.1	3.4		1.1	0.0	3.7		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	24.2
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	182.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	460	480	300	20	60	450
Future Vol, veh/h	460	480	300	20	60	450
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	484	505	316	21	63	474

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	337	0	-	0	1800	326
Stage 1	-	-	-	-	326	-
Stage 2	-	-	-	-	1474	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1217	-	-	-	87	713
Stage 1	-	-	-	-	729	-
Stage 2	-	-	-	-	209	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1217	-	-	-	~ 39	713
Mov Cap-2 Maneuver	-	-	-	-	~ 39	-
Stage 1	-	-	-	-	729	-
Stage 2	-	-	-	-	93	-

Approach	EB	WB	SB
HCM Control Delay, s	4.8	0	$ 624.4
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1217	-	-	-	235
HCM Lane V/C Ratio	0.398	-	-	-	2.284
HCM Control Delay (s)	9.9	0	-	-	$ 624.4
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	1.9	-	-	-	42.5

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

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	290	520	770	520	400	780
Future Vol, veh/h	290	520	770	520	400	780
Conflicting Peds, #/hr	2	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	315	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	305	547	811	547	421	821

Major/Minor	Minor1		Major1		Minor2	
Conflicting Flow All	1224	811	0	0	1084	811
Stage 1	811	-	-	-	0	0
Stage 2	413	-	-	-	1084	811
Critical Hdwy	7.13	6.23	-	-	7.13	6.53
Critical Hdwy Stg 1	6.13	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	6.13	5.53
Follow-up Hdwy	3.527	3.327	-	-	3.527	4.027
Pot Cap-1 Maneuver	~ 155	~ 378	-	-	~ 194	~ 312
Stage 1	372	-	-	-	-	-
Stage 2	-	-	-	-	~ 262	~ 391
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	-	~ 378	-	-	-	~ 312
Mov Cap-2 Maneuver	-	-	-	-	-	~ 312
Stage 1	372	-	-	-	-	-
Stage 2	-	-	-	-	-	~ 391

Approach	WB	NB	SB
HCM Control Delay, s		0	
HCM LOS	-		-

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBLn1	SBLn2
Capacity (veh/h)	-	-	-	-	312
HCM Lane V/C Ratio	-	-	-	-	2.632
HCM Control Delay (s)	-	-	-	-	$ 768.9
HCM Lane LOS	-	-	-	-	F
HCM 95th %tile Q(veh)	-	-	-	-	68.2

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

Intersection	
Int Delay, s/veh	684.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	370	920	20	40	970
Future Vol, veh/h	20	370	920	20	40	970
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	21	389	968	21	42	1021

Major/Minor	Minor1		Minor2		Major2	
Conflicting Flow All	1600	0	1105	1021	0	0
Stage 1	0	-	1105	-	-	-
Stage 2	1600	-	0	-	-	-
Critical Hdwy	7.13	6.23	6.53	6.23	4.13	-
Critical Hdwy Stg 1	-	-	5.53	-	-	-
Critical Hdwy Stg 2	6.13	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	4.027	3.327	2.227	-
Pot Cap-1 Maneuver	85	-	~ 210	286	-	-
Stage 1	-	-	~ 285	-	-	-
Stage 2	133	-	-	-	-	-
Platoon blocked, %						-
Mov Cap-1 Maneuver	-	-	~ 210	286	-	-
Mov Cap-2 Maneuver	-	-	~ 210	-	-	-
Stage 1	-	-	~ 285	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s		$ 1703.7	
HCM LOS	-	F	

Minor Lane/Major Mvmt	NBLn1	WBLn1	SBL	SBT
Capacity (veh/h)	211	-	-	-
HCM Lane V/C Ratio	4.689	-	-	-
HCM Control Delay (s)	$ 1703.7	-	-	-
HCM Lane LOS	F	-	-	-
HCM 95th %tile Q(veh)	101	-	-	-

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)	40	270	420	190	240	70	120	310	160	110	580	120
Future Volume (veh/h)	40	270	420	190	240	70	120	310	160	110	580	120
Number	5	2	12	1	6	16	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		0.99	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	1845	1845	1845	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	43	293	241	207	261	27	130	337	117	120	630	115
Adj No. of Lanes	1	2	1	1	3	0	2	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	66	795	352	244	1524	154	262	787	269	106	836	152
Arrive On Green	0.04	0.23	0.23	0.14	0.33	0.33	0.08	0.31	0.31	0.06	0.28	0.28
Sat Flow, veh/h	1757	3505	1551	1757	4648	471	3408	2563	875	1757	2962	540
Grp Volume(v), veh/h	43	293	241	207	187	101	130	229	225	120	372	373
Grp Sat Flow(s),veh/h/ln	1757	1752	1551	1757	1679	1762	1704	1752	1685	1757	1752	1749
Q Serve(g_s), s	2.0	5.9	11.8	9.6	3.3	3.4	3.0	8.6	8.9	5.0	16.1	16.2
Cycle Q Clear(g_c), s	2.0	5.9	11.8	9.6	3.3	3.4	3.0	8.6	8.9	5.0	16.1	16.2
Prop In Lane	1.00		1.00	1.00		0.27	1.00		0.52	1.00		0.31
Lane Grp Cap(c), veh/h	66	795	352	244	1101	578	262	538	518	106	494	494
V/C Ratio(X)	0.65	0.37	0.68	0.85	0.17	0.17	0.50	0.42	0.44	1.14	0.75	0.76
Avail Cap(c_a), veh/h	190	1854	820	313	2010	1054	406	821	790	106	718	717
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.5	27.1	29.4	35.0	19.9	19.9	36.9	23.0	23.0	39.1	27.2	27.2
Incr Delay (d2), s/veh	3.9	0.1	0.9	13.1	0.0	0.1	1.8	0.8	0.8	129.0	3.6	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	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	2.9	5.1	5.5	1.5	1.7	1.5	4.3	4.3	6.2	8.2	8.3
LnGrp Delay(d),s/veh	43.4	27.2	30.3	48.1	19.9	20.0	38.6	23.7	23.9	168.1	30.8	30.9
LnGrp LOS	D	C	C	D	B	B	D	C	C	F	C	C
Approach Vol, veh/h		577			495			584			865	
Approach Delay, s/veh		29.7			31.7			27.1			49.9	
Approach LOS		C			C			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.8	24.8	10.2	31.5	8.3	33.2	12.3	29.4
Change Period (Y+Rc), s	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9	5.9	* 5.9
Max Green Setting (Gmax), s	* 15	44.0	* 5	39.0	* 9	49.8	9.9	* 34
Max Q Clear Time (g_c+I1), s	11.6	13.8	7.0	10.9	4.0	5.4	5.0	18.2
Green Ext Time (p_c), s	0.1	2.7	0.0	4.3	0.0	2.7	1.7	5.3

Intersection Summary	
HCM 2010 Ctrl Delay	36.4
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	90	370	160	80	60	620	480	480	60	1060	70
Future Volume (veh/h)	50	90	370	160	80	60	620	480	480	60	1060	70
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	1845	1845	1845	1845	1845	1900	1845	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	53	95	65	184	61	27	653	505	185	63	1116	72
Adj No. of Lanes	1	1	2	2	1	0	2	2	1	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	213	224	641	429	148	66	283	1534	684	82	1340	86
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.08	0.44	0.44	0.05	0.40	0.40
Sat Flow, veh/h	1757	1845	3136	3514	1213	537	3408	3505	1563	1757	3343	216
Grp Volume(v), veh/h	53	95	65	184	0	88	653	505	185	63	585	603
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	0	1750	1704	1752	1563	1757	1752	1807
Q Serve(g_s), s	2.2	3.9	1.4	4.0	0.0	3.8	6.8	7.7	6.2	2.9	24.5	24.6
Cycle Q Clear(g_c), s	2.2	3.9	1.4	4.0	0.0	3.8	6.8	7.7	6.2	2.9	24.5	24.6
Prop In Lane	1.00		1.00	1.00		0.31	1.00		1.00	1.00		0.12
Lane Grp Cap(c), veh/h	213	224	641	429	0	213	283	1534	684	82	703	724
V/C Ratio(X)	0.25	0.42	0.10	0.43	0.00	0.41	2.30	0.33	0.27	0.77	0.83	0.83
Avail Cap(c_a), veh/h	967	1015	1986	1589	0	792	283	1534	684	135	726	749
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.6	33.3	26.4	33.3	0.0	33.2	37.5	15.1	14.7	38.6	22.0	22.0
Incr Delay (d2), s/veh	0.6	1.3	0.1	1.0	0.0	1.8	598.1	0.5	0.8	5.6	10.3	10.0
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	1.1	2.1	0.6	2.0	0.0	1.9	26.7	3.8	2.8	1.5	13.9	14.3
LnGrp Delay(d),s/veh	33.2	34.6	26.5	34.2	0.0	35.0	635.6	15.6	15.4	44.2	32.3	32.1
LnGrp LOS	C	C	C	C		D	F	B	B	D	C	C
Approach Vol, veh/h		213			272			1343			1251	
Approach Delay, s/veh		31.8			34.5			317.0			32.8	
Approach LOS		C			C			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.0	41.7		15.6	12.0	38.7		15.5
Change Period (Y+Rc), s	* 5.2	5.9		5.6	* 5.2	5.9		5.6
Max Green Setting (Gmax), s	* 6.3	34.4		37.0	* 6.8	33.9		45.0
Max Q Clear Time (g_c+I1), s	4.9	9.7		6.0	8.8	26.6		5.9
Green Ext Time (p_c), s	0.0	21.8		1.7	0.0	6.2		0.9

Intersection Summary	
HCM 2010 Ctrl Delay	156.8
HCM 2010 LOS	F

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	960	0	730	140	850	0	0	1040	550
Future Volume (veh/h)	0	0	0	960	0	730	140	850	0	0	1040	550
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		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				1845	1845	1845	1845	1845	0	0	1845	1900
Adj Flow Rate, veh/h				1229	0	467	147	895	0	0	1095	499
Adj No. of Lanes				2	0	1	1	3	0	0	3	0
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				1449	0	647	175	2517	0	0	1202	547
Arrive On Green				0.41	0.00	0.41	0.10	0.50	0.00	0.00	0.35	0.37
Sat Flow, veh/h				3514	0	1568	1757	5202	0	0	3554	1542
Grp Volume(v), veh/h				1229	0	467	147	895	0	0	1085	509
Grp Sat Flow(s),veh/h/ln				1757	0	1568	1757	1679	0	0	1679	1573
Q Serve(g_s), s				32.7	0.0	25.8	8.5	11.2	0.0	0.0	31.9	31.9
Cycle Q Clear(g_c), s				32.7	0.0	25.8	8.5	11.2	0.0	0.0	31.9	31.9
Prop In Lane				1.00		1.00	1.00		0.00	0.00		0.98
Lane Grp Cap(c), veh/h				1449	0	647	175	2517	0	0	1192	558
V/C Ratio(X)				0.85	0.00	0.72	0.84	0.36	0.00	0.00	0.91	0.91
Avail Cap(c_a), veh/h				2001	0	893	175	2523	0	0	1196	560
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	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				27.5	0.0	25.5	45.8	15.8	0.0	0.0	31.8	31.3
Incr Delay (d2), s/veh				2.6	0.0	1.8	28.2	0.2	0.0	0.0	10.4	19.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				16.4	0.0	11.5	5.5	5.2	0.0	0.0	16.5	16.8
LnGrp Delay(d),s/veh				30.1	0.0	27.3	74.0	15.9	0.0	0.0	42.3	50.6
LnGrp LOS				C		C	E	B			D	D
Approach Vol, veh/h					1696			1042			1594	
Approach Delay, s/veh					29.3			24.1			44.9	
Approach LOS					C			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		56.9			15.0	41.9		46.7
Change Period (Y+Rc), s		5.1			* 4.7	5.1		4.0
Max Green Setting (Gmax), s		51.9			* 10	36.9		59.0
Max Q Clear Time (g_c+I1), s		13.2			10.5	33.9		34.7
Green Ext Time (p_c), s		29.6			0.0	2.9		8.0

Intersection Summary		
HCM 2010 Ctrl Delay		33.8
HCM 2010 LOS		C

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	360	110	310	630	1210	790
Future Volume (veh/h)	360	110	310	630	1210	790
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	391	107	337	685	1315	538
Adj No. of Lanes	2	1	2	3	3	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	519	447	453	3508	2485	774
Arrive On Green	0.15	0.15	0.13	0.70	0.49	0.49
Sat Flow, veh/h	3408	1568	3408	5202	5202	1568
Grp Volume(v), veh/h	391	107	337	685	1315	538
Grp Sat Flow(s),veh/h/ln	1704	1568	1704	1679	1679	1568
Q Serve(g_s), s	7.3	3.5	6.4	3.2	12.0	17.7
Cycle Q Clear(g_c), s	7.3	3.5	6.4	3.2	12.0	17.7
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	519	447	453	3508	2485	774
V/C Ratio(X)	0.75	0.24	0.74	0.20	0.53	0.70
Avail Cap(c_a), veh/h	1086	708	1188	5920	3811	1187
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.1	18.3	27.9	3.6	11.6	13.1
Incr Delay (d2), s/veh	0.8	0.1	0.9	0.0	0.1	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	3.4	3.1	1.5	5.5	7.7
LnGrp Delay(d),s/veh	28.0	18.4	28.8	3.6	11.7	13.5
LnGrp LOS	C	B	C	A	B	B
Approach Vol, veh/h	498			1022	1853	
Approach Delay, s/veh	25.9			11.9	12.2	
Approach LOS	C			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		52.0		14.9	13.6	38.4		
Change Period (Y+Rc), s		5.4		* 4.7	* 4.7	5.4		
Max Green Setting (Gmax), s		78.6		* 21	* 23	50.6		
Max Q Clear Time (g_c+I1), s		5.2		9.3	8.4	19.7		
Green Ext Time (p_c), s		16.0		0.8	0.5	13.3		

Intersection Summary	
HCM 2010 Ctrl Delay	14.1
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	0	400	0	360	110	170	90	0	0	70	130
Future Volume (veh/h)	110	0	400	0	360	110	170	90	0	0	70	130
Number	1	6	16	5	2	12	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		1.00	1.00		1.00	1.00		0.99
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	0	1845	1900	1845	1845	0	0	1845	1900
Adj Flow Rate, veh/h	120	0	65	0	391	112	185	98	0	0	76	17
Adj No. of Lanes	2	1	2	0	1	0	2	1	0	0	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, %	3	3	3	0	3	3	3	3	0	0	3	3
Cap, veh/h	279	978	1760	0	490	140	378	199	0	0	235	51
Arrive On Green	0.08	0.00	0.53	0.00	0.36	0.36	0.11	0.11	0.00	0.00	0.08	0.08
Sat Flow, veh/h	3408	1845	2760	0	1380	395	3514	1845	0	0	2951	619
Grp Volume(v), veh/h	120	0	65	0	0	503	185	98	0	0	46	47
Grp Sat Flow(s),veh/h/ln	1704	1845	1380	0	0	1775	1757	1845	0	0	1752	1725
Q Serve(g_s), s	1.7	0.0	0.4	0.0	0.0	12.6	2.4	2.5	0.0	0.0	1.2	1.3
Cycle Q Clear(g_c), s	1.7	0.0	0.4	0.0	0.0	12.6	2.4	2.5	0.0	0.0	1.2	1.3
Prop In Lane	1.00		1.00	0.00		0.22	1.00		0.00	0.00		0.36
Lane Grp Cap(c), veh/h	279	978	1760	0	0	630	378	199	0	0	144	142
V/C Ratio(X)	0.43	0.00	0.04	0.00	0.00	0.80	0.49	0.49	0.00	0.00	0.32	0.33
Avail Cap(c_a), veh/h	1729	2366	3837	0	0	1210	1284	674	0	0	889	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	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	21.5	0.0	3.3	0.0	0.0	14.3	20.7	20.7	0.0	0.0	21.3	21.3
Incr Delay (d2), s/veh	1.0	0.0	0.0	0.0	0.0	2.4	1.0	1.9	0.0	0.0	1.3	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.2	0.0	0.0	6.4	1.2	1.4	0.0	0.0	0.6	0.7
LnGrp Delay(d),s/veh	22.6	0.0	3.3	0.0	0.0	16.7	21.7	22.6	0.0	0.0	22.6	22.7
LnGrp LOS	C		A			B	C	C			C	C
Approach Vol, veh/h		185			503			283			93	
Approach Delay, s/veh		15.8			16.7			22.0			22.6	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	8.6	22.1		8.6		30.7		9.9
Change Period (Y+Rc), s	4.6	4.6		4.6		4.6		4.6
Max Green Setting (Gmax), s	25.0	33.6		25.0		63.2		18.0
Max Q Clear Time (g_c+I1), s	3.7	14.6		3.3		2.4		4.5
Green Ext Time (p_c), s	0.6	2.9		0.4		0.7		0.9

Intersection Summary	
HCM 2010 Ctrl Delay	18.5
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	310	0	0	690	20	0	0	0	390	0	80
Future Volume (veh/h)	60	310	0	0	690	20	0	0	0	390	0	80
Number	3	8	18	7	4	14				5	2	12
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	1845	1845	0	1845	1845	1900				1845	0	1845
Adj Flow Rate, veh/h	65	337	0	0	750	19				424	0	32
Adj No. of Lanes	2	2	0	1	2	0				1	0	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, %	3	3	0	3	3	3				3	0	3
Cap, veh/h	208	1802	0	4	1268	32				522	0	466
Arrive On Green	0.06	0.51	0.00	0.00	0.36	0.36				0.30	0.00	0.30
Sat Flow, veh/h	3408	3597	0	1757	3493	88				1757	0	1568
Grp Volume(v), veh/h	65	337	0	0	376	393				424	0	32
Grp Sat Flow(s),veh/h/ln	1704	1752	0	1757	1752	1829				1757	0	1568
Q Serve(g_s), s	0.9	2.4	0.0	0.0	8.1	8.1				10.4	0.0	0.7
Cycle Q Clear(g_c), s	0.9	2.4	0.0	0.0	8.1	8.1				10.4	0.0	0.7
Prop In Lane	1.00		0.00	1.00		0.05				1.00		1.00
Lane Grp Cap(c), veh/h	208	1802	0	4	636	664				522	0	466
V/C Ratio(X)	0.31	0.19	0.00	0.00	0.59	0.59				0.81	0.00	0.07
Avail Cap(c_a), veh/h	424	2421	0	188	1180	1232				1500	0	1339
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	1.00	0.00	0.00	1.00	1.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	21.0	6.1	0.0	0.0	12.0	12.0				15.2	0.0	11.8
Incr Delay (d2), s/veh	0.8	0.0	0.0	0.0	0.9	0.8				3.1	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
%ile BackOfQ(50%),veh/ln	0.4	1.2	0.0	0.0	4.0	4.2				5.4	0.0	0.3
LnGrp Delay(d),s/veh	21.8	6.1	0.0	0.0	12.9	12.9				18.3	0.0	11.8
LnGrp LOS	C	A			B	B				B		B
Approach Vol, veh/h		402			769						456	
Approach Delay, s/veh		8.7			12.9						17.8	
Approach LOS		A			B						B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4			7	8
Phs Duration (G+Y+Rc), s		18.1	7.0	21.5			0.0	28.6
Change Period (Y+Rc), s		* 4.2	* 4.2	4.6			* 4.2	4.6
Max Green Setting (Gmax), s		* 40	* 5.8	31.4			* 5	32.2
Max Q Clear Time (g_c+I1), s		12.4	2.9	10.1			0.0	4.4
Green Ext Time (p_c), s		1.5	0.0	6.8			0.0	7.4

Intersection Summary	
HCM 2010 Ctrl Delay	13.2
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	350	0	20	730	20	0	0	0	20	0	0
Future Vol, veh/h	30	350	0	20	730	20	0	0	0	20	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	130	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	33	380	0	22	793	22	0	0	0	22	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	815	0	0	380	0	0	886	1305	190	1103	1294	408
Stage 1	-	-	-	-	-	-	446	446	-	848	848	-
Stage 2	-	-	-	-	-	-	440	859	-	255	446	-
Critical Hdwy	4.16	-	-	4.16	-	-	7.56	6.56	6.96	7.56	6.56	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Follow-up Hdwy	2.23	-	-	2.23	-	-	3.53	4.03	3.33	3.53	4.03	3.33
Pot Cap-1 Maneuver	802	-	-	1168	-	-	237	158	816	165	160	590
Stage 1	-	-	-	-	-	-	559	570	-	320	373	-
Stage 2	-	-	-	-	-	-	563	369	-	724	570	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	802	-	-	1168	-	-	226	149	816	158	151	590
Mov Cap-2 Maneuver	-	-	-	-	-	-	226	149	-	158	151	-
Stage 1	-	-	-	-	-	-	536	547	-	307	366	-
Stage 2	-	-	-	-	-	-	552	362	-	694	547	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	0.2	0	31.4
HCM LOS			A	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	802	-	-	1168	-	-	158
HCM Lane V/C Ratio	-	0.041	-	-	0.019	-	-	0.138
HCM Control Delay (s)	0	9.7	-	-	8.1	-	-	31.4
HCM Lane LOS	A	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	-	0.1	-	-	0.1	-	-	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	60	70	50	60	130	80	780	160	150	400	80
Future Volume (veh/h)	110	60	70	50	60	130	80	780	160	150	400	80
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	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	120	65	40	54	65	23	87	848	153	163	435	69
Adj No. of Lanes	1	1	0	1	2	0	1	3	0	1	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	157	117	72	88	182	61	113	1824	327	208	2103	326
Arrive On Green	0.09	0.11	0.11	0.05	0.07	0.07	0.06	0.42	0.42	0.12	0.48	0.48
Sat Flow, veh/h	1757	1062	653	1757	2573	867	1757	4294	770	1757	4397	682
Grp Volume(v), veh/h	120	0	105	54	43	45	87	662	339	163	330	174
Grp Sat Flow(s),veh/h/ln	1757	0	1715	1757	1752	1688	1757	1679	1707	1757	1679	1722
Q Serve(g_s), s	3.9	0.0	3.4	1.8	1.4	1.5	2.9	8.3	8.4	5.3	3.3	3.5
Cycle Q Clear(g_c), s	3.9	0.0	3.4	1.8	1.4	1.5	2.9	8.3	8.4	5.3	3.3	3.5
Prop In Lane	1.00		0.38	1.00		0.51	1.00		0.45	1.00		0.40
Lane Grp Cap(c), veh/h	157	0	189	88	124	119	113	1426	725	208	1606	824
V/C Ratio(X)	0.77	0.00	0.56	0.62	0.35	0.38	0.77	0.46	0.47	0.79	0.21	0.21
Avail Cap(c_a), veh/h	471	0	1413	367	1340	1290	522	2332	1186	621	2521	1293
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.2	0.0	24.8	27.4	26.1	26.1	27.1	12.1	12.2	25.2	8.9	8.9
Incr Delay (d2), s/veh	7.5	0.0	2.6	6.9	1.7	2.0	10.3	0.3	0.6	2.5	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	2.2	0.0	1.7	1.0	0.7	0.8	1.7	3.8	4.1	2.7	1.6	1.7
LnGrp Delay(d),s/veh	33.8	0.0	27.4	34.3	27.7	28.1	37.4	12.4	12.7	27.7	9.0	9.1
LnGrp LOS	C		C	C	C	C	D	B	B	C	A	A
Approach Vol, veh/h		225			142			1088			667	
Approach Delay, s/veh		30.8			30.3			14.5			13.6	
Approach LOS		C			C			B			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	11.2	29.6	7.1	11.0	8.0	32.8	9.5	8.7
Change Period (Y+Rc), s	* 4.2	4.6	* 4.2	4.5	* 4.2	4.6	* 4.2	4.5
Max Green Setting (Gmax), s	* 21	40.9	* 12	48.5	* 18	44.2	* 16	45.0
Max Q Clear Time (g_c+I1), s	7.3	10.4	3.8	5.4	4.9	5.5	5.9	3.5
Green Ext Time (p_c), s	0.2	13.9	0.1	1.2	0.1	15.3	0.2	1.2

Intersection Summary	
HCM 2010 Ctrl Delay	17.0
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	120	500	440	390	30	560	910	550	20	320	180
Future Volume (veh/h)	80	120	500	440	390	30	560	910	550	20	320	180
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		0.99	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	1845	1845	1900	1845	1845	1900	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	84	126	126	463	411	26	589	958	498	21	337	43
Adj No. of Lanes	2	3	0	2	3	0	2	2	1	2	2	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	153	480	221	565	1279	80	714	1545	691	105	919	411
Arrive On Green	0.04	0.14	0.14	0.17	0.26	0.26	0.21	0.44	0.44	0.03	0.26	0.26
Sat Flow, veh/h	3408	3357	1547	3408	4844	303	3408	3505	1568	3408	3505	1568
Grp Volume(v), veh/h	84	126	126	463	284	153	589	958	498	21	337	43
Grp Sat Flow(s),veh/h/ln	1704	1679	1547	1704	1679	1790	1704	1752	1568	1704	1752	1568
Q Serve(g_s), s	2.4	3.4	7.7	13.3	6.9	7.0	16.7	21.3	26.3	0.6	7.9	2.1
Cycle Q Clear(g_c), s	2.4	3.4	7.7	13.3	6.9	7.0	16.7	21.3	26.3	0.6	7.9	2.1
Prop In Lane	1.00		1.00	1.00		0.17	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	153	480	221	565	887	473	714	1545	691	105	919	411
V/C Ratio(X)	0.55	0.26	0.57	0.82	0.32	0.32	0.82	0.62	0.72	0.20	0.37	0.10
Avail Cap(c_a), veh/h	253	880	405	849	1467	782	1176	2048	916	236	1081	484
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	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	47.3	38.6	40.4	40.7	29.9	30.0	38.2	21.8	23.2	47.8	30.5	28.3
Incr Delay (d2), s/veh	3.7	0.3	2.8	4.5	0.2	0.5	3.0	0.5	2.1	1.1	0.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	1.6	3.5	6.6	3.2	3.5	8.2	10.4	11.7	0.3	3.9	0.9
LnGrp Delay(d),s/veh	51.0	38.9	43.2	45.2	30.2	30.4	41.2	22.3	25.3	48.9	30.8	28.4
LnGrp LOS	D	D	D	D	C	C	D	C	C	D	C	C
Approach Vol, veh/h		336			900			2045			401	
Approach Delay, s/veh		43.6			37.9			28.5			31.5	
Approach LOS		D			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.7	32.6	8.3	50.5	22.0	20.4	26.4	32.4
Change Period (Y+Rc), s	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9
Max Green Setting (Gmax), s	* 7.5	44.2	* 7	59.1	* 25	26.5	* 35	31.2
Max Q Clear Time (g_c+I1), s	4.4	9.0	2.6	28.3	15.3	9.7	18.7	9.9
Green Ext Time (p_c), s	0.1	5.5	0.0	16.3	1.5	4.5	2.5	13.1

Intersection Summary	
HCM 2010 Ctrl Delay	32.5
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	272.8
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1080	0	290	0	0	0	370	940	0	20	630	610
Future Vol, veh/h	1080	0	290	0	0	0	370	940	0	20	630	610
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
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	1137	0	305	0	0	0	389	989	0	21	663	642
Number of Lanes	1	1	1	0	0	0	1	2	0	0	2	1

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	3	3
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	3	3	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	3	0	3
HCM Control Delay	221.5	265.2	336.5
HCM LOS	F	F	F

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	100%	100%	0%	9%	0%	0%
Vol Thru, %	0%	100%	100%	0%	0%	0%	91%	100%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	370	470	470	540	540	290	230	420	610
LT Vol	370	0	0	540	540	0	20	0	0
Through Vol	0	470	470	0	0	0	210	420	0
RT Vol	0	0	0	0	0	290	0	0	610
Lane Flow Rate	389	495	495	568	568	305	242	442	642
Geometry Grp	8	8	8	7	7	7	8	8	8
Degree of Util (X)	1.372	1.675	1.435	1.503	1.503	0.706	0.833	1.516	2.076
Departure Headway (Hd)	10.651	10.136	8.331	11.731	11.731	10.507	6.577	6.532	5.808
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	343	361	440	313	313	348	552	557	629
Service Time	8.351	7.836	6.031	9.431	9.431	8.207	4.277	4.232	3.508
HCM Lane V/C Ratio	1.134	1.371	1.125	1.815	1.815	0.876	0.438	0.794	1.021
HCM Control Delay	213.6	339.9	231.2	271.6	271.6	34.9	34	259.3	503.7
HCM Lane LOS	F	F	F	F	F	D	D	F	F
HCM 95th-tile Q	23.2	36.1	31	26	26	5.1	8.6	42.9	88.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	870	20	250	0	0	0	0	440	370	360	560	0
Future Volume (veh/h)	870	20	250	0	0	0	0	440	370	360	560	0
Number	3	8	18				1	6	16	5	2	12
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	1900	1845	1845				0	1845	1845	1845	1845	0
Adj Flow Rate, veh/h	916	21	183				0	463	109	379	589	0
Adj No. of Lanes	0	1	1				0	1	1	2	1	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	889	20	811				0	493	418	379	755	0
Arrive On Green	0.52	0.52	0.52				0.00	0.27	0.27	0.11	0.41	0.00
Sat Flow, veh/h	1719	39	1568				0	1845	1566	3408	1845	0
Grp Volume(v), veh/h	937	0	183				0	463	109	379	589	0
Grp Sat Flow(s),veh/h/ln	1759	0	1568				0	1845	1566	1704	1845	0
Q Serve(g_s), s	61.8	0.0	7.6				0.0	29.4	6.6	13.3	33.1	0.0
Cycle Q Clear(g_c), s	61.8	0.0	7.6				0.0	29.4	6.6	13.3	33.1	0.0
Prop In Lane	0.98		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	909	0	811				0	493	418	379	755	0
V/C Ratio(X)	1.03	0.00	0.23				0.00	0.94	0.26	1.00	0.78	0.00
Avail Cap(c_a), veh/h	909	0	811				0	500	425	379	762	0
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	1.00	1.00	0.00
Uniform Delay (d), s/veh	28.9	0.0	15.8				0.0	42.9	34.5	53.1	30.6	0.0
Incr Delay (d2), s/veh	37.9	0.0	0.1				0.0	25.4	0.1	46.0	4.7	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	39.4	0.0	3.3				0.0	18.4	2.9	8.6	17.8	0.0
LnGrp Delay(d),s/veh	66.8	0.0	15.8				0.0	68.3	34.6	99.1	35.3	0.0
LnGrp LOS	F		B					E	C	F	D	
Approach Vol, veh/h		1120						572			968	
Approach Delay, s/veh		58.5						61.8			60.3	
Approach LOS		E						E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		53.5			17.0	36.5		66.0
Change Period (Y+Rc), s		4.6			3.7	4.6		4.2
Max Green Setting (Gmax), s		49.4			13.3	32.4		61.8
Max Q Clear Time (g_c+I1), s		35.1			15.3	31.4		63.8
Green Ext Time (p_c), s		4.1			0.0	0.6		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	59.9
HCM 2010 LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	330	40	20	30	50	190	30	230	30	100	190	420
Future Volume (veh/h)	330	40	20	30	50	190	30	230	30	100	190	420
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	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	359	43	6	33	54	73	33	250	24	109	207	131
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	433	391	55	191	77	104	65	658	63	140	518	314
Arrive On Green	0.25	0.25	0.25	0.11	0.11	0.11	0.04	0.20	0.20	0.08	0.25	0.25
Sat Flow, veh/h	1757	1585	221	1757	712	963	1757	3233	308	1757	2101	1272
Grp Volume(v), veh/h	359	0	49	33	0	127	33	135	139	109	171	167
Grp Sat Flow(s),veh/h/ln	1757	0	1806	1757	0	1675	1757	1752	1789	1757	1752	1620
Q Serve(g_s), s	9.6	0.0	1.0	0.8	0.0	3.6	0.9	3.3	3.4	3.0	4.1	4.3
Cycle Q Clear(g_c), s	9.6	0.0	1.0	0.8	0.0	3.6	0.9	3.3	3.4	3.0	4.1	4.3
Prop In Lane	1.00		0.12	1.00		0.57	1.00		0.17	1.00		0.79
Lane Grp Cap(c), veh/h	433	0	445	191	0	182	65	357	364	140	432	400
V/C Ratio(X)	0.83	0.00	0.11	0.17	0.00	0.70	0.51	0.38	0.38	0.78	0.40	0.42
Avail Cap(c_a), veh/h	1249	0	1284	783	0	747	226	732	747	480	985	911
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.8	0.0	14.5	20.2	0.0	21.4	23.5	17.1	17.1	22.5	15.7	15.8
Incr Delay (d2), s/veh	1.6	0.0	0.0	0.2	0.0	1.8	2.3	0.2	0.2	3.5	0.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	0.0	0.5	0.4	0.0	1.7	0.5	1.6	1.7	1.6	2.0	1.9
LnGrp Delay(d),s/veh	19.3	0.0	14.6	20.3	0.0	23.2	25.8	17.3	17.4	26.0	15.9	16.0
LnGrp LOS	B		B	C		C	C	B	B	C	B	B
Approach Vol, veh/h		408			160			307			447	
Approach Delay, s/veh		18.8			22.6			18.3			18.4	
Approach LOS		B			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.2	14.7		16.9	6.0	16.9		10.0
Change Period (Y+Rc), s	* 4.2	4.6		4.6	* 4.2	4.6		4.6
Max Green Setting (Gmax), s	* 4	20.8		35.4	* 6.4	28.0		22.2
Max Q Clear Time (g_c+I1), s	5.6	5.4		11.6	2.9	6.3		5.6
Green Ext Time (p_c), s	0.1	2.1		0.7	0.0	2.2		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	19.0
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	11

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	340	140	300	20	30	330
Future Vol, veh/h	340	140	300	20	30	330
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	358	147	316	21	32	347

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	337	0	-	0	1189	326
Stage 1	-	-	-	-	326	-
Stage 2	-	-	-	-	863	-
Critical Hdwy	4.14	-	-	-	6.44	6.24
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	2.236	-	-	-	3.536	3.336
Pot Cap-1 Maneuver	1211	-	-	-	206	711
Stage 1	-	-	-	-	727	-
Stage 2	-	-	-	-	410	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1211	-	-	-	140	711
Mov Cap-2 Maneuver	-	-	-	-	140	-
Stage 1	-	-	-	-	727	-
Stage 2	-	-	-	-	278	-

Approach	EB	WB	SB
HCM Control Delay, s	6.5	0	26.9
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1211	-	-	-	531
HCM Lane V/C Ratio	0.296	-	-	-	0.714
HCM Control Delay (s)	9.2	0	-	-	26.9
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	1.2	-	-	-	5.7

Intersection	
Int Delay, s/veh	401.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	360	360	600	330	120	1150
Future Vol, veh/h	360	360	600	330	120	1150
Conflicting Peds, #/hr	5	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	315	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	379	379	632	347	126	1211

Major/Minor	Minor1		Major1		Minor2	
Conflicting Flow All	1242	632	0	0	821	632
Stage 1	632	-	-	-	0	0
Stage 2	610	-	-	-	821	632
Critical Hdwy	7.13	6.23	-	-	7.13	6.53
Critical Hdwy Stg 1	6.13	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	6.13	5.53
Follow-up Hdwy	3.527	3.327	-	-	3.527	4.027
Pot Cap-1 Maneuver	~ 151	479	-	-	292	~ 396
Stage 1	467	-	-	-	-	-
Stage 2	-	-	-	-	367	~ 472
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	-	479	-	-	~ 61	~ 396
Mov Cap-2 Maneuver	-	-	-	-	~ 61	~ 396
Stage 1	467	-	-	-	-	-
Stage 2	-	-	-	-	~ 77	~ 472

Approach	WB	NB	SB
HCM Control Delay, s		0	$ 923.5
HCM LOS	-		F

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBLn1	SBLn2
Capacity (veh/h)	-	-	-	61	396
HCM Lane V/C Ratio	-	-	-	2.071	3.057
HCM Control Delay (s)	-	-	-	$ 641.1	$ 953
HCM Lane LOS	-	-	-	F	F
HCM 95th %tile Q(veh)	-	-	-	12.1	106.1

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

Intersection	
Int Delay, s/veh	1207.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	90	40	890	20	60	1320
Future Vol, veh/h	90	40	890	20	60	1320
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	95	42	937	21	63	1389

Major/Minor	Minor1		Minor2		Major2	
Conflicting Flow All	1995	0	1516	1389	0	0
Stage 1	0	-	1516	-	-	-
Stage 2	1995	-	0	-	-	-
Critical Hdwy	7.13	6.23	6.53	6.23	4.13	-
Critical Hdwy Stg 1	-	-	5.53	-	-	-
Critical Hdwy Stg 2	6.13	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	4.027	3.327	2.227	-
Pot Cap-1 Maneuver	~ 45	-	~ 119	174	-	-
Stage 1	-	-	~ 181	-	-	-
Stage 2	~ 78	-	-	-	-	-
Platoon blocked, %						-
Mov Cap-1 Maneuver	-	-	~ 119	174	-	-
Mov Cap-2 Maneuver	-	-	~ 119	-	-	-
Stage 1	-	-	~ 181	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s		$ 3211	
HCM LOS	-	F	

Minor Lane/Major Mvmt	NBLn1	WBLn1	SBL	SBT
Capacity (veh/h)	120	-	-	-
HCM Lane V/C Ratio	7.982	-	-	-
HCM Control Delay (s)	$ 3211	-	-	-
HCM Lane LOS	F	-	-	-
HCM 95th %tile Q(veh)	108.1	-	-	-

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)	30	90	160	210	170	110	180	520	180	60	300	50
Future Volume (veh/h)	30	90	160	210	170	110	180	520	180	60	300	50
Number	5	2	12	1	6	16	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		0.98	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	1845	1845	1845	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	33	98	29	228	185	38	196	565	168	65	326	43
Adj No. of Lanes	1	2	1	1	3	0	2	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	60	461	202	274	1070	210	671	867	257	92	531	69
Arrive On Green	0.03	0.13	0.13	0.16	0.25	0.25	0.20	0.33	0.33	0.05	0.17	0.17
Sat Flow, veh/h	1757	3505	1532	1757	4226	829	3408	2667	791	1757	3117	408
Grp Volume(v), veh/h	33	98	29	228	145	78	196	371	362	65	182	187
Grp Sat Flow(s),veh/h/ln	1757	1752	1532	1757	1679	1697	1704	1752	1705	1757	1752	1772
Q Serve(g_s), s	1.2	1.7	1.1	8.3	2.2	2.4	3.3	12.0	12.1	2.4	6.4	6.5
Cycle Q Clear(g_c), s	1.2	1.7	1.1	8.3	2.2	2.4	3.3	12.0	12.1	2.4	6.4	6.5
Prop In Lane	1.00		1.00	1.00		0.49	1.00		0.46	1.00		0.23
Lane Grp Cap(c), veh/h	60	461	202	274	850	430	671	570	554	92	299	302
V/C Ratio(X)	0.55	0.21	0.14	0.83	0.17	0.18	0.29	0.65	0.65	0.70	0.61	0.62
Avail Cap(c_a), veh/h	177	2272	993	419	2637	1333	671	1031	1003	132	819	828
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.5	25.7	25.5	27.1	19.3	19.4	22.7	19.2	19.2	30.9	25.5	25.5
Incr Delay (d2), s/veh	2.9	0.1	0.1	5.0	0.0	0.1	0.3	1.8	1.9	3.6	2.9	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.8	0.5	4.4	1.0	1.1	1.6	6.0	5.9	1.3	3.3	3.4
LnGrp Delay(d),s/veh	34.4	25.8	25.6	32.1	19.4	19.5	23.0	21.0	21.0	34.5	28.3	28.5
LnGrp LOS	C	C	C	C	B	B	C	C	C	C	C	C
Approach Vol, veh/h		160			451			929			434	
Approach Delay, s/veh		27.5			25.8			21.4			29.3	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.5	14.6	8.7	27.5	7.5	22.7	19.0	17.2
Change Period (Y+Rc), s	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9	5.9	* 5.9
Max Green Setting (Gmax), s	* 16	43.0	* 5	39.0	* 6.7	52.1	13.0	* 31
Max Q Clear Time (g_c+I1), s	10.3	3.7	4.4	14.1	3.2	4.4	5.3	8.5
Green Ext Time (p_c), s	0.2	1.2	0.0	7.3	0.0	1.2	3.8	2.7

Intersection Summary	
HCM 2010 Ctrl Delay	24.7
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	390	650	340	200	70	860	680	270	30	460	180
Future Volume (veh/h)	130	390	650	340	200	70	860	680	270	30	460	180
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	1845	1845	1845	1845	1845	1900	1845	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	137	411	545	210	418	62	905	716	98	32	484	162
Adj No. of Lanes	1	1	2	1	2	0	2	2	1	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	479	503	1073	327	586	86	237	1100	491	49	704	234
Arrive On Green	0.27	0.27	0.27	0.19	0.19	0.19	0.07	0.31	0.31	0.03	0.27	0.27
Sat Flow, veh/h	1757	1845	3136	1757	3144	463	3408	3505	1565	1757	2585	860
Grp Volume(v), veh/h	137	411	545	210	244	236	905	716	98	32	327	319
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	1845	1763	1704	1752	1565	1757	1752	1693
Q Serve(g_s), s	6.9	23.4	15.5	12.4	13.9	14.1	7.8	19.7	5.1	2.0	18.7	18.9
Cycle Q Clear(g_c), s	6.9	23.4	15.5	12.4	13.9	14.1	7.8	19.7	5.1	2.0	18.7	18.9
Prop In Lane	1.00		1.00	1.00		0.26	1.00		1.00	1.00		0.51
Lane Grp Cap(c), veh/h	479	503	1073	327	344	329	237	1100	491	49	477	461
V/C Ratio(X)	0.29	0.82	0.51	0.64	0.71	0.72	3.82	0.65	0.20	0.65	0.69	0.69
Avail Cap(c_a), veh/h	705	741	1477	580	609	582	237	1100	491	94	514	497
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	32.1	38.1	29.3	42.1	42.8	42.8	52.1	33.2	28.1	53.9	36.5	36.6
Incr Delay (d2), s/veh	0.3	4.6	0.4	3.0	3.8	4.2	1277.1	2.6	0.7	5.2	6.6	7.1
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	3.4	12.5	6.8	6.3	7.4	7.3	45.7	9.9	2.3	1.1	10.0	9.8
LnGrp Delay(d),s/veh	32.5	42.7	29.7	45.1	46.6	47.0	1329.2	35.7	28.9	59.1	43.1	43.6
LnGrp LOS	C	D	C	D	D	D	F	D	C	E	D	D
Approach Vol, veh/h		1093			690			1719			678	
Approach Delay, s/veh		34.9			46.3			716.3			44.1	
Approach LOS		C			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	8.4	41.1		26.5	13.0	36.4		36.2
Change Period (Y+Rc), s	* 5.2	5.9		5.6	* 5.2	5.9		5.6
Max Green Setting (Gmax), s	* 6	34.7		37.0	* 7.8	32.9		45.0
Max Q Clear Time (g_c+I1), s	4.0	21.7		16.1	9.8	20.9		25.4
Green Ext Time (p_c), s	0.0	10.9		4.8	0.0	9.6		5.2

Intersection Summary	
HCM 2010 Ctrl Delay	318.5
HCM 2010 LOS	F

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	1040	0	650	140	1160	0	0	1140	310
Future Volume (veh/h)	0	0	0	1040	0	650	140	1160	0	0	1140	310
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		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				1845	1845	1845	1845	1845	0	0	1845	1900
Adj Flow Rate, veh/h				1289	0	416	147	1221	0	0	1200	285
Adj No. of Lanes				2	0	1	1	3	0	0	3	0
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				1516	0	677	104	2410	0	0	1515	360
Arrive On Green				0.43	0.00	0.43	0.06	0.48	0.00	0.00	0.37	0.37
Sat Flow, veh/h				3514	0	1568	1757	5202	0	0	4232	966
Grp Volume(v), veh/h				1289	0	416	147	1221	0	0	991	494
Grp Sat Flow(s),veh/h/ln				1757	0	1568	1757	1679	0	0	1679	1674
Q Serve(g_s), s				33.3	0.0	20.7	6.0	16.9	0.0	0.0	26.5	26.5
Cycle Q Clear(g_c), s				33.3	0.0	20.7	6.0	16.9	0.0	0.0	26.5	26.5
Prop In Lane				1.00		1.00	1.00		0.00	0.00		0.58
Lane Grp Cap(c), veh/h				1516	0	677	104	2410	0	0	1251	624
V/C Ratio(X)				0.85	0.00	0.61	1.41	0.51	0.00	0.00	0.79	0.79
Avail Cap(c_a), veh/h				2156	0	962	104	2437	0	0	1269	633
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	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				25.8	0.0	22.2	47.5	18.1	0.0	0.0	28.2	28.2
Incr Delay (d2), s/veh				2.4	0.0	0.9	231.5	0.4	0.0	0.0	3.5	6.7
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				16.6	0.0	9.1	9.6	7.9	0.0	0.0	12.9	13.4
LnGrp Delay(d),s/veh				28.2	0.0	23.1	279.0	18.5	0.0	0.0	31.7	35.0
LnGrp LOS				C		C	F	B			C	C
Approach Vol, veh/h					1705			1368			1485	
Approach Delay, s/veh					27.0			46.5			32.8	
Approach LOS					C			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		53.5			10.7	42.8		47.6
Change Period (Y+Rc), s		5.1			* 4.7	5.1		4.0
Max Green Setting (Gmax), s		48.9			* 6	38.2		62.0
Max Q Clear Time (g_c+I1), s		18.9			8.0	28.5		35.3
Green Ext Time (p_c), s		26.0			0.0	9.1		8.3

Intersection Summary	
HCM 2010 Ctrl Delay	34.7
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	470	140	450	830	1110	1070
Future Volume (veh/h)	470	140	450	830	1110	1070
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	495	129	474	874	1168	875
Adj No. of Lanes	2	1	2	3	3	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	572	520	559	3657	2581	804
Arrive On Green	0.17	0.17	0.16	0.73	0.51	0.51
Sat Flow, veh/h	3408	1568	3408	5202	5202	1568
Grp Volume(v), veh/h	495	129	474	874	1168	875
Grp Sat Flow(s),veh/h/ln	1704	1568	1704	1679	1679	1568
Q Serve(g_s), s	13.5	5.7	12.9	5.5	14.0	48.8
Cycle Q Clear(g_c), s	13.5	5.7	12.9	5.5	14.0	48.8
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	572	520	559	3657	2581	804
V/C Ratio(X)	0.87	0.25	0.85	0.24	0.45	1.09
Avail Cap(c_a), veh/h	662	562	999	4306	2581	804
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.6	23.1	38.6	4.3	14.7	23.2
Incr Delay (d2), s/veh	9.4	0.1	1.4	0.0	0.0	58.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.1	5.7	6.2	2.5	6.5	34.1
LnGrp Delay(d),s/veh	48.0	23.2	40.0	4.3	14.8	81.8
LnGrp LOS	D	C	D	A	B	F
Approach Vol, veh/h	624			1348	2043	
Approach Delay, s/veh	42.9			16.9	43.5	
Approach LOS	D			B	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		74.5		20.7	20.3	54.2		
Change Period (Y+Rc), s		5.4		* 4.7	* 4.7	5.4		
Max Green Setting (Gmax), s		81.4		* 19	* 28	48.8		
Max Q Clear Time (g_c+I1), s		7.5		15.5	14.9	50.8		
Green Ext Time (p_c), s		19.9		0.5	0.8	0.0		

Intersection Summary	
HCM 2010 Ctrl Delay	34.5
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	0	500	0	350	30	50	40	0	0	90	140
Future Volume (veh/h)	80	0	500	0	350	30	50	40	0	0	90	140
Number	1	6	16	5	2	12	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		0.96
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	0	1845	1900	1845	1845	0	0	1845	1900
Adj Flow Rate, veh/h	87	0	341	0	380	30	54	43	0	0	98	24
Adj No. of Lanes	2	1	2	0	1	0	2	1	0	0	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, %	3	3	3	0	3	3	3	3	0	0	3	3
Cap, veh/h	260	907	1551	0	514	41	285	150	0	0	263	62
Arrive On Green	0.08	0.00	0.49	0.00	0.30	0.30	0.08	0.08	0.00	0.00	0.09	0.09
Sat Flow, veh/h	3408	1845	2698	0	1688	133	3514	1845	0	0	2886	658
Grp Volume(v), veh/h	87	0	341	0	0	410	54	43	0	0	60	62
Grp Sat Flow(s),veh/h/ln	1704	1845	1349	0	0	1821	1757	1845	0	0	1752	1699
Q Serve(g_s), s	1.0	0.0	2.6	0.0	0.0	8.4	0.6	0.9	0.0	0.0	1.3	1.4
Cycle Q Clear(g_c), s	1.0	0.0	2.6	0.0	0.0	8.4	0.6	0.9	0.0	0.0	1.3	1.4
Prop In Lane	1.00		1.00	0.00		0.07	1.00		0.00	0.00		0.39
Lane Grp Cap(c), veh/h	260	907	1551	0	0	555	285	150	0	0	165	160
V/C Ratio(X)	0.33	0.00	0.22	0.00	0.00	0.74	0.19	0.29	0.00	0.00	0.36	0.39
Avail Cap(c_a), veh/h	2056	2804	4324	0	0	1468	1543	810	0	0	1057	1025
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	18.1	0.0	4.3	0.0	0.0	12.9	17.8	17.9	0.0	0.0	17.6	17.7
Incr Delay (d2), s/veh	0.7	0.0	0.1	0.0	0.0	2.0	0.3	1.0	0.0	0.0	1.3	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	1.2	0.0	0.0	4.5	0.3	0.5	0.0	0.0	0.7	0.7
LnGrp Delay(d),s/veh	18.9	0.0	4.4	0.0	0.0	14.9	18.1	19.0	0.0	0.0	19.0	19.2
LnGrp LOS	B		A			B	B	B			B	B
Approach Vol, veh/h		428			410			97			122	
Approach Delay, s/veh		7.3			14.9			18.5			19.1	
Approach LOS		A			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	7.8	17.2		8.5		25.0		8.0
Change Period (Y+Rc), s	4.6	4.6		4.6		4.6		4.6
Max Green Setting (Gmax), s	25.0	33.4		25.0		63.0		18.2
Max Q Clear Time (g_c+I1), s	3.0	10.4		3.4		4.6		2.9
Green Ext Time (p_c), s	1.6	2.4		0.6		1.7		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	12.6
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	840	0	0	410	20	0	0	0	540	0	50
Future Volume (veh/h)	70	840	0	0	410	20	0	0	0	540	0	50
Number	3	8	18	7	4	14				5	2	12
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	1845	1845	0	1845	1845	1900				1845	0	1845
Adj Flow Rate, veh/h	76	913	0	0	446	18				587	0	24
Adj No. of Lanes	2	2	0	1	2	0				1	0	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, %	3	3	0	3	3	3				3	0	3
Cap, veh/h	214	1588	0	3	1073	43				675	0	603
Arrive On Green	0.06	0.45	0.00	0.00	0.31	0.31				0.38	0.00	0.38
Sat Flow, veh/h	3408	3597	0	1757	3434	138				1757	0	1568
Grp Volume(v), veh/h	76	913	0	0	227	237				587	0	24
Grp Sat Flow(s),veh/h/ln	1704	1752	0	1757	1752	1820				1757	0	1568
Q Serve(g_s), s	1.2	10.4	0.0	0.0	5.5	5.6				16.7	0.0	0.5
Cycle Q Clear(g_c), s	1.2	10.4	0.0	0.0	5.5	5.6				16.7	0.0	0.5
Prop In Lane	1.00		0.00	1.00		0.08				1.00		1.00
Lane Grp Cap(c), veh/h	214	1588	0	3	548	569				675	0	603
V/C Ratio(X)	0.35	0.58	0.00	0.00	0.41	0.42				0.87	0.00	0.04
Avail Cap(c_a), veh/h	340	1969	0	162	971	1009				1350	0	1205
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	1.00	0.00	0.00	1.00	1.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	24.3	11.0	0.0	0.0	14.7	14.7				15.4	0.0	10.4
Incr Delay (d2), s/veh	1.0	0.3	0.0	0.0	0.5	0.5				3.6	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	0.6	5.0	0.0	0.0	2.7	2.8				8.7	0.0	0.2
LnGrp Delay(d),s/veh	25.3	11.3	0.0	0.0	15.2	15.2				19.0	0.0	10.4
LnGrp LOS	C	B			B	B				B		B
Approach Vol, veh/h		989			464						611	
Approach Delay, s/veh		12.4			15.2						18.7	
Approach LOS		B			B						B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4			7	8
Phs Duration (G+Y+Rc), s		25.0	7.6	21.5			0.0	29.1
Change Period (Y+Rc), s		* 4.2	* 4.2	4.6			* 4.2	4.6
Max Green Setting (Gmax), s		* 42	* 5.4	30.0			* 5	30.4
Max Q Clear Time (g_c+I1), s		18.7	3.2	7.6			0.0	12.4
Green Ext Time (p_c), s		2.1	0.0	9.3			0.0	8.4

Intersection Summary	
HCM 2010 Ctrl Delay	14.9
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

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	20	880	0	30	410	20	0	0	0	30	0	30
Future Vol, veh/h	20	880	0	30	410	20	0	0	0	30	0	30
Conflicting Peds, #/hr	2	0	0	0	0	2	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	-	-	130	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	22	957	0	33	446	22	0	0	0	33	0	33

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	469	0	0	957	0	0	1288	1535	478	1046	1524	236
Stage 1	-	-	-	-	-	-	1000	1000	-	524	524	-
Stage 2	-	-	-	-	-	-	288	535	-	522	1000	-
Critical Hdwy	4.16	-	-	4.16	-	-	7.56	6.56	6.96	7.56	6.56	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Follow-up Hdwy	2.23	-	-	2.23	-	-	3.53	4.03	3.33	3.53	4.03	3.33
Pot Cap-1 Maneuver	1082	-	-	708	-	-	120	114	531	181	116	763
Stage 1	-	-	-	-	-	-	259	317	-	502	526	-
Stage 2	-	-	-	-	-	-	693	520	-	503	317	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1082	-	-	708	-	-	109	106	531	172	108	762
Mov Cap-2 Maneuver	-	-	-	-	-	-	109	106	-	172	108	-
Stage 1	-	-	-	-	-	-	254	311	-	491	501	-
Stage 2	-	-	-	-	-	-	632	495	-	493	311	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.7	0	21.6
HCM LOS			A	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1082	-	-	708	-	-	281
HCM Lane V/C Ratio	-	0.02	-	-	0.046	-	-	0.232
HCM Control Delay (s)	0	8.4	-	-	10.3	-	-	21.6
HCM Lane LOS	A	A	-	-	B	-	-	C
HCM 95th %tile Q(veh)	-	0.1	-	-	0.1	-	-	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	70	170	180	80	70	80	750	170	40	570	80
Future Volume (veh/h)	80	70	170	180	80	70	80	750	170	40	570	80
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		0.99
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	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	87	76	113	196	87	25	87	815	160	43	620	74
Adj No. of Lanes	1	1	0	1	2	0	1	3	0	1	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	113	107	159	247	640	177	113	1706	333	72	1733	205
Arrive On Green	0.06	0.16	0.16	0.14	0.24	0.24	0.06	0.40	0.40	0.04	0.38	0.38
Sat Flow, veh/h	1757	671	998	1757	2713	751	1757	4229	824	1757	4561	538
Grp Volume(v), veh/h	87	0	189	196	55	57	87	646	329	43	455	239
Grp Sat Flow(s),veh/h/ln	1757	0	1669	1757	1752	1712	1757	1679	1696	1757	1679	1742
Q Serve(g_s), s	3.3	0.0	7.4	7.4	1.7	1.8	3.3	9.7	9.8	1.6	6.7	6.8
Cycle Q Clear(g_c), s	3.3	0.0	7.4	7.4	1.7	1.8	3.3	9.7	9.8	1.6	6.7	6.8
Prop In Lane	1.00		0.60	1.00		0.44	1.00		0.49	1.00		0.31
Lane Grp Cap(c), veh/h	113	0	266	247	414	404	113	1355	684	72	1276	662
V/C Ratio(X)	0.77	0.00	0.71	0.79	0.13	0.14	0.77	0.48	0.48	0.60	0.36	0.36
Avail Cap(c_a), veh/h	354	0	1108	667	1476	1442	354	2053	1037	233	1823	946
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.6	0.0	27.3	28.5	20.6	20.7	31.6	15.1	15.1	32.3	15.2	15.3
Incr Delay (d2), s/veh	10.5	0.0	3.5	5.7	0.1	0.2	10.5	0.3	0.6	3.0	0.2	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	3.6	4.0	0.8	0.9	1.9	4.5	4.7	0.9	3.1	3.3
LnGrp Delay(d),s/veh	42.1	0.0	30.7	34.2	20.8	20.8	42.1	15.4	15.8	35.3	15.4	15.7
LnGrp LOS	D		C	C	C	C	D	B	B	D	B	B
Approach Vol, veh/h		276			308			1062			737	
Approach Delay, s/veh		34.3			29.3			17.7			16.7	
Approach LOS		C			C			B			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	7.0	32.2	13.8	15.4	8.6	30.6	8.6	20.7
Change Period (Y+Rc), s	* 4.2	4.6	* 4.2	4.5	* 4.2	4.6	* 4.2	4.5
Max Green Setting (Gmax), s	* 9.1	41.9	* 26	45.5	* 14	37.2	* 14	57.7
Max Q Clear Time (g_c+I1), s	3.6	11.8	9.4	9.4	5.3	8.8	5.3	3.8
Green Ext Time (p_c), s	0.0	15.5	0.5	1.9	0.1	15.1	0.1	2.0

Intersection Summary	
HCM 2010 Ctrl Delay	20.8
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	150	680	550	560	210	30	390	820	550	40	670	210
Future Volume (veh/h)	150	680	550	560	210	30	390	820	550	40	670	210
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		0.99	1.00		1.00	1.00		1.00	1.00		0.98
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	1900	1845	1845	1900	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	158	716	475	589	221	18	411	863	484	42	705	53
Adj No. of Lanes	2	3	0	2	3	0	2	2	1	2	2	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	208	943	434	632	1926	154	460	1166	521	138	835	367
Arrive On Green	0.06	0.28	0.28	0.19	0.41	0.41	0.13	0.33	0.33	0.04	0.24	0.24
Sat Flow, veh/h	3408	3357	1545	3408	4754	380	3408	3505	1565	3408	3505	1542
Grp Volume(v), veh/h	158	716	475	589	155	84	411	863	484	42	705	53
Grp Sat Flow(s),veh/h/ln	1704	1679	1545	1704	1679	1777	1704	1752	1565	1704	1752	1542
Q Serve(g_s), s	6.3	26.9	38.8	23.5	4.0	4.1	16.4	30.1	41.3	1.7	26.5	3.7
Cycle Q Clear(g_c), s	6.3	26.9	38.8	23.5	4.0	4.1	16.4	30.1	41.3	1.7	26.5	3.7
Prop In Lane	1.00		1.00	1.00		0.21	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	208	943	434	632	1360	720	460	1166	521	138	835	367
V/C Ratio(X)	0.76	0.76	1.10	0.93	0.11	0.12	0.89	0.74	0.93	0.30	0.84	0.14
Avail Cap(c_a), veh/h	274	943	434	636	1360	720	483	1172	523	173	852	375
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	63.9	45.4	49.7	55.4	25.6	25.7	58.8	40.8	44.5	64.4	50.2	41.5
Incr Delay (d2), s/veh	9.4	3.8	71.4	20.8	0.0	0.1	18.5	2.6	23.4	1.5	7.8	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	3.3	13.0	25.1	12.9	1.9	2.0	8.9	15.0	21.2	0.8	13.7	1.6
LnGrp Delay(d),s/veh	73.3	49.2	121.1	76.2	25.7	25.7	77.3	43.5	67.9	65.9	58.0	41.7
LnGrp LOS	E	D	F	E	C	C	E	D	E	E	E	D
Approach Vol, veh/h		1349			828			1758			800	
Approach Delay, s/veh		77.3			61.6			58.1			57.3	
Approach LOS		E			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	13.6	61.9	10.8	51.9	30.8	44.7	23.8	38.8
Change Period (Y+Rc), s	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9
Max Green Setting (Gmax), s	* 11	53.5	* 7	46.2	* 26	38.8	* 20	33.6
Max Q Clear Time (g_c+I1), s	8.3	6.1	3.7	43.3	25.5	40.8	18.4	28.5
Green Ext Time (p_c), s	0.1	16.1	0.0	2.6	0.1	0.0	0.2	4.4

Intersection Summary	
HCM 2010 Ctrl Delay	64.1
HCM 2010 LOS	E

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	333.3
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	740	0	320	0	0	0	150	1020	0	0	870	910
Future Vol, veh/h	740	0	320	0	0	0	150	1020	0	0	870	910
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
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	779	0	337	0	0	0	158	1074	0	0	916	958
Number of Lanes	1	1	1	0	0	0	1	2	0	0	2	1

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	3	3
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	3	3	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	3	0	3
HCM Control Delay	53.2	307.3	517.2
HCM LOS	F	F	F

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	100%	100%	0%	0%	0%	0%
Vol Thru, %	0%	100%	100%	0%	0%	0%	100%	100%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	150	510	510	370	370	320	435	435	910
LT Vol	150	0	0	370	370	0	0	0	0
Through Vol	0	510	510	0	0	0	435	435	0
RT Vol	0	0	0	0	0	320	0	0	910
Lane Flow Rate	158	537	537	389	389	337	458	458	958
Geometry Grp	8	8	8	7	7	7	8	8	8
Degree of Util (X)	0.563	1.84	1.579	1.027	1.027	0.776	1.534	1.534	2.558
Departure Headway (Hd)	9.637	9.115	7.287	5.856	5.856	4.628	13.77	13.77	11.244
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	376	403	505	619	619	781	270	270	335
Service Time	7.337	6.815	4.987	3.556	3.556	2.328	11.47	11.47	8.944
HCM Lane V/C Ratio	0.42	1.333	1.063	0.628	0.628	0.431	1.696	1.696	2.86
HCM Control Delay	24.1	408.8	289.1	67	67	21.4	291.4	291.4	733
HCM Lane LOS	C	F	F	F	F	C	F	F	F
HCM 95th-tile Q	3.3	47.2	42.6	16.5	16.5	7.7	23.8	23.8	66.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	690	20	460	0	0	0	0	480	570	660	530	0
Future Volume (veh/h)	690	20	460	0	0	0	0	480	570	660	530	0
Number	3	8	18				1	6	16	5	2	12
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	1900	1845	1845				0	1845	1845	1845	1845	0
Adj Flow Rate, veh/h	726	21	330				0	505	208	695	558	0
Adj No. of Lanes	0	1	1				0	1	1	2	1	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	710	21	651				0	513	435	690	944	0
Arrive On Green	0.41	0.41	0.41				0.00	0.28	0.28	0.20	0.51	0.00
Sat Flow, veh/h	1710	49	1568				0	1845	1565	3408	1845	0
Grp Volume(v), veh/h	747	0	330				0	505	208	695	558	0
Grp Sat Flow(s),veh/h/ln	1759	0	1568				0	1845	1565	1704	1845	0
Q Serve(g_s), s	49.8	0.0	18.7				0.0	32.6	13.3	24.3	25.4	0.0
Cycle Q Clear(g_c), s	49.8	0.0	18.7				0.0	32.6	13.3	24.3	25.4	0.0
Prop In Lane	0.97		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	730	0	651				0	513	435	690	944	0
V/C Ratio(X)	1.02	0.00	0.51				0.00	0.98	0.48	1.01	0.59	0.00
Avail Cap(c_a), veh/h	730	0	651				0	513	435	690	944	0
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	1.00	1.00	0.00
Uniform Delay (d), s/veh	35.1	0.0	26.0				0.0	43.0	36.0	47.8	20.5	0.0
Incr Delay (d2), s/veh	39.3	0.0	0.3				0.0	35.3	0.3	36.0	0.7	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	32.1	0.0	8.1				0.0	21.6	5.8	14.9	13.0	0.0
LnGrp Delay(d),s/veh	74.4	0.0	26.3				0.0	78.3	36.3	83.9	21.2	0.0
LnGrp LOS	F		C					E	D	F	C	
Approach Vol, veh/h		1077						713			1253	
Approach Delay, s/veh		59.7						66.1			56.0	
Approach LOS		E						E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		66.0			28.0	38.0		54.0
Change Period (Y+Rc), s		4.6			3.7	4.6		4.2
Max Green Setting (Gmax), s		61.4			24.3	33.4		49.8
Max Q Clear Time (g_c+I1), s		27.4			26.3	34.6		51.8
Green Ext Time (p_c), s		5.2			0.0	0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	59.6
HCM 2010 LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	550	50	30	50	40	150	20	250	50	180	440	270
Future Volume (veh/h)	550	50	30	50	40	150	20	250	50	180	440	270
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	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	579	53	12	53	42	34	21	263	38	189	463	201
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	637	528	120	120	65	52	43	505	72	233	650	280
Arrive On Green	0.36	0.36	0.36	0.07	0.07	0.07	0.02	0.16	0.16	0.13	0.27	0.27
Sat Flow, veh/h	1757	1456	330	1757	945	765	1757	3078	440	1757	2385	1028
Grp Volume(v), veh/h	579	0	65	53	0	76	21	148	153	189	339	325
Grp Sat Flow(s),veh/h/ln	1757	0	1786	1757	0	1710	1757	1752	1766	1757	1752	1661
Q Serve(g_s), s	20.7	0.0	1.6	1.9	0.0	2.9	0.8	5.1	5.2	6.9	11.5	11.7
Cycle Q Clear(g_c), s	20.7	0.0	1.6	1.9	0.0	2.9	0.8	5.1	5.2	6.9	11.5	11.7
Prop In Lane	1.00		0.18	1.00		0.45	1.00		0.25	1.00		0.62
Lane Grp Cap(c), veh/h	637	0	647	120	0	117	43	287	290	233	478	453
V/C Ratio(X)	0.91	0.00	0.10	0.44	0.00	0.65	0.49	0.52	0.53	0.81	0.71	0.72
Avail Cap(c_a), veh/h	1153	0	1172	282	0	274	133	588	593	420	874	829
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.0	0.0	13.9	29.6	0.0	30.0	31.9	25.2	25.3	27.9	21.7	21.8
Incr Delay (d2), s/veh	2.3	0.0	0.0	0.9	0.0	2.2	3.3	0.5	0.6	2.6	0.7	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	10.4	0.0	0.8	1.0	0.0	1.4	0.4	2.5	2.6	3.5	5.7	5.4
LnGrp Delay(d),s/veh	22.3	0.0	14.0	30.5	0.0	32.3	35.1	25.8	25.8	30.4	22.4	22.6
LnGrp LOS	C		B	C		C	D	C	C	C	C	C
Approach Vol, veh/h		644			129			322			853	
Approach Delay, s/veh		21.5			31.6			26.4			24.3	
Approach LOS		C			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	13.0	15.4		28.6	5.8	22.6		9.1
Change Period (Y+Rc), s	* 4.2	4.6		4.6	* 4.2	4.6		4.6
Max Green Setting (Gmax), s	* 16	22.2		43.4	* 5	33.0		10.6
Max Q Clear Time (g_c+I1), s	12.9	7.2		22.7	2.8	13.7		4.9
Green Ext Time (p_c), s	0.1	3.4		1.1	0.0	3.7		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	24.2
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	182.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	460	480	300	20	60	450
Future Vol, veh/h	460	480	300	20	60	450
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	484	505	316	21	63	474

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	337	0	-	0	1800	326
Stage 1	-	-	-	-	326	-
Stage 2	-	-	-	-	1474	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1217	-	-	-	87	713
Stage 1	-	-	-	-	729	-
Stage 2	-	-	-	-	209	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1217	-	-	-	~ 39	713
Mov Cap-2 Maneuver	-	-	-	-	~ 39	-
Stage 1	-	-	-	-	729	-
Stage 2	-	-	-	-	93	-

Approach	EB	WB	SB
HCM Control Delay, s	4.8	0	$ 624.4
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1217	-	-	-	235
HCM Lane V/C Ratio	0.398	-	-	-	2.284
HCM Control Delay (s)	9.9	0	-	-	$ 624.4
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	1.9	-	-	-	42.5

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

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	290	520	770	520	400	780
Future Vol, veh/h	290	520	770	520	400	780
Conflicting Peds, #/hr	2	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	315	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	305	547	811	547	421	821

Major/Minor	Minor1		Major1		Minor2	
Conflicting Flow All	1224	811	0	0	1084	811
Stage 1	811	-	-	-	0	0
Stage 2	413	-	-	-	1084	811
Critical Hdwy	7.13	6.23	-	-	7.13	6.53
Critical Hdwy Stg 1	6.13	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	6.13	5.53
Follow-up Hdwy	3.527	3.327	-	-	3.527	4.027
Pot Cap-1 Maneuver	~ 155	~ 378	-	-	~ 194	~ 312
Stage 1	372	-	-	-	-	-
Stage 2	-	-	-	-	~ 262	~ 391
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	-	~ 378	-	-	-	~ 312
Mov Cap-2 Maneuver	-	-	-	-	-	~ 312
Stage 1	372	-	-	-	-	-
Stage 2	-	-	-	-	-	~ 391

Approach	WB	NB	SB
HCM Control Delay, s		0	
HCM LOS	-		-

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBLn1	SBLn2
Capacity (veh/h)	-	-	-	-	312
HCM Lane V/C Ratio	-	-	-	-	2.632
HCM Control Delay (s)	-	-	-	-	$ 768.9
HCM Lane LOS	-	-	-	-	F
HCM 95th %tile Q(veh)	-	-	-	-	68.2

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

Intersection	
Int Delay, s/veh	684.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	370	920	20	40	970
Future Vol, veh/h	20	370	920	20	40	970
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	21	389	968	21	42	1021

Major/Minor	Minor1		Minor2		Major2	
Conflicting Flow All	1600	0	1105	1021	0	0
Stage 1	0	-	1105	-	-	-
Stage 2	1600	-	0	-	-	-
Critical Hdwy	7.13	6.23	6.53	6.23	4.13	-
Critical Hdwy Stg 1	-	-	5.53	-	-	-
Critical Hdwy Stg 2	6.13	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	4.027	3.327	2.227	-
Pot Cap-1 Maneuver	85	-	~ 210	286	-	-
Stage 1	-	-	~ 285	-	-	-
Stage 2	133	-	-	-	-	-
Platoon blocked, %						-
Mov Cap-1 Maneuver	-	-	~ 210	286	-	-
Mov Cap-2 Maneuver	-	-	~ 210	-	-	-
Stage 1	-	-	~ 285	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s		$ 1703.7	
HCM LOS	-	F	

Minor Lane/Major Mvmt	NBLn1	WBLn1	SBL	SBT
Capacity (veh/h)	211	-	-	-
HCM Lane V/C Ratio	4.689	-	-	-
HCM Control Delay (s)	$ 1703.7	-	-	-
HCM Lane LOS	F	-	-	-
HCM 95th %tile Q(veh)	101	-	-	-

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

PROJECT ALTERNATIVE 1 (APARTMENTS AND RETAIL)
SCENARIO OUTPUTS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	232	486	147	202	31	172	107	64	13	198	98
Future Volume (veh/h)	24	232	486	147	202	31	172	107	64	13	198	98
Number	5	2	12	1	6	16	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		0.99	1.00		1.00	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	1845	1845	1845	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	28	273	128	173	238	20	202	126	27	15	233	68
Adj No. of Lanes	1	2	1	1	3	0	2	2	0	1	2	0
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	56	606	267	219	1261	104	346	816	170	33	505	144
Arrive On Green	0.03	0.17	0.17	0.12	0.27	0.27	0.10	0.28	0.28	0.02	0.19	0.19
Sat Flow, veh/h	1757	3505	1546	1757	4742	391	3408	2885	602	1757	2693	768
Grp Volume(v), veh/h	28	273	128	173	167	91	202	75	78	15	150	151
Grp Sat Flow(s),veh/h/ln	1757	1752	1546	1757	1679	1776	1704	1752	1735	1757	1752	1709
Q Serve(g_s), s	0.9	3.9	4.1	5.3	2.1	2.2	3.1	1.8	1.9	0.5	4.2	4.4
Cycle Q Clear(g_c), s	0.9	3.9	4.1	5.3	2.1	2.2	3.1	1.8	1.9	0.5	4.2	4.4
Prop In Lane	1.00		1.00	1.00		0.22	1.00		0.35	1.00		0.45
Lane Grp Cap(c), veh/h	56	606	267	219	893	472	346	496	491	33	328	320
V/C Ratio(X)	0.50	0.45	0.48	0.79	0.19	0.19	0.58	0.15	0.16	0.46	0.46	0.47
Avail Cap(c_a), veh/h	317	2721	1200	476	909	481	1538	1234	1221	317	633	617
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	26.4	20.5	20.7	23.5	15.7	15.7	23.8	14.9	14.9	26.9	20.0	20.1
Incr Delay (d2), s/veh	2.6	0.2	0.5	2.4	0.0	0.1	1.9	0.2	0.2	3.7	1.4	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.9	1.8	2.7	1.0	1.1	1.5	0.9	0.9	0.3	2.2	2.2
LnGrp Delay(d),s/veh	29.0	20.7	21.1	26.0	15.7	15.8	25.6	15.1	15.1	30.6	21.4	21.6
LnGrp LOS	C	C	C	C	B	B	C	B	B	C	C	C
Approach Vol, veh/h		429			431			355			316	
Approach Delay, s/veh		21.4			19.9			21.1			21.9	
Approach LOS		C			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.1	15.5	6.2	21.6	7.0	20.6	11.5	16.3
Change Period (Y+Rc), s	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9	5.9	* 5.9
Max Green Setting (Gmax), s	* 15	43.0	* 10	39.0	* 10	15.0	25.0	* 20
Max Q Clear Time (g_c+I1), s	7.3	6.1	2.5	3.9	2.9	4.2	5.1	6.4
Green Ext Time (p_c), s	0.1	1.3	0.0	1.1	0.0	0.6	0.8	1.8

Intersection Summary	
HCM 2010 Ctrl Delay	21.0
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	57	205	523	243	79	203	230	176	9	744	78
Future Volume (veh/h)	34	57	205	523	243	79	203	230	176	9	744	78
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	1845	1845	1845	1845	1845	1900	1845	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	38	63	170	610	230	81	226	256	90	10	827	84
Adj No. of Lanes	1	1	2	2	1	0	2	2	1	1	2	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	169	177	576	874	324	114	298	1502	669	21	1135	115
Arrive On Green	0.10	0.10	0.10	0.25	0.25	0.25	0.09	0.43	0.43	0.01	0.35	0.35
Sat Flow, veh/h	1757	1845	3136	3514	1304	459	3408	3505	1562	1757	3213	326
Grp Volume(v), veh/h	38	63	170	610	0	311	226	256	90	10	451	460
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	0	1764	1704	1752	1562	1757	1752	1787
Q Serve(g_s), s	2.1	3.3	4.9	16.4	0.0	16.7	6.7	4.7	3.6	0.6	23.3	23.3
Cycle Q Clear(g_c), s	2.1	3.3	4.9	16.4	0.0	16.7	6.7	4.7	3.6	0.6	23.3	23.3
Prop In Lane	1.00		1.00	1.00		0.26	1.00		1.00	1.00		0.18
Lane Grp Cap(c), veh/h	169	177	576	874	0	439	298	1502	669	21	619	631
V/C Ratio(X)	0.22	0.36	0.30	0.70	0.00	0.71	0.76	0.17	0.13	0.47	0.73	0.73
Avail Cap(c_a), veh/h	761	799	1632	1860	0	933	984	1518	677	423	759	774
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.4	43.9	36.6	35.5	0.0	35.6	46.3	18.3	18.0	51.0	29.3	29.3
Incr Delay (d2), s/veh	0.7	1.2	0.3	1.5	0.0	3.0	1.5	0.2	0.3	5.9	6.2	6.0
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	1.0	1.8	2.1	8.1	0.0	8.5	3.2	2.3	1.6	0.3	12.3	12.6
LnGrp Delay(d),s/veh	44.0	45.1	36.9	36.9	0.0	38.6	47.8	18.5	18.3	56.9	35.4	35.3
LnGrp LOS	D	D	D	D		D	D	B	B	E	D	D
Approach Vol, veh/h		271			921			572			921	
Approach Delay, s/veh		39.8			37.5			30.1			35.6	
Approach LOS		D			D			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.5	50.4		31.4	14.3	42.6		15.6
Change Period (Y+Rc), s	* 5.2	5.9		5.6	* 5.2	5.9		5.6
Max Green Setting (Gmax), s	* 25	45.0		55.0	* 30	45.0		45.0
Max Q Clear Time (g_c+I1), s	12.6	6.7		18.7	8.7	25.3		6.9
Green Ext Time (p_c), s	0.0	5.1		7.1	0.4	11.4		1.1

Intersection Summary	
HCM 2010 Ctrl Delay	35.5
HCM 2010 LOS	D

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	16.6
Intersection LOS	C

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	242	0	0	386	459	106
Future Vol, veh/h	242	0	0	386	459	106
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	288	0	0	460	546	126
Number of Lanes	2	0	0	2	2	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	2
HCM Control Delay	11.3	12.9	21.5
HCM LOS	B	B	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2
Vol Left, %	100%	59%	0%	0%	0%	0%
Vol Thru, %	0%	0%	100%	100%	100%	100%
Vol Right, %	0%	41%	0%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	306	259	121	121	193	193
LT Vol	306	153	0	0	0	0
Through Vol	0	0	121	121	193	193
RT Vol	0	106	0	0	0	0
Lane Flow Rate	364	308	144	144	230	230
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.708	0.557	0.289	0.217	0.445	0.331
Departure Headway (Hd)	6.997	6.5	7.211	5.415	6.977	5.186
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	517	555	496	657	515	687
Service Time	4.754	4.256	4.993	3.196	4.754	2.962
HCM Lane V/C Ratio	0.704	0.555	0.29	0.219	0.447	0.335
HCM Control Delay	25.1	17.2	12.9	9.7	15.3	10.5
HCM Lane LOS	D	C	B	A	C	B
HCM 95th-tile Q	5.6	3.4	1.2	0.8	2.3	1.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	114	609	942	530
Future Volume (veh/h)	0	0	114	609	942	530
Number			5	2	6	16
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)			1.00			1.00
Parking Bus, Adj			1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln			1845	1845	1845	1845
Adj Flow Rate, veh/h			124	662	1024	424
Adj No. of Lanes			2	1	1	1
Peak Hour Factor			0.92	0.92	0.92	0.92
Percent Heavy Veh, %			3	3	3	3
Cap, veh/h			422	1651	1243	1092
Arrive On Green			0.12	0.89	0.67	0.70
Sat Flow, veh/h			3408	1845	1845	1568
Grp Volume(v), veh/h			124	662	1024	424
Grp Sat Flow(s),veh/h/ln			1704	1845	1845	1568
Q Serve(g_s), s			1.6	2.9	19.7	5.4
Cycle Q Clear(g_c), s			1.6	2.9	19.7	5.4
Prop In Lane			1.00			1.00
Lane Grp Cap(c), veh/h			422	1651	1243	1092
V/C Ratio(X)			0.29	0.40	0.82	0.39
Avail Cap(c_a), veh/h			1758	1651	1903	1653
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh			19.3	0.4	5.8	3.1
Incr Delay (d2), s/veh			0.2	0.3	1.8	0.2
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			0.8	1.4	10.3	2.3
LnGrp Delay(d),s/veh			19.5	0.8	7.6	3.3
LnGrp LOS			B	A	A	A
Approach Vol, veh/h				786	1448	
Approach Delay, s/veh				3.7	6.3	
Approach LOS				A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		
Phs Duration (G+Y+Rc), s		48.5			10.7	37.8		
Change Period (Y+Rc), s		5.1			* 4.7	5.1		
Max Green Setting (Gmax), s		25.0			* 25	50.0		
Max Q Clear Time (g_c+I1), s		4.9			3.6	21.7		
Green Ext Time (p_c), s		7.5			0.2	11.0		

Intersection Summary	
HCM 2010 Ctrl Delay	5.4
HCM 2010 LOS	A

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	330	65	151	393	405	537
Future Volume (veh/h)	330	65	151	393	405	537
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	363	37	166	432	445	238
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	440	585	215	977	562	477
Arrive On Green	0.25	0.25	0.12	0.53	0.30	0.30
Sat Flow, veh/h	1757	1568	1757	1845	1845	1568
Grp Volume(v), veh/h	363	37	166	432	445	238
Grp Sat Flow(s),veh/h/ln	1757	1568	1757	1845	1845	1568
Q Serve(g_s), s	9.0	0.7	4.2	6.6	10.2	5.7
Cycle Q Clear(g_c), s	9.0	0.7	4.2	6.6	10.2	5.7
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	440	585	215	977	562	477
V/C Ratio(X)	0.82	0.06	0.77	0.44	0.79	0.50
Avail Cap(c_a), veh/h	1263	1319	1033	1808	1246	1059
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.3	9.2	19.5	6.6	14.6	13.1
Incr Delay (d2), s/veh	1.5	0.0	2.2	0.1	1.0	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	4.5	0.8	2.2	3.4	5.2	2.5
LnGrp Delay(d),s/veh	17.8	9.3	21.7	6.8	15.6	13.4
LnGrp LOS	B	A	C	A	B	B
Approach Vol, veh/h	400			598	683	
Approach Delay, s/veh	17.0			10.9	14.8	
Approach LOS	B			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		29.7		16.2	10.3	19.4		
Change Period (Y+Rc), s		5.4		* 4.7	* 4.7	5.4		
Max Green Setting (Gmax), s		45.0		* 33	* 27	31.0		
Max Q Clear Time (g_c+I1), s		8.6		11.0	6.2	12.2		
Green Ext Time (p_c), s		1.6		0.6	0.2	1.8		

Intersection Summary	
HCM 2010 Ctrl Delay	13.9
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	91	0	227	0	157	51	10	29	0	0	52	110
Future Volume (veh/h)	91	0	227	0	157	51	10	29	0	0	52	110
Number	1	6	16	5	2	12	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		1.00	1.00		1.00	1.00		0.99
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	0	1845	1900	1845	1845	0	0	1845	1900
Adj Flow Rate, veh/h	112	0	36	0	194	53	12	36	0	0	64	22
Adj No. of Lanes	2	1	2	0	1	0	1	2	0	0	2	0
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	3	3	3	0	3	3	3	3	0	0	3	3
Cap, veh/h	331	808	1358	0	283	77	95	199	0	0	238	78
Arrive On Green	0.10	0.00	0.44	0.00	0.20	0.20	0.05	0.05	0.00	0.00	0.09	0.09
Sat Flow, veh/h	3408	1845	2760	0	1396	381	1757	3689	0	0	2683	847
Grp Volume(v), veh/h	112	0	36	0	0	247	12	36	0	0	42	44
Grp Sat Flow(s),veh/h/ln	1704	1845	1380	0	0	1777	1757	1845	0	0	1752	1685
Q Serve(g_s), s	1.0	0.0	0.2	0.0	0.0	4.3	0.2	0.3	0.0	0.0	0.7	0.8
Cycle Q Clear(g_c), s	1.0	0.0	0.2	0.0	0.0	4.3	0.2	0.3	0.0	0.0	0.7	0.8
Prop In Lane	1.00		1.00	0.00		0.21	1.00		0.00	0.00		0.50
Lane Grp Cap(c), veh/h	331	808	1358	0	0	360	95	199	0	0	161	155
V/C Ratio(X)	0.34	0.00	0.03	0.00	0.00	0.69	0.13	0.18	0.00	0.00	0.26	0.28
Avail Cap(c_a), veh/h	2569	1390	2229	0	0	1340	1324	2781	0	0	1321	1270
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	14.0	0.0	4.3	0.0	0.0	12.3	14.9	15.0	0.0	0.0	14.0	14.0
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.0	0.0	2.3	0.6	0.4	0.0	0.0	0.9	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	0.5	0.0	0.1	0.0	0.0	2.3	0.1	0.2	0.0	0.0	0.4	0.4
LnGrp Delay(d),s/veh	14.6	0.0	4.3	0.0	0.0	14.6	15.5	15.4	0.0	0.0	14.9	15.0
LnGrp LOS	B		A			B	B	B			B	B
Approach Vol, veh/h		148			247			48			86	
Approach Delay, s/veh		12.1			14.6			15.5			15.0	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	7.8	11.3		7.6		19.1		6.4
Change Period (Y+Rc), s	4.6	4.6		4.6		4.6		4.6
Max Green Setting (Gmax), s	25.0	25.0		25.0		25.0		25.0
Max Q Clear Time (g_c+I1), s	3.0	6.3		2.8		2.2		2.3
Green Ext Time (p_c), s	0.3	1.2		0.4		0.1		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	14.0
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	128	8	23	548	2	33	5	43	225	4	50
Future Volume (veh/h)	32	128	8	23	548	2	33	5	43	225	4	50
Number	3	8	18	7	4	14	1	6	16	5	2	12
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	1845	1845	1900	1845	1845	1900	1900	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	39	154	4	28	660	2	40	6	6	271	5	15
Adj No. of Lanes	2	2	0	1	2	0	0	1	1	1	1	0
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	149	1062	28	59	1053	3	67	10	69	361	84	251
Arrive On Green	0.04	0.30	0.30	0.03	0.29	0.29	0.04	0.04	0.04	0.21	0.21	0.21
Sat Flow, veh/h	3408	3491	90	1757	3584	11	1537	231	1568	1757	407	1222
Grp Volume(v), veh/h	39	77	81	28	323	339	46	0	6	271	0	20
Grp Sat Flow(s),veh/h/ln	1704	1752	1829	1757	1752	1843	1768	0	1568	1757	0	1629
Q Serve(g_s), s	0.5	1.3	1.3	0.6	6.5	6.5	1.0	0.0	0.1	5.9	0.0	0.4
Cycle Q Clear(g_c), s	0.5	1.3	1.3	0.6	6.5	6.5	1.0	0.0	0.1	5.9	0.0	0.4
Prop In Lane	1.00		0.05	1.00		0.01	0.87		1.00	1.00		0.75
Lane Grp Cap(c), veh/h	149	533	556	59	515	541	77	0	69	361	0	335
V/C Ratio(X)	0.26	0.14	0.15	0.48	0.63	0.63	0.60	0.00	0.09	0.75	0.00	0.06
Avail Cap(c_a), veh/h	486	1095	1142	251	1095	1151	391	0	347	994	0	921
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.8	10.3	10.3	19.3	12.4	12.4	19.1	0.0	18.7	15.2	0.0	13.0
Incr Delay (d2), s/veh	0.9	0.1	0.1	2.2	1.3	1.2	7.1	0.0	0.5	3.1	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	0.2	0.6	0.7	0.3	3.3	3.5	0.7	0.0	0.1	3.2	0.0	0.2
LnGrp Delay(d),s/veh	19.7	10.4	10.4	21.5	13.7	13.6	26.2	0.0	19.2	18.3	0.0	13.1
LnGrp LOS	B	B	B	C	B	B	C		B	B		B
Approach Vol, veh/h		197			690			52			291	
Approach Delay, s/veh		12.3			14.0			25.4			18.0	
Approach LOS		B			B			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		12.4	6.0	16.5		5.8	5.6	17.0
Change Period (Y+Rc), s		4.0	* 4.2	4.6		4.0	* 4.2	4.6
Max Green Setting (Gmax), s		23.0	* 5.8	25.4		9.0	* 5.8	25.4
Max Q Clear Time (g_c+I1), s		7.9	2.5	8.5		3.0	2.6	3.3
Green Ext Time (p_c), s		0.8	0.0	3.5		0.1	0.0	0.7

Intersection Summary	
HCM 2010 Ctrl Delay	15.1
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	139	9	12	451	2	44	0	28	1	0	0
Future Vol, veh/h	12	139	9	12	451	2	44	0	28	1	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	130	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	16	183	12	16	593	3	58	0	37	1	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	596	0	0	195	0	0	550	849	98	751	854	298
Stage 1	-	-	-	-	-	-	221	221	-	627	627	-
Stage 2	-	-	-	-	-	-	329	628	-	124	227	-
Critical Hdwy	4.16	-	-	4.16	-	-	7.56	6.56	6.96	7.56	6.56	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Follow-up Hdwy	2.23	-	-	2.23	-	-	3.53	4.03	3.33	3.53	4.03	3.33
Pot Cap-1 Maneuver	970	-	-	1368	-	-	416	295	936	298	293	695
Stage 1	-	-	-	-	-	-	758	717	-	436	472	-
Stage 2	-	-	-	-	-	-	655	472	-	864	712	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	970	-	-	1368	-	-	407	287	936	280	285	695
Mov Cap-2 Maneuver	-	-	-	-	-	-	407	287	-	280	285	-
Stage 1	-	-	-	-	-	-	746	706	-	429	466	-
Stage 2	-	-	-	-	-	-	647	466	-	816	701	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	0.2	13.4	17.9
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	522	970	-	-	1368	-	-	280
HCM Lane V/C Ratio	0.181	0.016	-	-	0.012	-	-	0.005
HCM Control Delay (s)	13.4	8.8	-	-	7.7	-	-	17.9
HCM Lane LOS	B	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.7	0.1	-	-	0	-	-	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	93	10	48	20	35	109	56	648	24	42	305	64
Future Volume (veh/h)	93	10	48	20	35	109	56	648	24	42	305	64
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	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	135	14	21	29	51	25	81	939	32	61	442	73
Adj No. of Lanes	1	1	0	1	2	0	1	3	0	1	3	0
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	179	94	140	59	172	79	123	1919	65	103	1627	263
Arrive On Green	0.10	0.14	0.14	0.03	0.07	0.07	0.07	0.38	0.38	0.06	0.37	0.37
Sat Flow, veh/h	1757	660	990	1757	2336	1069	1757	5001	170	1757	4369	705
Grp Volume(v), veh/h	135	0	35	29	37	39	81	630	341	61	337	178
Grp Sat Flow(s),veh/h/ln	1757	0	1650	1757	1752	1653	1757	1679	1814	1757	1679	1717
Q Serve(g_s), s	3.4	0.0	0.9	0.7	0.9	1.0	2.1	6.5	6.5	1.6	3.2	3.3
Cycle Q Clear(g_c), s	3.4	0.0	0.9	0.7	0.9	1.0	2.1	6.5	6.5	1.6	3.2	3.3
Prop In Lane	1.00		0.60	1.00		0.65	1.00		0.09	1.00		0.41
Lane Grp Cap(c), veh/h	179	0	234	59	129	122	123	1288	696	103	1250	639
V/C Ratio(X)	0.75	0.00	0.15	0.49	0.29	0.32	0.66	0.49	0.49	0.59	0.27	0.28
Avail Cap(c_a), veh/h	767	0	1619	958	1720	1622	767	2710	1464	767	2563	1311
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.0	0.0	17.2	21.8	20.1	20.1	20.8	10.7	10.7	21.0	10.0	10.1
Incr Delay (d2), s/veh	6.3	0.0	0.3	6.2	1.2	1.5	5.8	0.3	0.6	2.0	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	2.0	0.0	0.4	0.5	0.5	0.5	1.2	3.0	3.3	0.8	1.5	1.6
LnGrp Delay(d),s/veh	26.3	0.0	17.5	27.9	21.3	21.6	26.6	11.1	11.4	23.0	10.2	10.3
LnGrp LOS	C		B	C	C	C	C	B	B	C	B	B
Approach Vol, veh/h		170			105			1052			576	
Approach Delay, s/veh		24.5			23.3			12.4			11.6	
Approach LOS		C			C			B			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	6.9	22.2	5.7	11.0	7.4	21.7	8.9	7.9
Change Period (Y+Rc), s	* 4.2	4.6	* 4.2	4.5	* 4.2	4.6	* 4.2	4.5
Max Green Setting (Gmax), s	* 20	37.0	* 25	45.0	* 20	35.0	* 20	45.0
Max Q Clear Time (g_c+I1), s	3.6	8.5	2.7	2.9	4.1	5.3	5.4	3.0
Green Ext Time (p_c), s	0.0	8.1	0.0	0.2	0.1	3.9	0.3	0.4

Intersection Summary	
HCM 2010 Ctrl Delay	13.8
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	43	90	261	42	284	19	333	666	96	9	236	128
Future Volume (veh/h)	43	90	261	42	284	19	333	666	96	9	236	128
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		0.99	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	1845	1845	1900	1845	1845	1900	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	63	132	83	62	418	22	490	979	82	13	347	45
Adj No. of Lanes	2	3	0	2	3	0	2	2	1	2	2	1
Peak Hour Factor	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	184	518	239	255	859	45	664	1334	597	77	730	327
Arrive On Green	0.05	0.15	0.15	0.07	0.18	0.18	0.19	0.38	0.38	0.02	0.21	0.21
Sat Flow, veh/h	3408	3357	1547	3408	4900	256	3408	3505	1568	3408	3505	1568
Grp Volume(v), veh/h	63	132	83	62	285	155	490	979	82	13	347	45
Grp Sat Flow(s),veh/h/ln	1704	1679	1547	1704	1679	1798	1704	1752	1568	1704	1752	1568
Q Serve(g_s), s	1.1	2.1	2.9	1.0	4.6	4.7	8.2	14.5	2.1	0.2	5.3	1.4
Cycle Q Clear(g_c), s	1.1	2.1	2.9	1.0	4.6	4.7	8.2	14.5	2.1	0.2	5.3	1.4
Prop In Lane	1.00		1.00	1.00		0.14	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	184	518	239	255	588	315	664	1334	597	77	730	327
V/C Ratio(X)	0.34	0.25	0.35	0.24	0.48	0.49	0.74	0.73	0.14	0.17	0.48	0.14
Avail Cap(c_a), veh/h	1128	1389	640	1128	2334	1250	1128	1740	779	1128	1740	779
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.5	22.5	22.8	26.3	22.5	22.5	22.9	16.1	12.2	29.0	21.0	19.5
Incr Delay (d2), s/veh	1.3	0.3	1.0	0.6	0.7	1.4	2.0	1.3	0.1	1.2	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	0.5	1.0	1.3	0.5	2.2	2.4	4.0	7.2	0.9	0.1	2.6	0.6
LnGrp Delay(d),s/veh	28.9	22.8	23.9	26.9	23.2	23.9	24.8	17.4	12.4	30.2	21.6	19.7
LnGrp LOS	C	C	C	C	C	C	C	B	B	C	C	B
Approach Vol, veh/h		278			502			1551			405	
Approach Delay, s/veh		24.5			23.9			19.5			21.7	
Approach LOS		C			C			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	8.5	16.5	6.6	28.9	9.7	15.2	17.0	18.5
Change Period (Y+Rc), s	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9
Max Green Setting (Gmax), s	* 20	42.0	* 20	30.0	* 20	25.0	* 20	30.0
Max Q Clear Time (g_c+I1), s	3.1	6.7	2.2	16.5	3.0	4.9	10.2	7.3
Green Ext Time (p_c), s	0.2	3.4	0.0	6.5	0.2	1.3	1.6	2.7

Intersection Summary	
HCM 2010 Ctrl Delay	21.1
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	115.1
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	425	0	249	0	0	0	72	670	0	1	516	22
Future Vol, veh/h	425	0	249	0	0	0	72	670	0	1	516	22
Peak Hour Factor	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	590	0	346	0	0	0	100	931	0	1	717	31
Number of Lanes	1	1	1	0	0	0	1	2	0	0	2	1

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	3	3
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	3	3	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	3	0	3
HCM Control Delay	38.2	140.2	176.7
HCM LOS	E	F	F

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	100%	100%	0%	1%	0%	0%
Vol Thru, %	0%	100%	100%	0%	0%	0%	99%	100%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	72	335	335	213	213	249	173	344	22
LT Vol	72	0	0	213	213	0	1	0	0
Through Vol	0	335	335	0	0	0	172	344	0
RT Vol	0	0	0	0	0	249	0	0	22
Lane Flow Rate	100	465	465	295	295	346	240	478	31
Geometry Grp	8	8	8	7	7	7	8	8	8
Degree of Util (X)	0.3	1.329	1.103	0.763	0.763	0.779	0.735	1.462	0.088
Departure Headway (Hd)	11.795	11.277	9.461	10.126	10.126	8.899	11.876	11.873	11.15
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	307	326	386	360	360	408	308	311	323
Service Time	9.495	8.977	7.161	7.826	7.826	6.599	9.576	9.573	8.85
HCM Lane V/C Ratio	0.326	1.426	1.205	0.819	0.819	0.848	0.779	1.537	0.096
HCM Control Delay	19.5	198.6	107.7	39	39	36.7	41.5	255	14.9
HCM Lane LOS	C	F	F	E	E	E	E	F	B
HCM 95th-tile Q	1.2	20.8	15.2	6.1	6.1	6.6	5.4	24.3	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	500	3	199	0	0	0	0	242	262	321	444	0
Future Volume (veh/h)	500	3	199	0	0	0	0	242	262	321	444	0
Number	3	8	18				1	6	16	5	2	12
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	1900	1845	1845				0	1845	1845	1845	1845	0
Adj Flow Rate, veh/h	602	4	132				0	292	73	387	535	0
Adj No. of Lanes	0	1	1				0	1	1	2	1	0
Peak Hour Factor	0.83	0.83	0.83				0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	712	5	639				0	381	324	531	794	0
Arrive On Green	0.41	0.41	0.41				0.00	0.21	0.21	0.16	0.43	0.00
Sat Flow, veh/h	1746	12	1568				0	1845	1566	3408	1845	0
Grp Volume(v), veh/h	606	0	132				0	292	73	387	535	0
Grp Sat Flow(s),veh/h/ln	1757	0	1568				0	1845	1566	1704	1845	0
Q Serve(g_s), s	16.9	0.0	3.0				0.0	8.1	2.1	5.9	12.6	0.0
Cycle Q Clear(g_c), s	16.9	0.0	3.0				0.0	8.1	2.1	5.9	12.6	0.0
Prop In Lane	0.99		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	716	0	639				0	381	324	531	794	0
V/C Ratio(X)	0.85	0.00	0.21				0.00	0.77	0.23	0.73	0.67	0.00
Avail Cap(c_a), veh/h	2101	0	1875				0	882	749	1254	814	0
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	1.00	1.00	0.00
Uniform Delay (d), s/veh	14.6	0.0	10.4				0.0	20.3	17.9	21.9	12.4	0.0
Incr Delay (d2), s/veh	1.1	0.0	0.1				0.0	1.2	0.1	0.7	1.7	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	8.3	0.0	1.3				0.0	4.3	0.9	2.8	6.8	0.0
LnGrp Delay(d),s/veh	15.6	0.0	10.5				0.0	21.5	18.1	22.6	14.1	0.0
LnGrp LOS	B		B					C	B	C	B	
Approach Vol, veh/h		738						365			922	
Approach Delay, s/veh		14.7						20.9			17.7	
Approach LOS		B						C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		28.0			12.2	15.8		26.4
Change Period (Y+Rc), s		4.6			3.7	4.6		4.2
Max Green Setting (Gmax), s		24.0			20.0	26.0		65.0
Max Q Clear Time (g_c+I1), s		14.6			7.9	10.1		18.9
Green Ext Time (p_c), s		1.5			0.6	1.0		3.2

Intersection Summary	
HCM 2010 Ctrl Delay	17.2
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	186	19	5	16	29	100	12	155	11	80	162	290
Future Volume (veh/h)	186	19	5	16	29	100	12	155	11	80	162	290
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	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	209	21	2	18	33	13	13	174	8	90	182	122
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	280	264	25	112	80	32	30	858	39	138	644	410
Arrive On Green	0.16	0.16	0.16	0.06	0.06	0.06	0.02	0.25	0.25	0.08	0.31	0.31
Sat Flow, veh/h	1757	1659	158	1757	1260	497	1757	3413	156	1757	2057	1309
Grp Volume(v), veh/h	209	0	23	18	0	46	13	89	93	90	154	150
Grp Sat Flow(s),veh/h/ln	1757	0	1817	1757	0	1757	1757	1752	1816	1757	1752	1614
Q Serve(g_s), s	4.6	0.0	0.4	0.4	0.0	1.0	0.3	1.6	1.6	2.0	2.7	2.8
Cycle Q Clear(g_c), s	4.6	0.0	0.4	0.4	0.0	1.0	0.3	1.6	1.6	2.0	2.7	2.8
Prop In Lane	1.00		0.09	1.00		0.28	1.00		0.09	1.00		0.81
Lane Grp Cap(c), veh/h	280	0	289	112	0	112	30	440	456	138	549	506
V/C Ratio(X)	0.75	0.00	0.08	0.16	0.00	0.41	0.44	0.20	0.20	0.65	0.28	0.30
Avail Cap(c_a), veh/h	1310	0	1354	1310	0	1310	1091	1306	1354	1310	1306	1203
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.1	0.0	14.4	17.8	0.0	18.1	19.6	11.9	11.9	18.0	10.4	10.5
Incr Delay (d2), s/veh	1.5	0.0	0.0	0.2	0.0	0.9	3.8	0.1	0.1	1.9	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	2.3	0.0	0.2	0.2	0.0	0.5	0.2	0.8	0.8	1.0	1.3	1.3
LnGrp Delay(d),s/veh	17.7	0.0	14.5	18.1	0.0	19.0	23.4	12.0	12.0	19.9	10.5	10.6
LnGrp LOS	B		B	B		B	C	B	B	B	B	B
Approach Vol, veh/h		232			64			195			394	
Approach Delay, s/veh		17.3			18.8			12.7			12.7	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.4	14.7		11.0	4.9	17.2		7.2
Change Period (Y+Rc), s	* 4.2	4.6		4.6	* 4.2	4.6		4.6
Max Green Setting (Gmax), s	* 3.6	30.0		30.0	* 25	30.0		30.0
Max Q Clear Time (g_c+I1), s	4.0	3.6		6.6	2.3	4.8		3.0
Green Ext Time (p_c), s	0.1	0.6		0.4	0.0	1.1		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	14.4
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	6.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	68	108	201	4	15	275
Future Vol, veh/h	68	108	201	4	15	275
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	71	113	209	4	16	286

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	213	0	-	0	466	211
Stage 1	-	-	-	-	211	-
Stage 2	-	-	-	-	255	-
Critical Hdwy	4.14	-	-	-	6.44	6.24
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	2.236	-	-	-	3.536	3.336
Pot Cap-1 Maneuver	1345	-	-	-	551	824
Stage 1	-	-	-	-	819	-
Stage 2	-	-	-	-	783	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1345	-	-	-	520	824
Mov Cap-2 Maneuver	-	-	-	-	520	-
Stage 1	-	-	-	-	773	-
Stage 2	-	-	-	-	783	-

Approach	EB	WB	SB
HCM Control Delay, s	3	0	12.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1345	-	-	-	800
HCM Lane V/C Ratio	0.053	-	-	-	0.378
HCM Control Delay (s)	7.8	0	-	-	12.2
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	1.8

Intersection	
Int Delay, s/veh	182.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	273	234	300	119	47	379
Future Vol, veh/h	273	234	300	119	47	379
Conflicting Peds, #/hr	5	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	315	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	300	257	330	131	52	416

Major/Minor	Minor1		Major1		Minor2	
Conflicting Flow All	543	330	0	0	458	330
Stage 1	330	-	-	-	0	0
Stage 2	213	-	-	-	458	330
Critical Hdwy	7.13	6.23	-	-	7.13	6.53
Critical Hdwy Stg 1	6.13	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	6.13	5.53
Follow-up Hdwy	3.527	3.327	-	-	3.527	4.027
Pot Cap-1 Maneuver	449	709	-	-	511	588
Stage 1	681	-	-	-	-	-
Stage 2	-	-	-	-	581	644
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	~ 190	709	-	-	326	588
Mov Cap-2 Maneuver	~ 190	-	-	-	326	588
Stage 1	681	-	-	-	-	-
Stage 2	-	-	-	-	370	644

Approach	WB	NB	SB
HCM Control Delay, s	$ 465.6	0	23.9
HCM LOS	F		C

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBLn1	SBLn2
Capacity (veh/h)	-	-	287	326	588
HCM Lane V/C Ratio	-	-	1.941	0.158	0.708
HCM Control Delay (s)	-	-	$ 465.6	18.1	24.6
HCM Lane LOS	-	-	F	C	C
HCM 95th %tile Q(veh)	-	-	39.1	0.6	5.7

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

Intersection	
Int Delay, s/veh	134.1

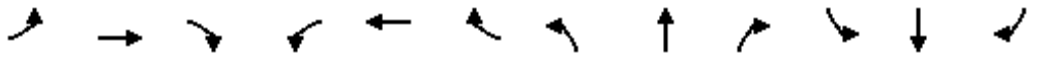
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	72	21	398	9	42	527
Future Vol, veh/h	72	21	398	9	42	527
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	76	76	76	76	76	76
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	95	28	524	12	55	693

Major/Minor	Minor1		Minor2		Major2	
Conflicting Flow All	1072	0	804	693	0	0
Stage 1	0	-	804	-	-	-
Stage 2	1072	-	0	-	-	-
Critical Hdwy	7.13	6.23	6.53	6.23	4.13	-
Critical Hdwy Stg 1	-	-	5.53	-	-	-
Critical Hdwy Stg 2	6.13	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	4.027	3.327	2.227	-
Pot Cap-1 Maneuver	197	-	~ 315	442	-	-
Stage 1	-	-	~ 394	-	-	-
Stage 2	266	-	-	-	-	-
Platoon blocked, %						-
Mov Cap-1 Maneuver	-	-	~ 315	442	-	-
Mov Cap-2 Maneuver	-	-	~ 315	-	-	-
Stage 1	-	-	~ 394	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s		$ 352.3	
HCM LOS	-	F	

Minor Lane/Major Mvmt	NBLn1	WBLn1	SBL	SBT
Capacity (veh/h)	317	-	-	-
HCM Lane V/C Ratio	1.689	-	-	-
HCM Control Delay (s)	$ 352.3	-	-	-
HCM Lane LOS	F	-	-	-
HCM 95th %tile Q(veh)	33.3	-	-	-

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 (veh/h)	17	79	208	171	154	40	256	202	128	20	131	37
Future Volume (veh/h)	17	79	208	171	154	40	256	202	128	20	131	37
Number	5	2	12	1	6	16	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		0.98	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	1845	1845	1845	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	20	91	46	197	177	17	294	232	70	23	151	23
Adj No. of Lanes	1	2	1	1	3	0	2	2	0	1	2	0
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	42	486	213	244	1190	112	570	861	254	47	519	78
Arrive On Green	0.02	0.14	0.14	0.14	0.25	0.25	0.17	0.32	0.32	0.03	0.17	0.17
Sat Flow, veh/h	1757	3505	1534	1757	4684	440	3408	2671	787	1757	3058	458
Grp Volume(v), veh/h	20	91	46	197	126	68	294	150	152	23	85	89
Grp Sat Flow(s),veh/h/ln	1757	1752	1534	1757	1679	1766	1704	1752	1706	1757	1752	1763
Q Serve(g_s), s	0.7	1.4	1.6	6.5	1.7	1.8	4.7	3.8	3.9	0.8	2.5	2.6
Cycle Q Clear(g_c), s	0.7	1.4	1.6	6.5	1.7	1.8	4.7	3.8	3.9	0.8	2.5	2.6
Prop In Lane	1.00		1.00	1.00		0.25	1.00		0.46	1.00		0.26
Lane Grp Cap(c), veh/h	42	486	213	244	853	449	570	565	550	47	297	299
V/C Ratio(X)	0.48	0.19	0.22	0.81	0.15	0.15	0.52	0.27	0.28	0.49	0.29	0.30
Avail Cap(c_a), veh/h	296	2536	1110	444	853	449	1434	1150	1120	296	590	593
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	28.6	22.6	22.7	24.8	17.2	17.2	22.5	14.9	15.0	28.5	21.5	21.6
Incr Delay (d2), s/veh	3.2	0.1	0.2	2.4	0.0	0.1	0.9	0.4	0.4	3.0	0.7	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.7	0.7	3.3	0.8	0.9	2.3	1.9	1.9	0.4	1.3	1.3
LnGrp Delay(d),s/veh	31.8	22.7	22.9	27.2	17.2	17.3	23.4	15.3	15.4	31.5	22.3	22.3
LnGrp LOS	C	C	C	C	B	B	C	B	B	C	C	C
Approach Vol, veh/h		157			391			596			197	
Approach Delay, s/veh		23.9			22.2			19.3			23.4	
Approach LOS		C			C			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	13.5	14.1	6.8	25.0	6.6	21.0	15.8	16.0
Change Period (Y+Rc), s	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9	5.9	* 5.9
Max Green Setting (Gmax), s	* 15	43.0	* 10	39.0	* 10	15.0	25.0	* 20
Max Q Clear Time (g_c+I1), s	8.5	3.6	2.8	5.9	2.7	3.8	6.7	4.6
Green Ext Time (p_c), s	0.1	1.0	0.0	3.8	0.0	0.8	3.3	0.9

Intersection Summary	
HCM 2010 Ctrl Delay	21.3
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	157	212	617	526	373	77	410	352	118	2	377	131
Future Volume (veh/h)	157	212	617	526	373	77	410	352	118	2	377	131
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	1845	1845	1845	1845	1845	1900	1845	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	173	233	583	356	721	80	451	387	53	2	414	128
Adj No. of Lanes	1	1	2	1	2	0	2	2	1	1	2	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	343	360	1077	497	924	102	506	1268	566	5	571	175
Arrive On Green	0.20	0.20	0.20	0.28	0.28	0.28	0.15	0.36	0.36	0.00	0.22	0.22
Sat Flow, veh/h	1757	1845	3136	1757	3264	362	3408	3505	1565	1757	2645	809
Grp Volume(v), veh/h	173	233	583	356	407	394	451	387	53	2	273	269
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	1845	1781	1704	1752	1565	1757	1752	1702
Q Serve(g_s), s	12.4	16.5	21.2	25.8	28.8	28.8	18.4	11.2	3.2	0.2	20.5	20.9
Cycle Q Clear(g_c), s	12.4	16.5	21.2	25.8	28.8	28.8	18.4	11.2	3.2	0.2	20.5	20.9
Prop In Lane	1.00		1.00	1.00		0.20	1.00		1.00	1.00		0.48
Lane Grp Cap(c), veh/h	343	360	1077	497	522	504	506	1268	566	5	378	367
V/C Ratio(X)	0.50	0.65	0.54	0.72	0.78	0.78	0.89	0.31	0.09	0.43	0.72	0.73
Avail Cap(c_a), veh/h	558	586	1463	683	717	692	722	1268	566	310	557	541
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	50.9	52.5	37.5	45.6	46.7	46.7	59.1	32.4	29.9	70.5	51.6	51.7
Incr Delay (d2), s/veh	1.2	2.0	0.4	3.0	4.7	4.9	7.8	0.5	0.3	21.1	9.0	9.8
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	6.2	8.6	9.2	13.0	15.3	14.9	9.2	5.5	1.4	0.1	10.9	10.8
LnGrp Delay(d),s/veh	52.0	54.5	37.9	48.6	51.4	51.6	66.9	32.9	30.1	91.6	60.6	61.5
LnGrp LOS	D	D	D	D	D	D	E	C	C	F	E	E
Approach Vol, veh/h		989			1157			891			544	
Approach Delay, s/veh		44.3			50.6			50.0			61.1	
Approach LOS		D			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	5.6	57.1		45.7	26.2	36.5		33.2
Change Period (Y+Rc), s	* 5.2	5.9		5.6	* 5.2	5.9		5.6
Max Green Setting (Gmax), s	* 25	45.0		55.0	* 30	45.0		45.0
Max Q Clear Time (g_c+I1), s	12.2	13.2		30.8	20.4	22.9		23.2
Green Ext Time (p_c), s	0.0	15.7		9.3	0.6	7.7		4.4

Intersection Summary		
HCM 2010 Ctrl Delay		50.3
HCM 2010 LOS		D

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	14.9
Intersection LOS	B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	332	0	0	479	497	14
Future Vol, veh/h	332	0	0	479	497	14
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	335	0	0	484	502	14
Number of Lanes	2	0	0	2	2	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	2
HCM Control Delay	11.3	12.6	19.3
HCM LOS	B	B	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2
Vol Left, %	100%	92%	0%	0%	0%	0%
Vol Thru, %	0%	0%	100%	100%	100%	100%
Vol Right, %	0%	8%	0%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	331	180	166	166	240	240
LT Vol	331	166	0	0	0	0
Through Vol	0	0	166	166	240	240
RT Vol	0	14	0	0	0	0
Lane Flow Rate	335	181	168	168	242	242
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.658	0.352	0.322	0.239	0.452	0.332
Departure Headway (Hd)	7.076	6.981	6.914	5.122	6.723	4.935
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	509	514	516	694	532	723
Service Time	4.831	4.737	4.694	2.901	4.498	2.709
HCM Lane V/C Ratio	0.658	0.352	0.326	0.242	0.455	0.335
HCM Control Delay	22.5	13.5	13	9.5	15	10.2
HCM Lane LOS	C	B	B	A	B	B
HCM 95th-tile Q	4.7	1.6	1.4	0.9	2.3	1.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	115	880	868	652
Future Volume (veh/h)	0	0	115	880	868	652
Number			5	2	6	16
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)			1.00			1.00
Parking Bus, Adj			1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln			1845	1845	1845	1845
Adj Flow Rate, veh/h			126	967	954	521
Adj No. of Lanes			2	1	1	1
Peak Hour Factor			0.91	0.91	0.91	0.91
Percent Heavy Veh, %			3	3	3	3
Cap, veh/h			411	1656	1259	1070
Arrive On Green			0.12	0.90	0.68	0.68
Sat Flow, veh/h			3408	1845	1845	1568
Grp Volume(v), veh/h			126	967	954	521
Grp Sat Flow(s),veh/h/ln			1704	1845	1845	1568
Q Serve(g_s), s			1.7	5.6	16.9	7.9
Cycle Q Clear(g_c), s			1.7	5.6	16.9	7.9
Prop In Lane			1.00			1.00
Lane Grp Cap(c), veh/h			411	1656	1259	1070
V/C Ratio(X)			0.31	0.58	0.76	0.49
Avail Cap(c_a), veh/h			1711	1656	1852	1575
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh			20.0	0.5	5.2	3.8
Incr Delay (d2), s/veh			0.2	0.8	1.1	0.3
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			0.8	2.8	8.6	3.4
LnGrp Delay(d),s/veh			20.2	1.4	6.3	4.1
LnGrp LOS			C	A	A	A
Approach Vol, veh/h				1093	1475	
Approach Delay, s/veh				3.6	5.5	
Approach LOS				A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		
Phs Duration (G+Y+Rc), s		49.8			10.7	39.1		
Change Period (Y+Rc), s		5.1			* 4.7	5.1		
Max Green Setting (Gmax), s		25.0			* 25	50.0		
Max Q Clear Time (g_c+I1), s		7.6			3.7	18.9		
Green Ext Time (p_c), s		15.4			0.2	15.1		

Intersection Summary	
HCM 2010 Ctrl Delay	4.7
HCM 2010 LOS	A

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	448	110	215	547	359	509
Future Volume (veh/h)	448	110	215	547	359	509
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	467	68	224	570	374	148
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	531	721	278	962	519	441
Arrive On Green	0.30	0.30	0.16	0.52	0.28	0.28
Sat Flow, veh/h	1757	1568	1757	1845	1845	1568
Grp Volume(v), veh/h	467	68	224	570	374	148
Grp Sat Flow(s),veh/h/ln	1757	1568	1757	1845	1845	1568
Q Serve(g_s), s	14.5	1.4	7.0	12.3	10.5	4.3
Cycle Q Clear(g_c), s	14.5	1.4	7.0	12.3	10.5	4.3
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	531	721	278	962	519	441
V/C Ratio(X)	0.88	0.09	0.81	0.59	0.72	0.34
Avail Cap(c_a), veh/h	1012	1151	828	1449	998	849
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.0	8.7	23.3	9.5	18.5	16.3
Incr Delay (d2), s/veh	1.9	0.0	2.1	0.2	0.7	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	7.3	1.7	3.6	6.2	5.4	1.9
LnGrp Delay(d),s/veh	20.9	8.7	25.4	9.7	19.3	16.5
LnGrp LOS	C	A	C	A	B	B
Approach Vol, veh/h	535			794	522	
Approach Delay, s/veh	19.4			14.1	18.5	
Approach LOS	B			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		35.3		22.0	13.8	21.5		
Change Period (Y+Rc), s		5.4		* 4.7	* 4.7	5.4		
Max Green Setting (Gmax), s		45.0		* 33	* 27	31.0		
Max Q Clear Time (g_c+I1), s		14.3		16.5	9.0	12.5		
Green Ext Time (p_c), s		3.9		0.8	0.3	3.7		

Intersection Summary	
HCM 2010 Ctrl Delay	16.9
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	0	170	0	259	13	36	23	0	0	70	116
Future Volume (veh/h)	63	0	170	0	259	13	36	23	0	0	70	116
Number	1	6	16	5	2	12	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		0.97
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	0	1845	1900	1845	1845	0	0	1845	1900
Adj Flow Rate, veh/h	77	0	122	0	316	15	44	28	0	0	85	23
Adj No. of Lanes	2	1	2	0	1	0	2	1	0	0	2	0
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	3	3	3	0	3	3	3	3	0	0	3	3
Cap, veh/h	253	841	1425	0	446	21	250	131	0	0	258	67
Arrive On Green	0.07	0.00	0.46	0.00	0.26	0.26	0.07	0.07	0.00	0.00	0.09	0.09
Sat Flow, veh/h	3408	1845	2697	0	1747	83	3514	1845	0	0	2826	708
Grp Volume(v), veh/h	77	0	122	0	0	331	44	28	0	0	53	55
Grp Sat Flow(s),veh/h/ln	1704	1845	1348	0	0	1830	1757	1845	0	0	1752	1690
Q Serve(g_s), s	0.8	0.0	0.8	0.0	0.0	6.0	0.4	0.5	0.0	0.0	1.0	1.1
Cycle Q Clear(g_c), s	0.8	0.0	0.8	0.0	0.0	6.0	0.4	0.5	0.0	0.0	1.0	1.1
Prop In Lane	1.00		1.00	0.00		0.05	1.00		0.00	0.00		0.42
Lane Grp Cap(c), veh/h	253	841	1425	0	0	467	250	131	0	0	165	159
V/C Ratio(X)	0.30	0.00	0.09	0.00	0.00	0.71	0.18	0.21	0.00	0.00	0.32	0.34
Avail Cap(c_a), veh/h	2340	1266	2048	0	0	1256	2412	1266	0	0	1203	1160
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	16.0	0.0	4.3	0.0	0.0	12.3	15.9	16.0	0.0	0.0	15.4	15.4
Incr Delay (d2), s/veh	0.7	0.0	0.0	0.0	0.0	2.0	0.3	0.8	0.0	0.0	1.1	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.3	0.0	0.0	3.2	0.2	0.3	0.0	0.0	0.6	0.6
LnGrp Delay(d),s/veh	16.6	0.0	4.3	0.0	0.0	14.3	16.2	16.8	0.0	0.0	16.5	16.7
LnGrp LOS	B		A			B	B	B			B	B
Approach Vol, veh/h		199			331			72			108	
Approach Delay, s/veh		9.1			14.3			16.4			16.6	
Approach LOS		A			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	7.3	13.9		8.0		21.2		7.2
Change Period (Y+Rc), s	4.6	4.6		4.6		4.6		4.6
Max Green Setting (Gmax), s	25.0	25.0		25.0		25.0		25.0
Max Q Clear Time (g_c+I1), s	2.8	8.0		3.1		2.8		2.5
Green Ext Time (p_c), s	0.7	1.6		0.5		0.7		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	13.4
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	462	23	64	252	1	41	24	43	188	23	29
Future Volume (veh/h)	34	462	23	64	252	1	41	24	43	188	23	29
Number	3	8	18	7	4	14	1	6	16	5	2	12
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	1845	1845	1900	1845	1845	1900	1900	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	47	633	27	88	345	1	56	33	6	258	32	10
Adj No. of Lanes	2	2	0	1	2	0	0	1	1	1	1	0
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	166	1060	45	127	1194	3	75	44	105	343	263	82
Arrive On Green	0.05	0.31	0.31	0.07	0.33	0.33	0.07	0.07	0.07	0.19	0.19	0.19
Sat Flow, veh/h	3408	3425	146	1757	3585	10	1125	663	1568	1757	1349	421
Grp Volume(v), veh/h	47	324	336	88	169	177	89	0	6	258	0	42
Grp Sat Flow(s),veh/h/ln	1704	1752	1819	1757	1752	1843	1788	0	1568	1757	0	1770
Q Serve(g_s), s	0.6	7.4	7.4	2.3	3.3	3.4	2.3	0.0	0.2	6.5	0.0	0.9
Cycle Q Clear(g_c), s	0.6	7.4	7.4	2.3	3.3	3.4	2.3	0.0	0.2	6.5	0.0	0.9
Prop In Lane	1.00		0.08	1.00		0.01	0.63		1.00	1.00		0.24
Lane Grp Cap(c), veh/h	166	542	563	127	584	614	120	0	105	343	0	345
V/C Ratio(X)	0.28	0.60	0.60	0.69	0.29	0.29	0.74	0.00	0.06	0.75	0.00	0.12
Avail Cap(c_a), veh/h	419	944	979	216	944	992	341	0	299	857	0	863
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.6	13.8	13.8	21.4	11.6	11.6	21.6	0.0	20.6	17.9	0.0	15.7
Incr Delay (d2), s/veh	0.9	1.1	1.0	2.5	0.3	0.3	8.7	0.0	0.2	3.4	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	3.7	3.8	1.2	1.6	1.7	1.4	0.0	0.1	3.5	0.0	0.5
LnGrp Delay(d),s/veh	22.6	14.9	14.8	23.8	11.9	11.9	30.3	0.0	20.8	21.3	0.0	15.8
LnGrp LOS	C	B	B	C	B	B	C		C	C		B
Approach Vol, veh/h		707			434			95			300	
Approach Delay, s/veh		15.4			14.3			29.7			20.5	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		13.2	6.5	20.3		7.2	7.6	19.2
Change Period (Y+Rc), s		4.0	* 4.2	4.6		4.0	* 4.2	4.6
Max Green Setting (Gmax), s		23.0	* 5.8	25.4		9.0	* 5.8	25.4
Max Q Clear Time (g_c+I1), s		8.5	2.6	5.4		4.3	4.3	9.4
Green Ext Time (p_c), s		0.8	0.0	5.7		0.1	0.0	5.2

Intersection Summary	
HCM 2010 Ctrl Delay	17.0
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	499	19	39	343	2	14	0	9	11	0	10
Future Vol, veh/h	3	499	19	39	343	2	14	0	9	11	0	10
Conflicting Peds, #/hr	2	0	0	0	0	2	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	-	-	130	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	4	616	23	48	423	2	17	0	11	14	0	12

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	428	0	0	640	0	0	943	1159	320	838	1170	215
Stage 1	-	-	-	-	-	-	635	635	-	523	523	-
Stage 2	-	-	-	-	-	-	308	524	-	315	647	-
Critical Hdwy	4.16	-	-	4.16	-	-	7.56	6.56	6.96	7.56	6.56	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Follow-up Hdwy	2.23	-	-	2.23	-	-	3.53	4.03	3.33	3.53	4.03	3.33
Pot Cap-1 Maneuver	1121	-	-	933	-	-	216	193	673	257	190	787
Stage 1	-	-	-	-	-	-	431	468	-	503	526	-
Stage 2	-	-	-	-	-	-	674	526	-	668	462	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1121	-	-	933	-	-	204	182	673	242	179	786
Mov Cap-2 Maneuver	-	-	-	-	-	-	204	182	-	242	179	-
Stage 1	-	-	-	-	-	-	429	466	-	500	498	-
Stage 2	-	-	-	-	-	-	629	498	-	655	460	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.9	19.3	15.7
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	280	1121	-	-	933	-	-	361
HCM Lane V/C Ratio	0.101	0.003	-	-	0.052	-	-	0.072
HCM Control Delay (s)	19.3	8.2	-	-	9.1	-	-	15.7
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.3	0	-	-	0.2	-	-	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	33	61	22	34	37	62	584	41	19	416	65
Future Volume (veh/h)	63	33	61	22	34	37	62	584	41	19	416	65
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		0.99
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	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	72	38	18	25	39	7	71	671	44	22	478	64
Adj No. of Lanes	1	1	0	1	2	0	1	3	0	1	3	0
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	119	104	49	53	148	26	118	2092	136	47	1766	232
Arrive On Green	0.07	0.09	0.09	0.03	0.05	0.05	0.07	0.43	0.43	0.03	0.39	0.39
Sat Flow, veh/h	1757	1185	561	1757	2984	521	1757	4830	315	1757	4497	591
Grp Volume(v), veh/h	72	0	56	25	22	24	71	465	250	22	355	187
Grp Sat Flow(s),veh/h/ln	1757	0	1746	1757	1752	1753	1757	1679	1788	1757	1679	1731
Q Serve(g_s), s	1.7	0.0	1.3	0.6	0.5	0.5	1.6	3.8	3.8	0.5	3.0	3.1
Cycle Q Clear(g_c), s	1.7	0.0	1.3	0.6	0.5	0.5	1.6	3.8	3.8	0.5	3.0	3.1
Prop In Lane	1.00		0.32	1.00		0.30	1.00		0.18	1.00		0.34
Lane Grp Cap(c), veh/h	119	0	153	53	87	87	118	1454	774	47	1318	680
V/C Ratio(X)	0.60	0.00	0.37	0.47	0.26	0.27	0.60	0.32	0.32	0.46	0.27	0.28
Avail Cap(c_a), veh/h	848	0	1896	1060	1903	1903	848	2998	1596	848	2836	1463
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.8	0.0	17.8	19.8	19.0	19.0	18.8	7.7	7.7	19.9	8.5	8.6
Incr Delay (d2), s/veh	4.8	0.0	1.5	6.4	1.6	1.7	4.8	0.2	0.3	2.6	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	1.0	0.0	0.7	0.4	0.3	0.3	0.9	1.8	1.9	0.3	1.4	1.5
LnGrp Delay(d),s/veh	23.6	0.0	19.3	26.1	20.5	20.6	23.6	7.9	8.0	22.5	8.7	8.8
LnGrp LOS	C		B	C	C	C	C	A	A	C	A	A
Approach Vol, veh/h		128			71			786			564	
Approach Delay, s/veh		21.7			22.5			9.3			9.3	
Approach LOS		C			C			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.3	22.5	5.5	8.1	7.0	20.9	7.0	6.6
Change Period (Y+Rc), s	* 4.2	4.6	* 4.2	4.5	* 4.2	4.6	* 4.2	4.5
Max Green Setting (Gmax), s	* 20	37.0	* 25	45.0	* 20	35.0	* 20	45.0
Max Q Clear Time (g_c+I1), s	2.5	5.8	2.6	3.3	3.6	5.1	3.7	2.5
Green Ext Time (p_c), s	0.0	11.0	0.0	0.6	0.1	10.9	0.1	0.6

Intersection Summary	
HCM 2010 Ctrl Delay	10.9
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	292	281	47	165	10	260	567	81	14	332	153
Future Volume (veh/h)	110	292	281	47	165	10	260	567	81	14	332	153
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		0.98	1.00		1.00	1.00		1.00	1.00		0.98
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	1900	1845	1845	1900	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	121	321	172	52	181	6	286	623	36	15	365	42
Adj No. of Lanes	2	3	0	2	3	0	2	2	1	2	2	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	235	699	321	225	1027	34	428	1242	555	87	892	392
Arrive On Green	0.07	0.21	0.21	0.07	0.21	0.21	0.13	0.35	0.35	0.03	0.25	0.25
Sat Flow, veh/h	3408	3357	1543	3408	5007	165	3408	3505	1565	3408	3505	1542
Grp Volume(v), veh/h	121	321	172	52	121	66	286	623	36	15	365	42
Grp Sat Flow(s),veh/h/ln	1704	1679	1543	1704	1679	1815	1704	1752	1565	1704	1752	1542
Q Serve(g_s), s	2.2	5.4	6.4	0.9	1.9	1.9	5.1	9.0	1.0	0.3	5.6	1.3
Cycle Q Clear(g_c), s	2.2	5.4	6.4	0.9	1.9	1.9	5.1	9.0	1.0	0.3	5.6	1.3
Prop In Lane	1.00		1.00	1.00		0.09	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	235	699	321	225	689	372	428	1242	555	87	892	392
V/C Ratio(X)	0.52	0.46	0.54	0.23	0.18	0.18	0.67	0.50	0.06	0.17	0.41	0.11
Avail Cap(c_a), veh/h	1062	1308	601	1062	2197	1188	1062	1638	732	1062	1638	721
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.8	22.2	22.6	28.4	21.0	21.0	26.8	16.3	13.7	30.6	19.9	18.3
Incr Delay (d2), s/veh	2.1	0.6	1.7	0.6	0.1	0.3	2.2	0.4	0.1	1.1	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	1.1	2.6	2.9	0.5	0.9	1.0	2.6	4.4	0.4	0.1	2.7	0.6
LnGrp Delay(d),s/veh	30.9	22.8	24.3	29.1	21.2	21.3	29.0	16.6	13.7	31.7	20.3	18.5
LnGrp LOS	C	C	C	C	C	C	C	B	B	C	C	B
Approach Vol, veh/h		614			239			945			422	
Approach Delay, s/veh		24.8			22.9			20.3			20.5	
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	9.6	19.1	6.8	28.6	9.4	19.3	13.3	22.2
Change Period (Y+Rc), s	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9
Max Green Setting (Gmax), s	* 20	42.0	* 20	30.0	* 20	25.0	* 20	30.0
Max Q Clear Time (g_c+I1), s	4.2	3.9	2.3	11.0	2.9	8.4	7.1	7.6
Green Ext Time (p_c), s	0.4	5.6	0.0	7.5	0.1	4.4	1.0	8.1

Intersection Summary	
HCM 2010 Ctrl Delay	21.9
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	24.6
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	386	0	278	0	0	0	89	522	0	0	620	40
Future Vol, veh/h	386	0	278	0	0	0	89	522	0	0	620	40
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
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	394	0	284	0	0	0	91	533	0	0	633	41
Number of Lanes	1	1	1	0	0	0	1	2	0	0	2	1

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	3	3
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	3	3	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	3	0	3
HCM Control Delay	18.9	21.4	33.3
HCM LOS	C	C	D

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	100%	100%	0%	0%	0%	0%
Vol Thru, %	0%	100%	100%	0%	0%	0%	100%	100%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	89	261	261	193	193	278	310	310	40
LT Vol	89	0	0	193	193	0	0	0	0
Through Vol	0	261	261	0	0	0	310	310	0
RT Vol	0	0	0	0	0	278	0	0	40
Lane Flow Rate	91	266	266	197	197	284	316	316	41
Geometry Grp	8	8	8	7	7	7	8	8	8
Degree of Util (X)	0.237	0.658	0.525	0.465	0.465	0.574	0.764	0.764	0.07
Departure Headway (Hd)	9.41	8.895	7.093	8.497	8.497	7.28	8.698	8.698	6.178
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	380	405	506	423	423	494	414	414	575
Service Time	7.207	6.692	4.889	6.265	6.265	5.047	6.492	6.492	3.971
HCM Lane V/C Ratio	0.239	0.657	0.526	0.466	0.466	0.575	0.763	0.763	0.071
HCM Control Delay	15.1	27.4	17.6	18.5	18.5	19.5	34.8	34.8	9.4
HCM Lane LOS	C	D	C	C	C	C	D	D	A
HCM 95th-tile Q	0.9	4.6	3	2.4	2.4	3.6	6.4	6.4	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	290	3	267	0	0	0	0	321	402	442	456	0
Future Volume (veh/h)	290	3	267	0	0	0	0	321	402	442	456	0
Number	3	8	18				1	6	16	5	2	12
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	1900	1845	1845				0	1845	1845	1845	1845	0
Adj Flow Rate, veh/h	322	3	145				0	357	139	491	507	0
Adj No. of Lanes	0	1	1				0	1	1	2	1	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, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	435	4	392				0	507	430	672	1023	0
Arrive On Green	0.25	0.25	0.25				0.00	0.28	0.28	0.20	0.55	0.00
Sat Flow, veh/h	1741	16	1568				0	1845	1565	3408	1845	0
Grp Volume(v), veh/h	325	0	145				0	357	139	491	507	0
Grp Sat Flow(s),veh/h/ln	1758	0	1568				0	1845	1565	1704	1845	0
Q Serve(g_s), s	7.7	0.0	3.4				0.0	7.8	3.2	6.1	7.6	0.0
Cycle Q Clear(g_c), s	7.7	0.0	3.4				0.0	7.8	3.2	6.1	7.6	0.0
Prop In Lane	0.99		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	439	0	392				0	507	430	672	1023	0
V/C Ratio(X)	0.74	0.00	0.37				0.00	0.70	0.32	0.73	0.50	0.00
Avail Cap(c_a), veh/h	2541	0	2267				0	1067	905	1516	1023	0
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	1.00	1.00	0.00
Uniform Delay (d), s/veh	15.5	0.0	13.9				0.0	14.6	13.0	16.9	6.2	0.0
Incr Delay (d2), s/veh	0.9	0.0	0.2				0.0	0.7	0.2	0.6	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	0.0	1.5				0.0	4.1	1.4	2.9	3.8	0.0
LnGrp Delay(d),s/veh	16.4	0.0	14.2				0.0	15.3	13.1	17.5	6.3	0.0
LnGrp LOS	B		B					B	B	B	A	
Approach Vol, veh/h		470						496			998	
Approach Delay, s/veh		15.7						14.7			11.8	
Approach LOS		B						B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		29.5			12.6	17.0		15.4
Change Period (Y+Rc), s		4.6			3.7	4.6		4.2
Max Green Setting (Gmax), s		24.0			20.0	26.0		65.0
Max Q Clear Time (g_c+I1), s		9.6			8.1	9.8		9.7
Green Ext Time (p_c), s		3.3			0.8	2.4		1.6

Intersection Summary	
HCM 2010 Ctrl Delay	13.5
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	303	29	16	34	24	125	6	199	35	152	276	195
Future Volume (veh/h)	303	29	16	34	24	125	6	199	35	152	276	195
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	316	30	5	35	25	13	6	207	26	158	288	126
Adj No. of Lanes	1	1	0	1	1	0	1	2	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	0.96	0.96	0.96
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	401	352	59	114	74	39	14	667	83	205	769	328
Arrive On Green	0.23	0.23	0.23	0.06	0.06	0.06	0.01	0.21	0.21	0.12	0.32	0.32
Sat Flow, veh/h	1757	1541	257	1757	1144	595	1757	3138	389	1757	2393	1022
Grp Volume(v), veh/h	316	0	35	35	0	38	6	114	119	158	209	205
Grp Sat Flow(s),veh/h/ln	1757	0	1798	1757	0	1740	1757	1752	1775	1757	1752	1662
Q Serve(g_s), s	8.1	0.0	0.7	0.9	0.0	1.0	0.2	2.6	2.7	4.2	4.4	4.6
Cycle Q Clear(g_c), s	8.1	0.0	0.7	0.9	0.0	1.0	0.2	2.6	2.7	4.2	4.4	4.6
Prop In Lane	1.00		0.14	1.00		0.34	1.00		0.22	1.00		0.61
Lane Grp Cap(c), veh/h	401	0	410	114	0	113	14	372	377	205	563	534
V/C Ratio(X)	0.79	0.00	0.09	0.31	0.00	0.34	0.43	0.31	0.31	0.77	0.37	0.38
Avail Cap(c_a), veh/h	1105	0	1131	1105	0	1095	921	1103	1117	1105	1103	1046
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.3	0.0	14.5	21.3	0.0	21.3	23.5	15.8	15.8	20.4	12.5	12.5
Incr Delay (d2), s/veh	1.3	0.0	0.0	0.6	0.0	0.6	7.4	0.2	0.2	2.3	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	4.0	0.0	0.4	0.5	0.0	0.5	0.1	1.3	1.3	2.1	2.1	2.1
LnGrp Delay(d),s/veh	18.6	0.0	14.5	21.8	0.0	22.0	31.0	16.0	16.0	22.7	12.6	12.7
LnGrp LOS	B		B	C		C	C	B	B	C	B	B
Approach Vol, veh/h		351			73			239			572	
Approach Delay, s/veh		18.2			21.9			16.4			15.4	
Approach LOS		B			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.8	14.7		15.5	4.6	19.9		7.7
Change Period (Y+Rc), s	* 4.2	4.6		4.6	* 4.2	4.6		4.6
Max Green Setting (Gmax), s	* 6	30.0		30.0	* 25	30.0		30.0
Max Q Clear Time (g_c+I1), s	10.2	4.7		10.1	2.2	6.6		3.0
Green Ext Time (p_c), s	0.2	2.4		0.6	0.0	2.4		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	16.8
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	6.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	112	394	129	3	46	250
Future Vol, veh/h	112	394	129	3	46	250
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	140	493	161	4	58	313

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	165	0	-	0	936	163
Stage 1	-	-	-	-	163	-
Stage 2	-	-	-	-	773	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1407	-	-	-	293	879
Stage 1	-	-	-	-	864	-
Stage 2	-	-	-	-	454	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1407	-	-	-	253	879
Mov Cap-2 Maneuver	-	-	-	-	253	-
Stage 1	-	-	-	-	864	-
Stage 2	-	-	-	-	392	-

Approach	EB	WB	SB
HCM Control Delay, s	1.7	0	18.3
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1407	-	-	-	635
HCM Lane V/C Ratio	0.1	-	-	-	0.583
HCM Control Delay (s)	7.8	0	-	-	18.3
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.3	-	-	-	3.8

Intersection	
Int Delay, s/veh	166.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	202	198	561	366	135	265
Future Vol, veh/h	202	198	561	366	135	265
Conflicting Peds, #/hr	2	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	315	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	227	222	630	411	152	298

Major/Minor	Minor1		Major1		Minor2	
Conflicting Flow All	781	630	0	0	742	630
Stage 1	630	-	-	-	0	0
Stage 2	151	-	-	-	742	630
Critical Hdwy	7.13	6.23	-	-	7.13	6.53
Critical Hdwy Stg 1	6.13	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	6.13	5.53
Follow-up Hdwy	3.527	3.327	-	-	3.527	4.027
Pot Cap-1 Maneuver	311	480	-	-	330	397
Stage 1	468	-	-	-	-	-
Stage 2	-	-	-	-	406	473
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	~ 120	480	-	-	177	397
Mov Cap-2 Maneuver	~ 120	-	-	-	177	397
Stage 1	468	-	-	-	-	-
Stage 2	-	-	-	-	218	473

Approach	WB	NB	SB
HCM Control Delay, s	$ 663.9	0	53.8
HCM LOS	F		F

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBLn1	SBLn2
Capacity (veh/h)	-	-	191	177	397
HCM Lane V/C Ratio	-	-	2.353	0.857	0.75
HCM Control Delay (s)	-	-	$ 663.9	87.4	36.7
HCM Lane LOS	-	-	F	F	E
HCM 95th %tile Q(veh)	-	-	36.9	6.1	6

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

Intersection	
Int Delay, s/veh	124.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	9	332	595	3	20	431
Future Vol, veh/h	9	332	595	3	20	431
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Free	Free
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, %	3	3	3	3	3	3
Mvmt Flow	10	386	692	3	23	501

Major/Minor	Minor1		Minor2		Major2	
Conflicting Flow All	895	0	548	501	0	0
Stage 1	0	-	548	-	-	-
Stage 2	895	-	0	-	-	-
Critical Hdwy	7.13	6.23	6.53	6.23	4.13	-
Critical Hdwy Stg 1	-	-	5.53	-	-	-
Critical Hdwy Stg 2	6.13	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	4.027	3.327	2.227	-
Pot Cap-1 Maneuver	260	-	~ 443	568	-	-
Stage 1	-	-	~ 515	-	-	-
Stage 2	334	-	-	-	-	-
Platoon blocked, %						-
Mov Cap-1 Maneuver	-	-	~ 443	568	-	-
Mov Cap-2 Maneuver	-	-	~ 443	-	-	-
Stage 1	-	-	~ 515	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s		290.2	
HCM LOS	-	F	

Minor Lane/Major Mvmt	NBLn1	WBLn1	SBL	SBT
Capacity (veh/h)	443	-	-	-
HCM Lane V/C Ratio	1.57	-	-	-
HCM Control Delay (s)	290.2	-	-	-
HCM Lane LOS	F	-	-	-
HCM 95th %tile Q(veh)	38.3	-	-	-

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 (veh/h)	425	0	249	0	0	0	72	670	0	1	516	22
Future Volume (veh/h)	425	0	249	0	0	0	72	670	0	1	516	22
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	1845	1845	1845				1845	1845	0	1845	1845	1845
Adj Flow Rate, veh/h	590	0	0				100	931	0	1	717	31
Adj No. of Lanes	2	0	1				1	2	0	1	2	1
Peak Hour Factor	0.72	0.72	0.72				0.72	0.72	0.72	0.72	0.72	0.72
Percent Heavy Veh, %	3	3	3				3	3	0	3	3	3
Cap, veh/h	814	0	363				132	1908	0	3	1650	738
Arrive On Green	0.23	0.00	0.00				0.07	0.54	0.00	0.00	0.47	0.47
Sat Flow, veh/h	3514	0	1568				1757	3597	0	1757	3505	1568
Grp Volume(v), veh/h	590	0	0				100	931	0	1	717	31
Grp Sat Flow(s),veh/h/ln	1757	0	1568				1757	1752	0	1757	1752	1568
Q Serve(g_s), s	8.4	0.0	0.0				3.0	8.9	0.0	0.0	7.3	0.6
Cycle Q Clear(g_c), s	8.4	0.0	0.0				3.0	8.9	0.0	0.0	7.3	0.6
Prop In Lane	1.00		1.00				1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	814	0	363				132	1908	0	3	1650	738
V/C Ratio(X)	0.72	0.00	0.00				0.76	0.49	0.00	0.31	0.43	0.04
Avail Cap(c_a), veh/h	3065	0	1368				685	4358	0	130	3252	1455
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				1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.1	0.0	0.0				24.4	7.6	0.0	26.9	9.5	7.7
Incr Delay (d2), s/veh	1.2	0.0	0.0				8.7	0.2	0.0	46.0	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	4.2	0.0	0.0				1.8	4.3	0.0	0.1	3.5	0.3
LnGrp Delay(d),s/veh	20.4	0.0	0.0				33.1	7.8	0.0	72.9	9.7	7.7
LnGrp LOS	C						C	A		E	A	A
Approach Vol, veh/h		590						1031			749	
Approach Delay, s/veh		20.4						10.3			9.7	
Approach LOS		C						B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		
Phs Duration (G+Y+Rc), s	4.1	33.3		16.5	8.0	29.4		
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		
Max Green Setting (Gmax), s	4.0	67.0		47.0	21.0	50.0		
Max Q Clear Time (g_c+I1), s	2.0	10.9		10.4	5.0	9.3		
Green Ext Time (p_c), s	0.0	17.5		2.1	0.2	16.0		

Intersection Summary	
HCM 2010 Ctrl Delay	12.6
HCM 2010 LOS	B

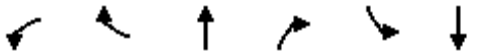
Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	10	1	236	26	213	3	297	119	47	332	47
Future Volume (veh/h)	21	10	1	236	26	213	3	297	119	47	332	47
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		0.99	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	1900	1845	1900	1900	1845	1900	1900	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	23	11	1	259	29	234	3	326	131	52	365	52
Adj No. of Lanes	0	1	0	0	1	0	0	1	1	1	1	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	29	14	1	286	32	258	4	385	331	457	411	59
Arrive On Green	0.02	0.02	0.02	0.35	0.35	0.35	0.21	0.21	0.21	0.26	0.26	0.26
Sat Flow, veh/h	1168	559	51	826	93	746	17	1827	1568	1757	1580	225
Grp Volume(v), veh/h	35	0	0	522	0	0	329	0	131	52	0	417
Grp Sat Flow(s),veh/h/ln	1777	0	0	1665	0	0	1844	0	1568	1757	0	1805
Q Serve(g_s), s	2.0	0.0	0.0	30.1	0.0	0.0	17.3	0.0	7.2	2.3	0.0	22.4
Cycle Q Clear(g_c), s	2.0	0.0	0.0	30.1	0.0	0.0	17.3	0.0	7.2	2.3	0.0	22.4
Prop In Lane	0.66		0.03	0.50		0.45	0.01		1.00	1.00		0.12
Lane Grp Cap(c), veh/h	44	0	0	576	0	0	389	0	331	457	0	469
V/C Ratio(X)	0.79	0.00	0.00	0.91	0.00	0.00	0.85	0.00	0.40	0.11	0.00	0.89
Avail Cap(c_a), veh/h	71	0	0	727	0	0	586	0	498	593	0	609
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	48.9	0.0	0.0	31.4	0.0	0.0	38.2	0.0	34.2	28.4	0.0	35.9
Incr Delay (d2), s/veh	26.5	0.0	0.0	13.0	0.0	0.0	7.2	0.0	0.8	0.1	0.0	12.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	0.0	15.8	0.0	0.0	9.6	0.0	3.2	1.1	0.0	12.7
LnGrp Delay(d),s/veh	75.4	0.0	0.0	44.4	0.0	0.0	45.4	0.0	35.0	28.5	0.0	48.3
LnGrp LOS	E			D			D		D	C		D
Approach Vol, veh/h		35			522			460			469	
Approach Delay, s/veh		75.4			44.4			42.5			46.1	
Approach LOS		E			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		25.2		6.5		30.2		38.8
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		32.0		4.0		34.0		44.0
Max Q Clear Time (g_c+I1), s		19.3		4.0		24.4		32.1
Green Ext Time (p_c), s		2.0		0.0		1.8		2.7

Intersection Summary	
HCM 2010 Ctrl Delay	45.1
HCM 2010 LOS	D



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	72	21	398	9	42	527
Future Volume (veh/h)	72	21	398	9	42	527
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	1845	1900	1845	1900	1845	1845
Adj Flow Rate, veh/h	95	28	524	12	55	693
Adj No. of Lanes	0	0	2	0	1	1
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76
Percent Heavy Veh, %	0	0	3	3	3	3
Cap, veh/h	120	35	771	18	813	854
Arrive On Green	0.09	0.09	0.22	0.22	0.46	0.46
Sat Flow, veh/h	1311	386	3595	80	1757	1845
Grp Volume(v), veh/h	124	0	262	274	55	693
Grp Sat Flow(s),veh/h/ln	1711	0	1752	1831	1757	1845
Q Serve(g_s), s	3.8	0.0	7.3	7.3	0.9	17.2
Cycle Q Clear(g_c), s	3.8	0.0	7.3	7.3	0.9	17.2
Prop In Lane	0.77	0.23		0.04	1.00	
Lane Grp Cap(c), veh/h	156	0	386	403	813	854
V/C Ratio(X)	0.79	0.00	0.68	0.68	0.07	0.81
Avail Cap(c_a), veh/h	193	0	725	757	2972	3120
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	23.7	0.0	19.0	19.0	7.9	12.3
Incr Delay (d2), s/veh	16.5	0.0	2.1	2.0	0.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	3.7	3.9	0.5	9.1
LnGrp Delay(d),s/veh	40.2	0.0	21.1	21.1	8.0	14.2
LnGrp LOS	D		C	C	A	B
Approach Vol, veh/h	124		536			748
Approach Delay, s/veh	40.2		21.1			13.7
Approach LOS	D		C			B

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		15.7				28.6		8.9
Change Period (Y+Rc), s		4.0				4.0		4.0
Max Green Setting (Gmax), s		22.0				90.0		6.0
Max Q Clear Time (g_c+I1), s		9.3				19.2		5.8
Green Ext Time (p_c), s		2.4				5.4		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	18.9
HCM 2010 LOS	B

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	386	0	278	0	0	0	89	522	0	0	620	40
Future Volume (veh/h)	386	0	278	0	0	0	89	522	0	0	620	40
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		0.98
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	1845	1845	1845				1845	1845	0	1845	1845	1845
Adj Flow Rate, veh/h	394	0	0				91	533	0	0	633	41
Adj No. of Lanes	2	0	1				1	2	0	1	2	1
Peak Hour Factor	0.98	0.98	0.98				0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	3	3	3				3	3	0	3	3	3
Cap, veh/h	658	0	293				117	2117	0	188	1518	665
Arrive On Green	0.19	0.00	0.00				0.07	0.60	0.00	0.00	0.43	0.43
Sat Flow, veh/h	3514	0	1568				1757	3597	0	859	3505	1535
Grp Volume(v), veh/h	394	0	0				91	533	0	0	633	41
Grp Sat Flow(s),veh/h/ln	1757	0	1568				1757	1752	0	859	1752	1535
Q Serve(g_s), s	3.9	0.0	0.0				2.0	2.7	0.0	0.0	4.8	0.6
Cycle Q Clear(g_c), s	3.9	0.0	0.0				2.0	2.7	0.0	0.0	4.8	0.6
Prop In Lane	1.00		1.00				1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	658	0	293				117	2117	0	188	1518	665
V/C Ratio(X)	0.60	0.00	0.00				0.78	0.25	0.00	0.00	0.42	0.06
Avail Cap(c_a), veh/h	3575	0	1595				917	6675	0	914	4480	1963
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				1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	14.3	0.0	0.0				17.6	3.5	0.0	0.0	7.5	6.3
Incr Delay (d2), s/veh	0.9	0.0	0.0				10.4	0.1	0.0	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	2.0	0.0	0.0				1.3	1.3	0.0	0.0	2.3	0.3
LnGrp Delay(d),s/veh	15.1	0.0	0.0				28.0	3.6	0.0	0.0	7.7	6.4
LnGrp LOS	B						C	A			A	A
Approach Vol, veh/h		394						624			674	
Approach Delay, s/veh		15.1						7.2			7.6	
Approach LOS		B						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		27.2		11.2	6.6	20.6		
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0		
Max Green Setting (Gmax), s		73.0		39.0	20.0	49.0		
Max Q Clear Time (g_c+I1), s		4.7		5.9	4.0	6.8		
Green Ext Time (p_c), s		10.3		1.3	0.2	9.8		

Intersection Summary	
HCM 2010 Ctrl Delay	9.2
HCM 2010 LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	5	7	184	6	189	2	559	366	135	260	5
Future Volume (veh/h)	9	5	7	184	6	189	2	559	366	135	260	5
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		0.98	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	1900	1845	1900	1900	1845	1900	1900	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	10	6	8	207	7	212	2	628	411	152	292	6
Adj No. of Lanes	0	1	0	0	1	0	0	1	1	1	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	13	8	11	221	7	227	2	694	592	326	334	7
Arrive On Green	0.02	0.02	0.02	0.28	0.28	0.28	0.38	0.38	0.38	0.19	0.19	0.19
Sat Flow, veh/h	712	427	570	795	27	815	6	1839	1568	1757	1801	37
Grp Volume(v), veh/h	24	0	0	426	0	0	630	0	411	152	0	298
Grp Sat Flow(s),veh/h/ln	1709	0	0	1637	0	0	1844	0	1568	1757	0	1838
Q Serve(g_s), s	1.6	0.0	0.0	29.0	0.0	0.0	36.9	0.0	25.3	8.8	0.0	18.0
Cycle Q Clear(g_c), s	1.6	0.0	0.0	29.0	0.0	0.0	36.9	0.0	25.3	8.8	0.0	18.0
Prop In Lane	0.42		0.33	0.49		0.50	0.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	32	0	0	455	0	0	696	0	592	326	0	341
V/C Ratio(X)	0.75	0.00	0.00	0.94	0.00	0.00	0.91	0.00	0.69	0.47	0.00	0.87
Avail Cap(c_a), veh/h	60	0	0	487	0	0	791	0	673	415	0	434
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	55.8	0.0	0.0	40.2	0.0	0.0	33.6	0.0	30.0	41.5	0.0	45.2
Incr Delay (d2), s/veh	29.4	0.0	0.0	24.8	0.0	0.0	12.9	0.0	2.6	1.0	0.0	14.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	16.3	0.0	0.0	21.2	0.0	11.4	4.4	0.0	10.5
LnGrp Delay(d),s/veh	85.1	0.0	0.0	65.0	0.0	0.0	46.5	0.0	32.7	42.5	0.0	59.9
LnGrp LOS	F			E			D		C	D		E
Approach Vol, veh/h		24			426			1041			450	
Approach Delay, s/veh		85.1			65.0			41.0			54.0	
Approach LOS		F			E			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		47.1		6.1		25.2		35.8
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		49.0		4.0		27.0		34.0
Max Q Clear Time (g_c+I1), s		38.9		3.6		20.0		31.0
Green Ext Time (p_c), s		4.2		0.0		1.2		0.8

Intersection Summary	
HCM 2010 Ctrl Delay	49.9
HCM 2010 LOS	D

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	9	332	595	3	20	431
Future Volume (veh/h)	9	332	595	3	20	431
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		0.98	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1900	1845	1900	1845	1845
Adj Flow Rate, veh/h	10	386	692	3	23	501
Adj No. of Lanes	0	0	2	0	1	1
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	0	0	3	3	3	3
Cap, veh/h	10	368	941	4	575	603
Arrive On Green	0.24	0.24	0.26	0.26	0.33	0.33
Sat Flow, veh/h	40	1529	3671	16	1757	1845
Grp Volume(v), veh/h	397	0	339	356	23	501
Grp Sat Flow(s),veh/h/ln	1573	0	1752	1842	1757	1845
Q Serve(g_s), s	17.0	0.0	12.5	12.5	0.6	17.7
Cycle Q Clear(g_c), s	17.0	0.0	12.5	12.5	0.6	17.7
Prop In Lane	0.03	0.97		0.01	1.00	
Lane Grp Cap(c), veh/h	378	0	461	484	575	603
V/C Ratio(X)	1.05	0.00	0.74	0.74	0.04	0.83
Avail Cap(c_a), veh/h	378	0	966	1015	1813	1904
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	26.9	0.0	23.8	23.8	16.2	22.0
Incr Delay (d2), s/veh	60.1	0.0	2.3	2.2	0.0	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.6	0.0	6.3	6.6	0.3	9.6
LnGrp Delay(d),s/veh	87.0	0.0	26.1	26.0	16.3	25.0
LnGrp LOS	F		C	C	B	C
Approach Vol, veh/h	397		695			524
Approach Delay, s/veh	87.0		26.1			24.6
Approach LOS	F		C			C

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		22.6				27.1		21.0
Change Period (Y+Rc), s		4.0				4.0		4.0
Max Green Setting (Gmax), s		39.0				73.0		17.0
Max Q Clear Time (g_c+I1), s		14.5				19.7		19.0
Green Ext Time (p_c), s		4.1				3.4		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	40.6
HCM 2010 LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	252	400	170	223	41	111	130	80	21	240	110
Future Volume (veh/h)	30	252	400	170	223	41	111	130	80	21	240	110
Number	5	2	12	1	6	16	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		0.99	1.00		1.00	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	1845	1845	1845	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	35	296	98	200	262	27	131	153	30	25	282	89
Adj No. of Lanes	1	2	1	1	3	0	2	2	0	1	2	0
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	66	627	277	249	1318	133	307	755	145	50	485	150
Arrive On Green	0.04	0.18	0.18	0.14	0.28	0.28	0.09	0.26	0.26	0.03	0.18	0.18
Sat Flow, veh/h	1757	3505	1547	1757	4650	469	3408	2932	562	1757	2637	816
Grp Volume(v), veh/h	35	296	98	200	188	101	131	90	93	25	185	186
Grp Sat Flow(s),veh/h/ln	1757	1752	1547	1757	1679	1762	1704	1752	1742	1757	1752	1701
Q Serve(g_s), s	1.1	4.3	3.1	6.2	2.4	2.5	2.1	2.3	2.4	0.8	5.5	5.6
Cycle Q Clear(g_c), s	1.1	4.3	3.1	6.2	2.4	2.5	2.1	2.3	2.4	0.8	5.5	5.6
Prop In Lane	1.00		1.00	1.00		0.27	1.00		0.32	1.00		0.48
Lane Grp Cap(c), veh/h	66	627	277	249	951	499	307	451	449	50	322	313
V/C Ratio(X)	0.53	0.47	0.35	0.80	0.20	0.20	0.43	0.20	0.21	0.50	0.58	0.59
Avail Cap(c_a), veh/h	311	2668	1177	466	951	499	1508	1210	1202	311	620	602
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	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	26.7	20.8	20.3	23.5	15.4	15.4	24.3	16.4	16.4	27.0	21.0	21.1
Incr Delay (d2), s/veh	2.5	0.2	0.3	2.3	0.0	0.1	1.1	0.3	0.3	2.8	2.3	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	2.1	1.4	3.2	1.1	1.2	1.0	1.1	1.2	0.4	2.8	2.8
LnGrp Delay(d),s/veh	29.2	21.0	20.6	25.8	15.4	15.5	25.5	16.7	16.8	29.8	23.3	23.7
LnGrp LOS	C	C	C	C	B	B	C	B	B	C	C	C
Approach Vol, veh/h		429			489			314			396	
Approach Delay, s/veh		21.6			19.7			20.4			23.9	
Approach LOS		C			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.2	16.0	6.8	20.5	7.3	21.9	11.0	16.3
Change Period (Y+Rc), s	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9	5.9	* 5.9
Max Green Setting (Gmax), s	* 15	43.0	* 10	39.0	* 10	15.0	25.0	* 20
Max Q Clear Time (g_c+I1), s	8.2	6.3	2.8	4.4	3.1	4.5	4.1	7.6
Green Ext Time (p_c), s	0.1	1.7	0.0	2.0	0.0	1.9	1.8	2.1

Intersection Summary	
HCM 2010 Ctrl Delay	21.3
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	82	380	621	283	91	320	200	237	20	750	40
Future Volume (veh/h)	30	82	380	621	283	91	320	200	237	20	750	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	1845	1845	1845	1845	1845	1900	1845	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	33	91	386	717	276	95	356	222	113	22	833	43
Adj No. of Lanes	1	1	2	2	1	0	2	2	1	1	2	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	239	251	809	957	358	123	416	1403	625	37	1015	52
Arrive On Green	0.14	0.14	0.14	0.27	0.27	0.27	0.12	0.40	0.40	0.02	0.30	0.30
Sat Flow, veh/h	1757	1845	3136	3514	1313	452	3408	3505	1562	1757	3391	175
Grp Volume(v), veh/h	33	91	386	717	0	371	356	222	113	22	430	446
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	0	1765	1704	1752	1562	1757	1752	1814
Q Serve(g_s), s	2.2	5.9	13.6	24.4	0.0	25.4	13.4	5.3	6.1	1.6	29.9	29.9
Cycle Q Clear(g_c), s	2.2	5.9	13.6	24.4	0.0	25.4	13.4	5.3	6.1	1.6	29.9	29.9
Prop In Lane	1.00		1.00	1.00		0.26	1.00		1.00	1.00		0.10
Lane Grp Cap(c), veh/h	239	251	809	957	0	481	416	1403	625	37	525	543
V/C Ratio(X)	0.14	0.36	0.48	0.75	0.00	0.77	0.86	0.16	0.18	0.60	0.82	0.82
Avail Cap(c_a), veh/h	603	634	1459	1475	0	741	780	1403	625	335	602	623
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.8	51.4	41.1	43.6	0.0	43.9	56.4	25.2	25.4	63.6	42.6	42.6
Incr Delay (d2), s/veh	0.3	0.9	0.4	1.7	0.0	3.8	2.0	0.2	0.5	5.6	12.0	11.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	3.1	6.0	12.1	0.0	12.9	6.4	2.6	2.7	0.8	16.2	16.7
LnGrp Delay(d),s/veh	50.1	52.3	41.6	45.3	0.0	47.7	58.4	25.3	25.9	69.2	54.6	54.3
LnGrp LOS	D	D	D	D		D	E	C	C	E	D	D
Approach Vol, veh/h		510			1088			691			898	
Approach Delay, s/veh		44.0			46.1			42.5			54.8	
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	8.0	58.3		41.3	21.2	45.1		23.4
Change Period (Y+Rc), s	* 5.2	5.9		5.6	* 5.2	5.9		5.6
Max Green Setting (Gmax), s	* 25	45.0		55.0	* 30	45.0		45.0
Max Q Clear Time (g_c+I1), s	3.6	8.1		27.4	15.4	31.9		15.6
Green Ext Time (p_c), s	0.0	21.3		8.3	0.6	7.3		2.2

Intersection Summary	
HCM 2010 Ctrl Delay	47.4
HCM 2010 LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	339	0	0	485	510	120
Future Volume (veh/h)	339	0	0	485	510	120
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	0	0	1845	1845	1900
Adj Flow Rate, veh/h	404	0	0	577	703	0
Adj No. of Lanes	2	0	0	2	2	1
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	3	0	0	3	3	0
Cap, veh/h	1298	0	0	1298	1104	507
Arrive On Green	0.37	0.00	0.00	0.37	0.31	0.00
Sat Flow, veh/h	3689	0	0	3689	3514	1615
Grp Volume(v), veh/h	404	0	0	577	703	0
Grp Sat Flow(s),veh/h/ln	1752	0	0	1752	1757	1615
Q Serve(g_s), s	2.6	0.0	0.0	3.9	5.4	0.0
Cycle Q Clear(g_c), s	2.6	0.0	0.0	3.9	5.4	0.0
Prop In Lane		0.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	1298	0	0	1298	1104	507
V/C Ratio(X)	0.31	0.00	0.00	0.44	0.64	0.00
Avail Cap(c_a), veh/h	2544	0	0	2544	3549	1631
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	0.00
Uniform Delay (d), s/veh	7.1	0.0	0.0	7.5	9.3	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.2	0.6	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	1.3	0.0	0.0	1.9	2.7	0.0
LnGrp Delay(d),s/veh	7.2	0.0	0.0	7.8	9.9	0.0
LnGrp LOS	A			A	A	
Approach Vol, veh/h	404			577	703	
Approach Delay, s/veh	7.2			7.8	9.9	
Approach LOS	A			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		16.7				16.7		15.0
Change Period (Y+Rc), s		5.0				5.0		5.0
Max Green Setting (Gmax), s		23.0				23.0		32.0
Max Q Clear Time (g_c+I1), s		4.6				5.9		7.4
Green Ext Time (p_c), s		6.0				5.8		2.5

Intersection Summary	
HCM 2010 Ctrl Delay	8.5
HCM 2010 LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	130	757	1096	655
Future Volume (veh/h)	0	0	130	757	1096	655
Number			5	2	6	16
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)			1.00			1.00
Parking Bus, Adj			1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln			1845	1845	1845	1845
Adj Flow Rate, veh/h			141	823	1191	570
Adj No. of Lanes			2	1	1	1
Peak Hour Factor			0.92	0.92	0.92	0.92
Percent Heavy Veh, %			3	3	3	3
Cap, veh/h			349	1684	1347	1175
Arrive On Green			0.10	0.91	0.73	0.75
Sat Flow, veh/h			3408	1845	1845	1568
Grp Volume(v), veh/h			141	823	1191	570
Grp Sat Flow(s),veh/h/ln			1704	1845	1845	1568
Q Serve(g_s), s			2.3	4.1	28.8	8.4
Cycle Q Clear(g_c), s			2.3	4.1	28.8	8.4
Prop In Lane			1.00			1.00
Lane Grp Cap(c), veh/h			349	1684	1347	1175
V/C Ratio(X)			0.40	0.49	0.88	0.49
Avail Cap(c_a), veh/h			1454	1684	1574	1367
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh			24.6	0.4	6.0	2.9
Incr Delay (d2), s/veh			0.4	0.5	5.7	0.3
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			1.1	2.0	16.0	3.6
LnGrp Delay(d),s/veh			25.0	0.9	11.7	3.2
LnGrp LOS			C	A	B	A
Approach Vol, veh/h				964	1761	
Approach Delay, s/veh				4.4	8.9	
Approach LOS				A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		
Phs Duration (G+Y+Rc), s		58.6			10.7	47.9		
Change Period (Y+Rc), s		5.1			* 4.7	5.1		
Max Green Setting (Gmax), s		25.0			* 25	50.0		
Max Q Clear Time (g_c+I1), s		6.1			4.3	30.8		
Green Ext Time (p_c), s		16.9			0.2	12.0		

Intersection Summary	
HCM 2010 Ctrl Delay	7.3
HCM 2010 LOS	A

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	425	80	170	462	456	640
Future Volume (veh/h)	425	80	170	462	456	640
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	467	48	187	508	501	332
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	523	675	234	1004	624	530
Arrive On Green	0.30	0.30	0.13	0.54	0.34	0.34
Sat Flow, veh/h	1757	1568	1757	1845	1845	1568
Grp Volume(v), veh/h	467	48	187	508	501	332
Grp Sat Flow(s),veh/h/ln	1757	1568	1757	1845	1845	1568
Q Serve(g_s), s	16.3	1.2	6.6	11.1	15.8	11.4
Cycle Q Clear(g_c), s	16.3	1.2	6.6	11.1	15.8	11.4
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	523	675	234	1004	624	530
V/C Ratio(X)	0.89	0.07	0.80	0.51	0.80	0.63
Avail Cap(c_a), veh/h	906	1017	741	1297	894	760
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.5	10.7	26.9	9.2	19.2	17.8
Incr Delay (d2), s/veh	2.9	0.0	2.4	0.1	2.2	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.2	1.3	3.3	5.5	8.3	5.0
LnGrp Delay(d),s/veh	24.4	10.7	29.3	9.3	21.5	18.2
LnGrp LOS	C	B	C	A	C	B
Approach Vol, veh/h	515			695	833	
Approach Delay, s/veh	23.2			14.7	20.2	
Approach LOS	C			B	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		40.2		23.7	13.2	27.0		
Change Period (Y+Rc), s		5.4		* 4.7	* 4.7	5.4		
Max Green Setting (Gmax), s		45.0		* 33	* 27	31.0		
Max Q Clear Time (g_c+I1), s		13.1		18.3	8.6	17.8		
Green Ext Time (p_c), s		4.7		0.8	0.2	3.8		

Intersection Summary	
HCM 2010 Ctrl Delay	19.1
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	0	274	0	180	60	15	41	0	0	60	120
Future Volume (veh/h)	100	0	274	0	180	60	15	41	0	0	60	120
Number	1	6	16	5	2	12	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		1.00	1.00		1.00	1.00		0.99
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	0	1845	1900	1845	1845	0	0	1845	1900
Adj Flow Rate, veh/h	123	0	43	0	222	65	19	51	0	0	74	25
Adj No. of Lanes	2	1	2	0	1	0	1	2	0	0	2	0
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	3	3	3	0	3	3	3	3	0	0	3	3
Cap, veh/h	334	838	1446	0	315	92	122	257	0	0	250	81
Arrive On Green	0.10	0.00	0.45	0.00	0.23	0.23	0.07	0.07	0.00	0.00	0.10	0.10
Sat Flow, veh/h	3408	1845	2760	0	1372	402	1757	3689	0	0	2693	838
Grp Volume(v), veh/h	123	0	43	0	0	287	19	51	0	0	49	50
Grp Sat Flow(s),veh/h/ln	1704	1845	1380	0	0	1774	1757	1845	0	0	1752	1686
Q Serve(g_s), s	1.2	0.0	0.3	0.0	0.0	5.4	0.4	0.5	0.0	0.0	0.9	1.0
Cycle Q Clear(g_c), s	1.2	0.0	0.3	0.0	0.0	5.4	0.4	0.5	0.0	0.0	0.9	1.0
Prop In Lane	1.00		1.00	0.00		0.23	1.00		0.00	0.00		0.50
Lane Grp Cap(c), veh/h	334	838	1446	0	0	407	122	257	0	0	169	162
V/C Ratio(X)	0.37	0.00	0.03	0.00	0.00	0.70	0.16	0.20	0.00	0.00	0.29	0.31
Avail Cap(c_a), veh/h	2346	1270	2092	0	0	1221	1209	2539	0	0	1206	1161
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	15.3	0.0	4.2	0.0	0.0	12.9	15.9	15.9	0.0	0.0	15.3	15.3
Incr Delay (d2), s/veh	0.7	0.0	0.0	0.0	0.0	2.2	0.6	0.4	0.0	0.0	0.9	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.1	0.0	0.0	2.9	0.2	0.3	0.0	0.0	0.5	0.5
LnGrp Delay(d),s/veh	16.0	0.0	4.2	0.0	0.0	15.1	16.5	16.3	0.0	0.0	16.2	16.4
LnGrp LOS	B		A			B	B	B			B	B
Approach Vol, veh/h		166			287			70			99	
Approach Delay, s/veh		12.9			15.1			16.4			16.3	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	8.2	12.9		8.1		21.1		7.1
Change Period (Y+Rc), s	4.6	4.6		4.6		4.6		4.6
Max Green Setting (Gmax), s	25.0	25.0		25.0		25.0		25.0
Max Q Clear Time (g_c+I1), s	3.2	7.4		3.0		2.3		2.5
Green Ext Time (p_c), s	0.5	1.4		0.4		0.5		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	14.9
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	169	8	23	660	10	33	5	43	260	4	70
Future Volume (veh/h)	41	169	8	23	660	10	33	5	43	260	4	70
Number	3	8	18	7	4	14	1	6	16	5	2	12
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	1845	1845	1900	1845	1845	1900	1900	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	49	204	6	28	795	11	40	6	6	313	5	24
Adj No. of Lanes	2	2	0	1	2	0	0	1	1	1	1	0
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	170	1232	36	57	1193	17	64	10	65	397	63	301
Arrive On Green	0.05	0.35	0.35	0.03	0.34	0.34	0.04	0.04	0.04	0.23	0.23	0.23
Sat Flow, veh/h	3408	3477	102	1757	3539	49	1537	231	1568	1757	278	1332
Grp Volume(v), veh/h	49	103	107	28	394	412	46	0	6	313	0	29
Grp Sat Flow(s),veh/h/ln	1704	1752	1827	1757	1752	1836	1768	0	1568	1757	0	1610
Q Serve(g_s), s	0.7	1.9	2.0	0.8	9.3	9.3	1.2	0.0	0.2	8.2	0.0	0.7
Cycle Q Clear(g_c), s	0.7	1.9	2.0	0.8	9.3	9.3	1.2	0.0	0.2	8.2	0.0	0.7
Prop In Lane	1.00		0.06	1.00		0.03	0.87		1.00	1.00		0.83
Lane Grp Cap(c), veh/h	170	621	647	57	590	619	73	0	65	397	0	363
V/C Ratio(X)	0.29	0.17	0.17	0.49	0.67	0.67	0.63	0.00	0.09	0.79	0.00	0.08
Avail Cap(c_a), veh/h	407	917	956	210	917	960	328	0	291	832	0	762
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.2	10.7	10.8	23.1	13.8	13.8	22.9	0.0	22.4	17.7	0.0	14.8
Incr Delay (d2), s/veh	0.9	0.1	0.1	2.4	1.3	1.2	8.5	0.0	0.6	3.5	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	1.0	1.0	0.4	4.7	4.9	0.8	0.0	0.1	4.3	0.0	0.3
LnGrp Delay(d),s/veh	23.2	10.9	10.9	25.5	15.1	15.0	31.4	0.0	23.0	21.3	0.0	14.9
LnGrp LOS	C	B	B	C	B	B	C		C	C		B
Approach Vol, veh/h		259			834			52			342	
Approach Delay, s/veh		13.2			15.4			30.4			20.7	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		15.0	6.6	21.0		6.0	5.8	21.8
Change Period (Y+Rc), s		4.0	* 4.2	4.6		4.0	* 4.2	4.6
Max Green Setting (Gmax), s		23.0	* 5.8	25.4		9.0	* 5.8	25.4
Max Q Clear Time (g_c+I1), s		10.2	2.7	11.3		3.2	2.8	4.0
Green Ext Time (p_c), s		0.9	0.0	5.0		0.1	0.0	6.0

Intersection Summary	
HCM 2010 Ctrl Delay	16.8
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	180	9	20	563	10	44	0	28	10	0	0
Future Vol, veh/h	20	180	9	20	563	10	44	0	28	10	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	130	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	26	237	12	26	741	13	58	0	37	13	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	754	0	0	249	0	0	718	1102	124	971	1101	377
Stage 1	-	-	-	-	-	-	295	295	-	800	800	-
Stage 2	-	-	-	-	-	-	423	807	-	171	301	-
Critical Hdwy	4.16	-	-	4.16	-	-	7.56	6.56	6.96	7.56	6.56	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Follow-up Hdwy	2.23	-	-	2.23	-	-	3.53	4.03	3.33	3.53	4.03	3.33
Pot Cap-1 Maneuver	845	-	-	1306	-	-	315	209	900	206	209	618
Stage 1	-	-	-	-	-	-	686	665	-	343	393	-
Stage 2	-	-	-	-	-	-	576	390	-	811	661	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	845	-	-	1306	-	-	303	199	900	190	199	618
Mov Cap-2 Maneuver	-	-	-	-	-	-	303	199	-	190	199	-
Stage 1	-	-	-	-	-	-	665	645	-	332	385	-
Stage 2	-	-	-	-	-	-	565	382	-	754	641	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	0.3	16.5	25.4
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	408	845	-	-	1306	-	-	190
HCM Lane V/C Ratio	0.232	0.031	-	-	0.02	-	-	0.069
HCM Control Delay (s)	16.5	9.4	-	-	7.8	-	-	25.4
HCM Lane LOS	C	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	0.9	0.1	-	-	0.1	-	-	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	20	60	30	40	120	70	703	31	50	362	70
Future Volume (veh/h)	100	20	60	30	40	120	70	703	31	50	362	70
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	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	145	29	23	43	58	28	101	1019	42	72	525	84
Adj No. of Lanes	1	1	0	1	2	0	1	3	0	1	3	0
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	190	129	102	76	168	76	133	2229	92	105	1903	299
Arrive On Green	0.11	0.14	0.14	0.04	0.07	0.07	0.08	0.45	0.45	0.06	0.43	0.43
Sat Flow, veh/h	1757	946	750	1757	2346	1060	1757	4961	204	1757	4388	690
Grp Volume(v), veh/h	145	0	52	43	42	44	101	689	372	72	400	209
Grp Sat Flow(s),veh/h/ln	1757	0	1697	1757	1752	1653	1757	1679	1808	1757	1679	1720
Q Serve(g_s), s	4.5	0.0	1.5	1.4	1.3	1.4	3.2	8.0	8.0	2.3	4.3	4.4
Cycle Q Clear(g_c), s	4.5	0.0	1.5	1.4	1.3	1.4	3.2	8.0	8.0	2.3	4.3	4.4
Prop In Lane	1.00		0.44	1.00		0.64	1.00		0.11	1.00		0.40
Lane Grp Cap(c), veh/h	190	0	231	76	125	118	133	1508	812	105	1456	746
V/C Ratio(X)	0.76	0.00	0.22	0.56	0.34	0.37	0.76	0.46	0.46	0.68	0.27	0.28
Avail Cap(c_a), veh/h	624	0	1356	780	1401	1322	624	2207	1189	624	2088	1070
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.4	0.0	21.7	26.4	24.9	24.9	25.5	10.7	10.7	25.9	10.2	10.3
Incr Delay (d2), s/veh	6.2	0.0	0.5	6.4	1.6	1.9	8.6	0.3	0.5	2.9	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	2.5	0.0	0.8	0.8	0.7	0.7	1.9	3.7	4.0	1.2	2.0	2.1
LnGrp Delay(d),s/veh	30.6	0.0	22.1	32.7	26.4	26.8	34.2	11.0	11.2	28.8	10.4	10.5
LnGrp LOS	C		C	C	C	C	C	B	B	C	B	B
Approach Vol, veh/h		197			129			1162			681	
Approach Delay, s/veh		28.3			28.7			13.1			12.4	
Approach LOS		C			C			B			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	7.6	29.9	6.6	12.2	8.5	29.0	10.3	8.5
Change Period (Y+Rc), s	* 4.2	4.6	* 4.2	4.5	* 4.2	4.6	* 4.2	4.5
Max Green Setting (Gmax), s	* 20	37.0	* 25	45.0	* 20	35.0	* 20	45.0
Max Q Clear Time (g_c+I1), s	4.3	10.0	3.4	3.5	5.2	6.4	6.5	3.4
Green Ext Time (p_c), s	0.1	14.6	0.1	0.8	0.2	15.1	0.3	0.8

Intersection Summary	
HCM 2010 Ctrl Delay	15.2
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	54	117	299	90	343	20	368	730	120	10	270	172
Future Volume (veh/h)	54	117	299	90	343	20	368	730	120	10	270	172
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		0.99	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	1845	1845	1900	1845	1845	1900	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	79	172	86	132	504	25	541	1074	117	15	397	60
Adj No. of Lanes	2	3	0	2	3	0	2	2	1	2	2	1
Peak Hour Factor	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	183	600	268	297	1033	51	672	1457	652	85	854	382
Arrive On Green	0.05	0.18	0.18	0.09	0.21	0.21	0.20	0.42	0.42	0.03	0.24	0.24
Sat Flow, veh/h	3408	3393	1517	3408	4916	242	3408	3505	1568	3408	3505	1568
Grp Volume(v), veh/h	79	170	88	132	343	186	541	1074	117	15	397	60
Grp Sat Flow(s),veh/h/ln	1704	1679	1553	1704	1679	1801	1704	1752	1568	1704	1752	1568
Q Serve(g_s), s	1.7	3.3	3.7	2.8	6.8	6.8	11.4	19.4	3.5	0.3	7.3	2.3
Cycle Q Clear(g_c), s	1.7	3.3	3.7	2.8	6.8	6.8	11.4	19.4	3.5	0.3	7.3	2.3
Prop In Lane	1.00		0.98	1.00		0.13	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	183	593	274	297	706	379	672	1457	652	85	854	382
V/C Ratio(X)	0.43	0.29	0.32	0.44	0.49	0.49	0.81	0.74	0.18	0.18	0.46	0.16
Avail Cap(c_a), veh/h	907	1117	517	907	1876	1007	907	1457	652	907	1399	626
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	34.4	26.8	27.0	32.6	26.1	26.1	28.8	18.5	13.9	35.9	24.2	22.4
Incr Delay (d2), s/veh	1.9	0.3	0.8	1.3	0.6	1.2	4.3	2.1	0.2	1.2	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	0.8	1.6	1.7	1.4	3.2	3.5	5.7	9.7	1.6	0.2	3.6	1.0
LnGrp Delay(d),s/veh	36.4	27.1	27.8	33.8	26.7	27.3	33.1	20.6	14.0	37.0	24.7	22.6
LnGrp LOS	D	C	C	C	C	C	C	C	B	D	C	C
Approach Vol, veh/h		337			661			1732			472	
Approach Delay, s/veh		29.5			28.3			24.0			24.8	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.2	21.7	7.1	37.1	11.8	19.2	20.0	24.2
Change Period (Y+Rc), s	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9
Max Green Setting (Gmax), s	* 20	42.0	* 20	30.0	* 20	25.0	* 20	30.0
Max Q Clear Time (g_c+I1), s	13.7	8.8	2.3	21.4	4.8	5.7	13.4	9.3
Green Ext Time (p_c), s	0.2	6.4	0.0	6.4	0.4	5.4	1.4	9.0

Intersection Summary	
HCM 2010 Ctrl Delay	25.6
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	192.7
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	455	0	270	0	0	0	80	763	0	10	609	40
Future Vol, veh/h	455	0	270	0	0	0	80	763	0	10	609	40
Peak Hour Factor	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	632	0	375	0	0	0	111	1060	0	14	846	56
Number of Lanes	1	1	1	0	0	0	1	2	0	0	2	1

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	3	3
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	3	3	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	3	0	3
HCM Control Delay	48.4	252.6	274.9
HCM LOS	E	F	F

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	100%	100%	0%	5%	0%	0%
Vol Thru, %	0%	100%	100%	0%	0%	0%	95%	100%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	80	382	382	228	228	270	213	406	40
LT Vol	80	0	0	228	228	0	10	0	0
Through Vol	0	382	382	0	0	0	203	406	0
RT Vol	0	0	0	0	0	270	0	0	40
Lane Flow Rate	111	530	530	316	316	375	296	564	56
Geometry Grp	8	8	8	7	7	7	8	8	8
Degree of Util (X)	0.36	1.642	1.384	0.826	0.826	0.855	0.945	1.798	0.166
Departure Headway (Hd)	13.267	12.75	10.936	10.714	10.714	9.494	13.236	13.212	12.49
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	273	291	339	341	341	386	275	282	289
Service Time	10.967	10.45	8.636	8.414	8.414	7.194	10.936	10.912	10.19
HCM Lane V/C Ratio	0.407	1.821	1.563	0.927	0.927	0.972	1.076	2	0.194
HCM Control Delay	23.2	333.9	219.5	48.5	48.5	48.3	79.6	402.7	17.7
HCM Lane LOS	C	F	F	E	E	E	F	F	C
HCM 95th-tile Q	1.6	28.7	23.2	7.2	7.2	8.1	8.9	32.8	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	567	10	210	0	0	0	0	276	290	386	493	0
Future Volume (veh/h)	567	10	210	0	0	0	0	276	290	386	493	0
Number	3	8	18				1	6	16	5	2	12
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	1900	1845	1845				0	1845	1845	1845	1845	0
Adj Flow Rate, veh/h	683	12	167				0	333	80	465	594	0
Adj No. of Lanes	0	1	1				0	1	1	2	1	0
Peak Hour Factor	0.83	0.83	0.83				0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	767	13	696				0	401	340	572	804	0
Arrive On Green	0.44	0.44	0.44				0.00	0.22	0.22	0.17	0.44	0.00
Sat Flow, veh/h	1728	30	1568				0	1845	1566	3408	1845	0
Grp Volume(v), veh/h	695	0	167				0	333	80	465	594	0
Grp Sat Flow(s),veh/h/ln	1758	0	1568				0	1845	1566	1704	1845	0
Q Serve(g_s), s	26.6	0.0	4.9				0.0	12.6	3.1	9.6	19.6	0.0
Cycle Q Clear(g_c), s	26.6	0.0	4.9				0.0	12.6	3.1	9.6	19.6	0.0
Prop In Lane	0.98		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	781	0	696				0	401	340	572	804	0
V/C Ratio(X)	0.89	0.00	0.24				0.00	0.83	0.23	0.81	0.74	0.00
Avail Cap(c_a), veh/h	1562	0	1393				0	655	556	931	804	0
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	1.00	1.00	0.00
Uniform Delay (d), s/veh	18.7	0.0	12.7				0.0	27.3	23.6	29.3	17.2	0.0
Incr Delay (d2), s/veh	1.5	0.0	0.1				0.0	2.0	0.1	1.1	3.2	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	13.1	0.0	2.1				0.0	6.6	1.3	4.6	10.6	0.0
LnGrp Delay(d),s/veh	20.2	0.0	12.7				0.0	29.4	23.7	30.4	20.4	0.0
LnGrp LOS	C		B					C	C	C	C	
Approach Vol, veh/h		862						413			1059	
Approach Delay, s/veh		18.7						28.3			24.8	
Approach LOS		B						C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		36.5			16.0	20.5		36.7
Change Period (Y+Rc), s		4.6			3.7	4.6		4.2
Max Green Setting (Gmax), s		24.0			20.0	26.0		65.0
Max Q Clear Time (g_c+I1), s		21.6			11.6	14.6		28.6
Green Ext Time (p_c), s		1.1			0.7	1.2		3.9

Intersection Summary	
HCM 2010 Ctrl Delay	23.2
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	223	30	10	20	40	110	20	183	20	90	186	327
Future Volume (veh/h)	223	30	10	20	40	110	20	183	20	90	186	327
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	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	251	34	3	22	45	45	22	206	16	101	209	141
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	327	311	27	150	72	72	47	768	59	142	588	379
Arrive On Green	0.19	0.19	0.19	0.09	0.09	0.09	0.03	0.23	0.23	0.08	0.29	0.29
Sat Flow, veh/h	1757	1671	147	1757	848	848	1757	3297	254	1757	2046	1319
Grp Volume(v), veh/h	251	0	37	22	0	90	22	109	113	101	178	172
Grp Sat Flow(s),veh/h/ln	1757	0	1819	1757	0	1695	1757	1752	1799	1757	1752	1612
Q Serve(g_s), s	5.9	0.0	0.7	0.5	0.0	2.2	0.5	2.2	2.2	2.4	3.5	3.7
Cycle Q Clear(g_c), s	5.9	0.0	0.7	0.5	0.0	2.2	0.5	2.2	2.2	2.4	3.5	3.7
Prop In Lane	1.00		0.08	1.00		0.50	1.00		0.14	1.00		0.82
Lane Grp Cap(c), veh/h	327	0	339	150	0	145	47	408	419	142	503	463
V/C Ratio(X)	0.77	0.00	0.11	0.15	0.00	0.62	0.47	0.27	0.27	0.71	0.35	0.37
Avail Cap(c_a), veh/h	1213	0	1256	1213	0	1170	1011	1210	1242	1213	1210	1113
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.8	0.0	14.7	18.4	0.0	19.2	20.8	13.6	13.6	19.5	12.3	12.4
Incr Delay (d2), s/veh	1.4	0.0	0.1	0.2	0.0	1.6	2.7	0.1	0.1	2.4	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	3.0	0.0	0.4	0.3	0.0	1.1	0.3	1.1	1.1	1.3	1.7	1.7
LnGrp Delay(d),s/veh	18.2	0.0	14.7	18.6	0.0	20.8	23.5	13.8	13.8	21.9	12.4	12.5
LnGrp LOS	B		B	B		C	C	B	B	C	B	B
Approach Vol, veh/h		288			112			244			451	
Approach Delay, s/veh		17.8			20.4			14.6			14.6	
Approach LOS		B			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.7	14.7		12.7	5.4	17.1		8.3
Change Period (Y+Rc), s	* 4.2	4.6		4.6	* 4.2	4.6		4.6
Max Green Setting (Gmax), s	* 3.5	30.0		30.0	* 25	30.0		30.0
Max Q Clear Time (g_c+I1), s	4.4	4.2		7.9	2.5	5.7		4.2
Green Ext Time (p_c), s	0.1	2.1		0.5	0.0	2.1		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	16.0
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	6.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	83	130	220	10	20	317
Future Vol, veh/h	83	130	220	10	20	317
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	86	135	229	10	21	330

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	240	0	-	0	542	234
Stage 1	-	-	-	-	234	-
Stage 2	-	-	-	-	308	-
Critical Hdwy	4.14	-	-	-	6.44	6.24
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	2.236	-	-	-	3.536	3.336
Pot Cap-1 Maneuver	1315	-	-	-	498	800
Stage 1	-	-	-	-	800	-
Stage 2	-	-	-	-	741	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1315	-	-	-	463	800
Mov Cap-2 Maneuver	-	-	-	-	463	-
Stage 1	-	-	-	-	800	-
Stage 2	-	-	-	-	688	-

Approach	EB	WB	SB
HCM Control Delay, s	3.1	0	13.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1315	-	-	-	767
HCM Lane V/C Ratio	0.066	-	-	-	0.458
HCM Control Delay (s)	7.9	0	-	-	13.6
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	2.4

Intersection	
Int Delay, s/veh	535.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	317	280	362	133	60	426
Future Vol, veh/h	317	280	362	133	60	426
Conflicting Peds, #/hr	5	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	315	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	348	308	398	146	66	468

Major/Minor	Minor1		Major1		Minor2	
Conflicting Flow All	637	398	0	0	552	398
Stage 1	398	-	-	-	0	0
Stage 2	239	-	-	-	552	398
Critical Hdwy	7.13	6.23	-	-	7.13	6.53
Critical Hdwy Stg 1	6.13	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	6.13	5.53
Follow-up Hdwy	3.527	3.327	-	-	3.527	4.027
Pot Cap-1 Maneuver	389	649	-	-	443	538
Stage 1	626	-	-	-	-	-
Stage 2	-	-	-	-	516	601
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	~ 100	649	-	-	233	538
Mov Cap-2 Maneuver	~ 100	-	-	-	233	538
Stage 1	626	-	-	-	-	-
Stage 2	-	-	-	-	271	601

Approach	WB	NB	SB
HCM Control Delay, s	$ 1383.5	0	39.5
HCM LOS	F		E

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBLn1	SBLn2
Capacity (veh/h)	-	-	166	233	538
HCM Lane V/C Ratio	-	-	3.952	0.283	0.87
HCM Control Delay (s)	-	-	$ 1383.5	26.4	41.4
HCM Lane LOS	-	-	F	D	E
HCM 95th %tile Q(veh)	-	-	65	1.1	9.6

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

Intersection	
Int Delay, s/veh	237.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	80	30	465	10	50	593
Future Vol, veh/h	80	30	465	10	50	593
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	76	76	76	76	76	76
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	105	39	612	13	66	780

Major/Minor	Minor1		Minor2		Major2	
Conflicting Flow All	1224	0	912	780	0	0
Stage 1	0	-	912	-	-	-
Stage 2	1224	-	0	-	-	-
Critical Hdwy	7.13	6.23	6.53	6.23	4.13	-
Critical Hdwy Stg 1	-	-	5.53	-	-	-
Critical Hdwy Stg 2	6.13	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	4.027	3.327	2.227	-
Pot Cap-1 Maneuver	155	-	~ 273	394	-	-
Stage 1	-	-	~ 351	-	-	-
Stage 2	218	-	-	-	-	-
Platoon blocked, %						-
Mov Cap-1 Maneuver	-	-	~ 273	394	-	-
Mov Cap-2 Maneuver	-	-	~ 273	-	-	-
Stage 1	-	-	~ 351	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s		$ 613.3	
HCM LOS	-	F	

Minor Lane/Major Mvmt	NBLn1	WBLn1	SBL	SBT
Capacity (veh/h)	275	-	-	-
HCM Lane V/C Ratio	2.273	-	-	-
HCM Control Delay (s)	$ 613.3	-	-	-
HCM Lane LOS	F	-	-	-
HCM 95th %tile Q(veh)	48.6	-	-	-

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)	20	90	150	190	170	54	50	250	150	25	170	40
Future Volume (veh/h)	20	90	150	190	170	54	50	250	150	25	170	40
Number	5	2	12	1	6	16	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		0.98	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	1845	1845	1845	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	23	103	38	218	195	28	57	287	96	29	195	30
Adj No. of Lanes	1	2	1	1	3	0	2	2	0	1	2	0
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	48	534	234	271	1249	174	219	615	202	58	587	89
Arrive On Green	0.03	0.15	0.15	0.15	0.28	0.28	0.06	0.24	0.24	0.03	0.19	0.19
Sat Flow, veh/h	1757	3505	1537	1757	4470	621	3408	2596	851	1757	3052	462
Grp Volume(v), veh/h	23	103	38	218	145	78	57	192	191	29	111	114
Grp Sat Flow(s),veh/h/ln	1757	1752	1537	1757	1679	1734	1704	1752	1695	1757	1752	1762
Q Serve(g_s), s	0.7	1.3	1.1	6.3	1.7	1.8	0.8	4.9	5.1	0.9	2.9	2.9
Cycle Q Clear(g_c), s	0.7	1.3	1.1	6.3	1.7	1.8	0.8	4.9	5.1	0.9	2.9	2.9
Prop In Lane	1.00		1.00	1.00		0.36	1.00		0.50	1.00		0.26
Lane Grp Cap(c), veh/h	48	534	234	271	938	485	219	415	401	58	337	339
V/C Ratio(X)	0.48	0.19	0.16	0.80	0.15	0.16	0.26	0.46	0.48	0.50	0.33	0.34
Avail Cap(c_a), veh/h	335	2876	1261	503	961	496	1626	1304	1261	335	669	673
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	25.1	19.4	19.3	21.4	14.2	14.2	23.3	17.1	17.2	24.9	18.2	18.3
Incr Delay (d2), s/veh	2.8	0.1	0.1	2.1	0.0	0.1	0.8	1.1	1.2	2.5	0.8	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.6	0.5	3.2	0.8	0.9	0.4	2.5	2.5	0.5	1.5	1.5
LnGrp Delay(d),s/veh	27.9	19.5	19.4	23.5	14.2	14.3	24.1	18.3	18.4	27.4	19.0	19.1
LnGrp LOS	C	B	B	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		164			441			440			254	
Approach Delay, s/veh		20.6			18.8			19.1			20.0	
Approach LOS		C			B			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.3	13.9	6.9	18.3	6.6	20.5	9.3	16.0
Change Period (Y+Rc), s	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9	5.9	* 5.9
Max Green Setting (Gmax), s	* 15	43.0	* 10	39.0	* 10	15.0	25.0	* 20
Max Q Clear Time (g_c+I1), s	8.3	3.3	2.9	7.1	2.7	3.8	2.8	4.9
Green Ext Time (p_c), s	0.2	1.3	0.0	3.4	0.0	1.0	3.1	1.3

Intersection Summary	
HCM 2010 Ctrl Delay	19.4
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	246	790	668	475	90	650	280	163	10	370	130
Future Volume (veh/h)	70	246	790	668	475	90	650	280	163	10	370	130
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	1845	1845	1845	1845	1845	1900	1845	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	77	270	795	450	919	95	714	308	68	11	407	125
Adj No. of Lanes	1	1	2	1	2	0	2	2	1	1	2	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	405	425	1234	520	973	101	556	1195	534	21	502	153
Arrive On Green	0.23	0.23	0.23	0.30	0.30	0.30	0.16	0.34	0.34	0.01	0.19	0.19
Sat Flow, veh/h	1757	1845	3136	1757	3289	340	3408	3505	1565	1757	2650	805
Grp Volume(v), veh/h	77	270	795	450	515	499	714	308	68	11	268	264
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	1845	1785	1704	1752	1565	1757	1752	1703
Q Serve(g_s), s	6.5	24.3	37.9	44.6	50.2	50.2	30.0	11.7	5.5	1.1	26.9	27.4
Cycle Q Clear(g_c), s	6.5	24.3	37.9	44.6	50.2	50.2	30.0	11.7	5.5	1.1	26.9	27.4
Prop In Lane	1.00		1.00	1.00		0.19	1.00		1.00	1.00		0.47
Lane Grp Cap(c), veh/h	405	425	1234	520	546	528	556	1195	534	21	332	323
V/C Ratio(X)	0.19	0.64	0.64	0.87	0.94	0.94	1.28	0.26	0.13	0.54	0.81	0.82
Avail Cap(c_a), veh/h	430	451	1279	525	552	534	556	1195	534	239	429	417
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	57.0	63.8	45.3	61.3	63.3	63.3	77.0	43.8	41.8	90.4	71.3	71.5
Incr Delay (d2), s/veh	0.2	2.7	1.1	14.4	25.3	25.9	141.3	0.4	0.4	7.8	16.0	17.5
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	3.2	12.7	16.6	23.7	29.5	28.6	25.0	5.7	2.4	0.6	14.5	14.5
LnGrp Delay(d),s/veh	57.2	66.5	46.4	75.7	88.6	89.1	218.2	44.2	42.2	98.2	87.3	89.1
LnGrp LOS	E	E	D	E	F	F	F	D	D	F	F	F
Approach Vol, veh/h		1142			1464			1090			543	
Approach Delay, s/veh		51.9			84.8			158.1			88.4	
Approach LOS		D			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	7.3	68.6		60.0	35.2	40.8		48.0
Change Period (Y+Rc), s	* 5.2	5.9		5.6	* 5.2	5.9		5.6
Max Green Setting (Gmax), s	* 25	45.0		55.0	* 30	45.0		45.0
Max Q Clear Time (g_c+I1), s	13.1	13.7		52.2	32.0	29.4		39.9
Green Ext Time (p_c), s	0.0	14.2		2.2	0.0	5.5		2.5

Intersection Summary	
HCM 2010 Ctrl Delay	95.2
HCM 2010 LOS	F

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	419	0	0	643	590	20
Future Volume (veh/h)	419	0	0	643	590	20
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	0	0	1845	1845	1900
Adj Flow Rate, veh/h	423	0	0	649	610	0
Adj No. of Lanes	2	0	0	2	2	1
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	3	0	0	3	3	0
Cap, veh/h	1405	0	0	1405	989	455
Arrive On Green	0.40	0.00	0.00	0.40	0.28	0.00
Sat Flow, veh/h	3689	0	0	3689	3514	1615
Grp Volume(v), veh/h	423	0	0	649	610	0
Grp Sat Flow(s),veh/h/ln	1752	0	0	1752	1757	1615
Q Serve(g_s), s	2.6	0.0	0.0	4.3	4.8	0.0
Cycle Q Clear(g_c), s	2.6	0.0	0.0	4.3	4.8	0.0
Prop In Lane		0.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	1405	0	0	1405	989	455
V/C Ratio(X)	0.30	0.00	0.00	0.46	0.62	0.00
Avail Cap(c_a), veh/h	2561	0	0	2561	3572	1642
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	0.00
Uniform Delay (d), s/veh	6.4	0.0	0.0	6.9	9.8	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.2	0.6	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	1.3	0.0	0.0	2.0	2.4	0.0
LnGrp Delay(d),s/veh	6.5	0.0	0.0	7.2	10.5	0.0
LnGrp LOS	A			A	B	
Approach Vol, veh/h	423			649	610	
Approach Delay, s/veh	6.5			7.2	10.5	
Approach LOS	A			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		17.6				17.6		13.9
Change Period (Y+Rc), s		5.0				5.0		5.0
Max Green Setting (Gmax), s		23.0				23.0		32.0
Max Q Clear Time (g_c+I1), s		4.6				6.3		6.8
Green Ext Time (p_c), s		6.6				6.3		2.2

Intersection Summary	
HCM 2010 Ctrl Delay	8.2
HCM 2010 LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	130	1093	1032	796
Future Volume (veh/h)	0	0	130	1093	1032	796
Number			5	2	6	16
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)			1.00			1.00
Parking Bus, Adj			1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln			1845	1845	1845	1845
Adj Flow Rate, veh/h			143	1201	1134	724
Adj No. of Lanes			2	1	1	1
Peak Hour Factor			0.91	0.91	0.91	0.91
Percent Heavy Veh, %			3	3	3	3
Cap, veh/h			367	1676	1322	1123
Arrive On Green			0.11	0.91	0.72	0.72
Sat Flow, veh/h			3408	1845	1845	1568
Grp Volume(v), veh/h			143	1201	1134	724
Grp Sat Flow(s),veh/h/ln			1704	1845	1845	1568
Q Serve(g_s), s			2.2	9.5	25.2	13.6
Cycle Q Clear(g_c), s			2.2	9.5	25.2	13.6
Prop In Lane			1.00			1.00
Lane Grp Cap(c), veh/h			367	1676	1322	1123
V/C Ratio(X)			0.39	0.72	0.86	0.64
Avail Cap(c_a), veh/h			1529	1676	1655	1407
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh			23.2	0.7	5.8	4.2
Incr Delay (d2), s/veh			0.4	1.9	3.9	0.7
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			1.0	4.9	13.7	5.8
LnGrp Delay(d),s/veh			23.5	2.5	9.7	4.9
LnGrp LOS			C	A	A	A
Approach Vol, veh/h				1344	1858	
Approach Delay, s/veh				4.8	7.8	
Approach LOS				A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		
Phs Duration (G+Y+Rc), s		55.7			10.7	45.0		
Change Period (Y+Rc), s		5.1			* 4.7	5.1		
Max Green Setting (Gmax), s		25.0			* 25	50.0		
Max Q Clear Time (g_c+I1), s		11.5			4.2	27.2		
Green Ext Time (p_c), s		13.1			0.2	12.7		

Intersection Summary	
HCM 2010 Ctrl Delay	6.5
HCM 2010 LOS	A

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	576	130	230	647	417	615
Future Volume (veh/h)	576	130	230	647	417	615
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	600	82	240	674	434	221
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	639	822	282	942	537	457
Arrive On Green	0.36	0.36	0.16	0.51	0.29	0.29
Sat Flow, veh/h	1757	1568	1757	1845	1845	1568
Grp Volume(v), veh/h	600	82	240	674	434	221
Grp Sat Flow(s),veh/h/ln	1757	1568	1757	1845	1845	1568
Q Serve(g_s), s	26.4	2.1	10.6	22.6	17.5	9.3
Cycle Q Clear(g_c), s	26.4	2.1	10.6	22.6	17.5	9.3
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	639	822	282	942	537	457
V/C Ratio(X)	0.94	0.10	0.85	0.72	0.81	0.48
Avail Cap(c_a), veh/h	724	897	592	1036	714	607
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.6	9.6	32.7	15.1	26.3	23.4
Incr Delay (d2), s/veh	18.1	0.0	2.8	1.7	3.8	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	15.9	2.7	5.4	11.9	9.4	4.0
LnGrp Delay(d),s/veh	42.7	9.6	35.5	16.8	30.1	23.7
LnGrp LOS	D	A	D	B	C	C
Approach Vol, veh/h	682			914	655	
Approach Delay, s/veh	38.7			21.7	27.9	
Approach LOS	D			C	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		46.3		33.8	17.6	28.7		
Change Period (Y+Rc), s		5.4		* 4.7	* 4.7	5.4		
Max Green Setting (Gmax), s		45.0		* 33	* 27	31.0		
Max Q Clear Time (g_c+I1), s		24.6		28.4	12.6	19.5		
Green Ext Time (p_c), s		4.7		0.7	0.3	3.9		

Intersection Summary	
HCM 2010 Ctrl Delay	28.7
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	0	212	0	290	20	42	32	0	0	83	130
Future Volume (veh/h)	70	0	212	0	290	20	42	32	0	0	83	130
Number	1	6	16	5	2	12	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		0.96
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	0	1845	1900	1845	1845	0	0	1845	1900
Adj Flow Rate, veh/h	85	0	161	0	354	22	51	39	0	0	101	25
Adj No. of Lanes	2	1	2	0	1	0	2	1	0	0	2	0
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	3	3	3	0	3	3	3	3	0	0	3	3
Cap, veh/h	262	873	1495	0	481	30	279	147	0	0	273	65
Arrive On Green	0.08	0.00	0.47	0.00	0.28	0.28	0.08	0.08	0.00	0.00	0.10	0.10
Sat Flow, veh/h	3408	1845	2697	0	1719	107	3514	1845	0	0	2879	664
Grp Volume(v), veh/h	85	0	161	0	0	376	51	39	0	0	62	64
Grp Sat Flow(s),veh/h/ln	1704	1845	1349	0	0	1826	1757	1845	0	0	1752	1699
Q Serve(g_s), s	0.9	0.0	1.1	0.0	0.0	7.4	0.5	0.8	0.0	0.0	1.3	1.4
Cycle Q Clear(g_c), s	0.9	0.0	1.1	0.0	0.0	7.4	0.5	0.8	0.0	0.0	1.3	1.4
Prop In Lane	1.00		1.00	0.00		0.06	1.00		0.00	0.00		0.39
Lane Grp Cap(c), veh/h	262	873	1495	0	0	511	279	147	0	0	171	166
V/C Ratio(X)	0.32	0.00	0.11	0.00	0.00	0.74	0.18	0.27	0.00	0.00	0.36	0.38
Avail Cap(c_a), veh/h	2158	1168	1927	0	0	1156	2225	1168	0	0	1110	1076
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	17.3	0.0	4.2	0.0	0.0	12.9	17.0	17.1	0.0	0.0	16.7	16.7
Incr Delay (d2), s/veh	0.7	0.0	0.0	0.0	0.0	2.1	0.3	1.0	0.0	0.0	1.3	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.5	0.0	0.0	4.0	0.3	0.4	0.0	0.0	0.7	0.7
LnGrp Delay(d),s/veh	18.0	0.0	4.2	0.0	0.0	15.0	17.3	18.0	0.0	0.0	17.9	18.2
LnGrp LOS	B		A			B	B	B			B	B
Approach Vol, veh/h		246			376			90			126	
Approach Delay, s/veh		9.0			15.0			17.6			18.0	
Approach LOS		A			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	7.6	15.6		8.5		23.3		7.7
Change Period (Y+Rc), s	4.6	4.6		4.6		4.6		4.6
Max Green Setting (Gmax), s	25.0	25.0		25.0		25.0		25.0
Max Q Clear Time (g_c+I1), s	2.9	9.4		3.4		3.1		2.8
Green Ext Time (p_c), s	0.8	1.9		0.6		0.8		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	14.0
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	559	23	64	318	10	41	24	43	230	23	42
Future Volume (veh/h)	40	559	23	64	318	10	41	24	43	230	23	42
Number	3	8	18	7	4	14	1	6	16	5	2	12
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	1845	1845	1900	1845	1845	1900	1900	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	55	766	28	88	436	11	56	33	6	315	32	17
Adj No. of Lanes	2	2	0	1	2	0	0	1	1	1	1	0
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	177	1153	42	119	1222	31	75	44	105	392	254	135
Arrive On Green	0.05	0.33	0.33	0.07	0.35	0.35	0.07	0.07	0.07	0.22	0.22	0.22
Sat Flow, veh/h	3408	3449	126	1757	3494	88	1125	663	1568	1757	1135	603
Grp Volume(v), veh/h	55	389	405	88	218	229	89	0	6	315	0	49
Grp Sat Flow(s),veh/h/ln	1704	1752	1822	1757	1752	1829	1788	0	1568	1757	0	1738
Q Serve(g_s), s	0.8	10.4	10.4	2.7	5.1	5.1	2.7	0.0	0.2	9.3	0.0	1.2
Cycle Q Clear(g_c), s	0.8	10.4	10.4	2.7	5.1	5.1	2.7	0.0	0.2	9.3	0.0	1.2
Prop In Lane	1.00		0.07	1.00		0.05	0.63		1.00	1.00		0.35
Lane Grp Cap(c), veh/h	177	586	609	119	613	640	120	0	105	392	0	388
V/C Ratio(X)	0.31	0.66	0.66	0.74	0.36	0.36	0.74	0.00	0.06	0.80	0.00	0.13
Avail Cap(c_a), veh/h	362	816	848	187	816	851	295	0	259	740	0	733
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.9	15.5	15.5	25.0	13.2	13.2	25.0	0.0	23.8	20.1	0.0	16.9
Incr Delay (d2), s/veh	1.0	1.3	1.3	3.4	0.4	0.3	8.7	0.0	0.2	3.9	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	0.4	5.2	5.4	1.4	2.5	2.6	1.6	0.0	0.1	4.9	0.0	0.6
LnGrp Delay(d),s/veh	25.9	16.8	16.8	28.4	13.5	13.5	33.7	0.0	24.1	23.9	0.0	17.1
LnGrp LOS	C	B	B	C	B	B	C		C	C		B
Approach Vol, veh/h		849			535			95			364	
Approach Delay, s/veh		17.4			16.0			33.1			23.0	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		16.2	7.0	23.7		7.7	7.9	22.8
Change Period (Y+Rc), s		4.0	* 4.2	4.6		4.0	* 4.2	4.6
Max Green Setting (Gmax), s		23.0	* 5.8	25.4		9.0	* 5.8	25.4
Max Q Clear Time (g_c+I1), s		11.3	2.8	7.1		4.7	4.7	12.4
Green Ext Time (p_c), s		1.0	0.0	7.0		0.1	0.0	5.9

Intersection Summary	
HCM 2010 Ctrl Delay	18.9
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	593	19	40	431	10	14	0	9	20	0	20
Future Vol, veh/h	10	593	19	40	431	10	14	0	9	20	0	20
Conflicting Peds, #/hr	2	0	0	0	0	2	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	-	-	130	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	12	732	23	49	532	12	17	0	11	25	0	25

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	546	0	0	756	0	0	1134	1414	378	1030	1419	274
Stage 1	-	-	-	-	-	-	769	769	-	639	639	-
Stage 2	-	-	-	-	-	-	365	645	-	391	780	-
Critical Hdwy	4.16	-	-	4.16	-	-	7.56	6.56	6.96	7.56	6.56	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Follow-up Hdwy	2.23	-	-	2.23	-	-	3.53	4.03	3.33	3.53	4.03	3.33
Pot Cap-1 Maneuver	1012	-	-	844	-	-	156	135	617	186	134	721
Stage 1	-	-	-	-	-	-	358	406	-	428	466	-
Stage 2	-	-	-	-	-	-	624	463	-	602	402	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1012	-	-	844	-	-	143	125	617	173	125	720
Mov Cap-2 Maneuver	-	-	-	-	-	-	143	125	-	173	125	-
Stage 1	-	-	-	-	-	-	354	401	-	422	438	-
Stage 2	-	-	-	-	-	-	568	435	-	584	397	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.8	25.5	20.7
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	204	1012	-	-	844	-	-	279
HCM Lane V/C Ratio	0.139	0.012	-	-	0.059	-	-	0.177
HCM Control Delay (s)	25.5	8.6	-	-	9.5	-	-	20.7
HCM Lane LOS	D	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.5	0	-	-	0.2	-	-	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	40	70	33	40	50	70	655	52	30	476	70
Future Volume (veh/h)	70	40	70	33	40	50	70	655	52	30	476	70
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		0.99
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	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	80	46	31	38	46	9	80	753	57	34	547	69
Adj No. of Lanes	1	1	0	1	2	0	1	3	0	1	3	0
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	124	86	58	74	163	31	124	2131	161	68	1877	233
Arrive On Green	0.07	0.08	0.08	0.04	0.06	0.06	0.07	0.45	0.45	0.04	0.41	0.41
Sat Flow, veh/h	1757	1029	693	1757	2940	559	1757	4777	360	1757	4531	563
Grp Volume(v), veh/h	80	0	77	38	27	28	80	528	282	34	403	213
Grp Sat Flow(s),veh/h/ln	1757	0	1722	1757	1752	1746	1757	1679	1780	1757	1679	1737
Q Serve(g_s), s	2.0	0.0	1.9	1.0	0.7	0.7	2.0	4.6	4.7	0.9	3.6	3.7
Cycle Q Clear(g_c), s	2.0	0.0	1.9	1.0	0.7	0.7	2.0	4.6	4.7	0.9	3.6	3.7
Prop In Lane	1.00		0.40	1.00		0.32	1.00		0.20	1.00		0.32
Lane Grp Cap(c), veh/h	124	0	144	74	97	97	124	1497	794	68	1391	719
V/C Ratio(X)	0.65	0.00	0.54	0.51	0.28	0.29	0.65	0.35	0.36	0.50	0.29	0.30
Avail Cap(c_a), veh/h	783	0	1727	978	1757	1750	783	2767	1467	783	2618	1354
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.3	0.0	19.7	21.1	20.3	20.4	20.3	8.2	8.2	21.2	8.8	8.8
Incr Delay (d2), s/veh	5.6	0.0	3.1	5.4	1.5	1.6	5.6	0.2	0.3	2.1	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	1.1	0.0	1.0	0.6	0.4	0.4	1.1	2.2	2.3	0.4	1.7	1.8
LnGrp Delay(d),s/veh	25.9	0.0	22.8	26.5	21.9	22.0	25.9	8.3	8.5	23.3	8.9	9.0
LnGrp LOS	C		C	C	C	C	C	A	A	C	A	A
Approach Vol, veh/h		157			93			890			650	
Approach Delay, s/veh		24.4			23.8			10.0			9.7	
Approach LOS		C			C			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.9	24.6	6.1	8.3	7.4	23.2	7.4	7.0
Change Period (Y+Rc), s	* 4.2	4.6	* 4.2	4.5	* 4.2	4.6	* 4.2	4.5
Max Green Setting (Gmax), s	* 20	37.0	* 25	45.0	* 20	35.0	* 20	45.0
Max Q Clear Time (g_c+I1), s	2.9	6.7	3.0	3.9	4.0	5.7	4.0	2.7
Green Ext Time (p_c), s	0.0	12.8	0.1	0.8	0.1	12.6	0.1	0.8

Intersection Summary	
HCM 2010 Ctrl Delay	11.9
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	137	346	339	80	208	20	295	620	130	20	370	189
Future Volume (veh/h)	137	346	339	80	208	20	295	620	130	20	370	189
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		0.98	1.00		1.00	1.00		1.00	1.00		0.98
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	1900	1845	1845	1900	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	151	380	232	88	229	13	324	681	76	22	407	51
Adj No. of Lanes	2	3	0	2	3	0	2	2	1	2	2	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	248	789	363	270	1177	66	451	1232	550	117	890	391
Arrive On Green	0.07	0.23	0.23	0.08	0.24	0.24	0.13	0.35	0.35	0.03	0.25	0.25
Sat Flow, veh/h	3408	3357	1544	3408	4879	273	3408	3505	1565	3408	3505	1542
Grp Volume(v), veh/h	151	380	232	88	157	85	324	681	76	22	407	51
Grp Sat Flow(s),veh/h/ln	1704	1679	1544	1704	1679	1795	1704	1752	1565	1704	1752	1542
Q Serve(g_s), s	3.2	7.2	10.0	1.8	2.7	2.8	6.7	11.6	2.4	0.5	7.3	1.9
Cycle Q Clear(g_c), s	3.2	7.2	10.0	1.8	2.7	2.8	6.7	11.6	2.4	0.5	7.3	1.9
Prop In Lane	1.00		1.00	1.00		0.15	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	248	789	363	270	810	433	451	1232	550	117	890	391
V/C Ratio(X)	0.61	0.48	0.64	0.33	0.19	0.20	0.72	0.55	0.14	0.19	0.46	0.13
Avail Cap(c_a), veh/h	921	1134	521	921	1905	1019	921	1421	634	921	1421	625
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.3	24.4	25.5	32.2	22.4	22.4	30.8	19.3	16.4	34.7	23.3	21.3
Incr Delay (d2), s/veh	2.9	0.6	2.3	0.8	0.1	0.3	2.6	0.5	0.1	0.9	0.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	3.4	4.5	0.9	1.3	1.4	3.3	5.7	1.1	0.2	3.6	0.8
LnGrp Delay(d),s/veh	36.2	25.0	27.8	33.1	22.5	22.6	33.4	19.8	16.5	35.7	23.8	21.5
LnGrp LOS	D	C	C	C	C	C	C	B	B	D	C	C
Approach Vol, veh/h		763			330			1081			480	
Approach Delay, s/veh		28.0			25.4			23.6			24.1	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.6	23.7	7.7	31.9	11.1	23.3	15.0	24.7
Change Period (Y+Rc), s	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9
Max Green Setting (Gmax), s	* 20	42.0	* 20	30.0	* 20	25.0	* 20	30.0
Max Q Clear Time (g_c+I1), s	5.2	4.8	2.5	13.6	3.8	12.0	8.7	9.3
Green Ext Time (p_c), s	0.5	7.4	0.0	7.9	0.2	5.0	1.1	8.9

Intersection Summary	
HCM 2010 Ctrl Delay	25.2
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	47.5
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	445	0	300	0	0	0	100	600	0	0	739	50
Future Vol, veh/h	445	0	300	0	0	0	100	600	0	0	739	50
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
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	454	0	306	0	0	0	102	612	0	0	754	51
Number of Lanes	1	1	1	0	0	0	1	2	0	0	2	1

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	3	3
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	3	3	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	3	0	3
HCM Control Delay	24.6	35.4	79.9
HCM LOS	C	E	F

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	100%	100%	0%	0%	0%	0%
Vol Thru, %	0%	100%	100%	0%	0%	0%	100%	100%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	100	300	300	223	223	300	370	370	50
LT Vol	100	0	0	223	223	0	0	0	0
Through Vol	0	300	300	0	0	0	370	370	0
RT Vol	0	0	0	0	0	300	0	0	50
Lane Flow Rate	102	306	306	227	227	306	377	377	51
Geometry Grp	8	8	8	7	7	7	8	8	8
Degree of Util (X)	0.295	0.841	0.698	0.575	0.575	0.671	1.022	1.022	0.102
Departure Headway (Hd)	10.658	10.141	8.333	9.27	9.27	8.047	9.756	9.756	7.226
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	340	358	438	393	393	453	373	373	498
Service Time	8.358	7.841	6.033	6.97	6.97	5.747	7.469	7.469	4.939
HCM Lane V/C Ratio	0.3	0.855	0.699	0.578	0.578	0.675	1.011	1.011	0.102
HCM Control Delay	17.8	48.6	28.1	23.8	23.8	25.7	84.6	84.6	10.8
HCM Lane LOS	C	E	D	C	C	D	F	F	B
HCM 95th-tile Q	1.2	7.6	5.2	3.5	3.5	4.8	12.4	12.4	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	336	10	290	0	0	0	0	364	430	527	512	0
Future Volume (veh/h)	336	10	290	0	0	0	0	364	430	527	512	0
Number	3	8	18				1	6	16	5	2	12
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	1900	1845	1845				0	1845	1845	1845	1845	0
Adj Flow Rate, veh/h	373	11	200				0	404	152	586	569	0
Adj No. of Lanes	0	1	1				0	1	1	2	1	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, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	472	14	433				0	507	430	738	1033	0
Arrive On Green	0.28	0.28	0.28				0.00	0.27	0.27	0.22	0.56	0.00
Sat Flow, veh/h	1709	50	1568				0	1845	1565	3408	1845	0
Grp Volume(v), veh/h	384	0	200				0	404	152	586	569	0
Grp Sat Flow(s),veh/h/ln	1759	0	1568				0	1845	1565	1704	1845	0
Q Serve(g_s), s	10.9	0.0	5.7				0.0	10.9	4.2	8.8	10.6	0.0
Cycle Q Clear(g_c), s	10.9	0.0	5.7				0.0	10.9	4.2	8.8	10.6	0.0
Prop In Lane	0.97		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	486	0	433				0	507	430	738	1033	0
V/C Ratio(X)	0.79	0.00	0.46				0.00	0.80	0.35	0.79	0.55	0.00
Avail Cap(c_a), veh/h	2124	0	1893				0	891	756	1266	1033	0
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	1.00	1.00	0.00
Uniform Delay (d), s/veh	18.0	0.0	16.2				0.0	18.1	15.7	19.9	7.5	0.0
Incr Delay (d2), s/veh	1.1	0.0	0.3				0.0	1.1	0.2	0.7	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	0.0	2.5				0.0	5.7	1.8	4.1	5.3	0.0
LnGrp Delay(d),s/veh	19.1	0.0	16.4				0.0	19.2	15.9	20.7	7.9	0.0
LnGrp LOS	B		B					B	B	C	A	
Approach Vol, veh/h		584						556			1155	
Approach Delay, s/veh		18.2						18.3			14.4	
Approach LOS		B						B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		34.8			15.4	19.4		19.1
Change Period (Y+Rc), s		4.6			3.7	4.6		4.2
Max Green Setting (Gmax), s		24.0			20.0	26.0		65.0
Max Q Clear Time (g_c+I1), s		12.6			10.8	12.9		12.9
Green Ext Time (p_c), s		3.4			0.9	1.8		2.0

Intersection Summary		
HCM 2010 Ctrl Delay		16.3
HCM 2010 LOS		B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	337	40	20	40	30	140	10	227	40	170	306	236
Future Volume (veh/h)	337	40	20	40	30	140	10	227	40	170	306	236
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	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	351	42	9	42	31	14	10	236	31	177	319	156
Adj No. of Lanes	1	1	0	1	1	0	1	2	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	0.96	0.96	0.96
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	433	363	78	122	84	38	23	623	81	228	728	348
Arrive On Green	0.25	0.25	0.25	0.07	0.07	0.07	0.01	0.20	0.20	0.13	0.32	0.32
Sat Flow, veh/h	1757	1472	315	1757	1205	544	1757	3119	405	1757	2300	1101
Grp Volume(v), veh/h	351	0	51	42	0	45	10	131	136	177	241	234
Grp Sat Flow(s),veh/h/ln	1757	0	1788	1757	0	1749	1757	1752	1772	1757	1752	1648
Q Serve(g_s), s	9.6	0.0	1.1	1.2	0.0	1.2	0.3	3.3	3.4	5.0	5.5	5.7
Cycle Q Clear(g_c), s	9.6	0.0	1.1	1.2	0.0	1.2	0.3	3.3	3.4	5.0	5.5	5.7
Prop In Lane	1.00		0.18	1.00		0.31	1.00		0.23	1.00		0.67
Lane Grp Cap(c), veh/h	433	0	440	122	0	122	23	350	354	228	555	522
V/C Ratio(X)	0.81	0.00	0.12	0.34	0.00	0.37	0.44	0.38	0.38	0.78	0.44	0.45
Avail Cap(c_a), veh/h	1038	0	1056	1038	0	1033	865	1036	1047	1038	1036	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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.0	0.0	14.8	22.5	0.0	22.6	24.9	17.6	17.6	21.4	13.8	13.8
Incr Delay (d2), s/veh	1.4	0.0	0.0	0.6	0.0	0.7	4.9	0.2	0.3	2.2	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	4.8	0.0	0.6	0.6	0.0	0.6	0.2	1.6	1.6	2.5	2.7	2.6
LnGrp Delay(d),s/veh	19.4	0.0	14.9	23.1	0.0	23.2	29.8	17.8	17.9	23.5	14.0	14.0
LnGrp LOS	B		B	C		C	C	B	B	C	B	B
Approach Vol, veh/h		402			87			277			652	
Approach Delay, s/veh		18.8			23.2			18.3			16.6	
Approach LOS		B			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.8	14.7		17.1	4.9	20.7		8.1
Change Period (Y+Rc), s	* 4.2	4.6		4.6	* 4.2	4.6		4.6
Max Green Setting (Gmax), s	* 6	30.0		30.0	* 25	30.0		30.0
Max Q Clear Time (g_c+I1), s	7.0	5.4		11.6	2.3	7.7		3.2
Green Ext Time (p_c), s	0.2	2.8		0.7	0.0	2.8		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	18.0
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	10

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	137	420	140	10	50	306
Future Vol, veh/h	137	420	140	10	50	306
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	171	525	175	13	63	383

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	188	0	-	0	1049	181
Stage 1	-	-	-	-	181	-
Stage 2	-	-	-	-	868	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1380	-	-	-	251	859
Stage 1	-	-	-	-	848	-
Stage 2	-	-	-	-	409	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1380	-	-	-	207	859
Mov Cap-2 Maneuver	-	-	-	-	207	-
Stage 1	-	-	-	-	848	-
Stage 2	-	-	-	-	337	-

Approach	EB	WB	SB
HCM Control Delay, s	2	0	26.7
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1380	-	-	-	596
HCM Lane V/C Ratio	0.124	-	-	-	0.747
HCM Control Delay (s)	8	0	-	-	26.7
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	0.4	-	-	-	6.6

Intersection	
Int Delay, s/veh	45.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	236	240	637	397	150	327
Future Vol, veh/h	236	240	637	397	150	327
Conflicting Peds, #/hr	2	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	315	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	265	270	716	446	169	367

Major/Minor	Minor1		Major1		Minor2	
Conflicting Flow All	902	716	0	0	851	716
Stage 1	716	-	-	-	0	0
Stage 2	186	-	-	-	851	716
Critical Hdwy	7.13	6.23	-	-	7.13	6.53
Critical Hdwy Stg 1	6.13	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	6.13	5.53
Follow-up Hdwy	3.527	3.327	-	-	3.527	4.027
Pot Cap-1 Maneuver	~ 258	428	-	-	279	~ 355
Stage 1	420	-	-	-	-	-
Stage 2	-	-	-	-	353	433
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	-	428	-	-	~ 103	~ 355
Mov Cap-2 Maneuver	-	-	-	-	~ 103	~ 355
Stage 1	420	-	-	-	-	-
Stage 2	-	-	-	-	~ 131	433

Approach	WB	NB	SB
HCM Control Delay, s		0	188.4
HCM LOS	-		F

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBLn1	SBLn2
Capacity (veh/h)	-	-	-	103	355
HCM Lane V/C Ratio	-	-	-	1.636	1.035
HCM Control Delay (s)	-	-	-$	398.1	92.2
HCM Lane LOS	-	-	-	F	F
HCM 95th %tile Q(veh)	-	-	-	13	12.5

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

Intersection	
Int Delay, s/veh	229.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	350	684	10	30	503
Future Vol, veh/h	10	350	684	10	30	503
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Free	Free
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, %	3	3	3	3	3	3
Mvmt Flow	12	407	795	12	35	585

Major/Minor	Minor1		Minor2		Major2	
Conflicting Flow All	1058	0	655	585	0	0
Stage 1	0	-	655	-	-	-
Stage 2	1058	-	0	-	-	-
Critical Hdwy	7.13	6.23	6.53	6.23	4.13	-
Critical Hdwy Stg 1	-	-	5.53	-	-	-
Critical Hdwy Stg 2	6.13	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	4.027	3.327	2.227	-
Pot Cap-1 Maneuver	202	-	~ 384	509	-	-
Stage 1	-	-	~ 461	-	-	-
Stage 2	271	-	-	-	-	-
Platoon blocked, %						-
Mov Cap-1 Maneuver	-	-	~ 384	509	-	-
Mov Cap-2 Maneuver	-	-	~ 384	-	-	-
Stage 1	-	-	~ 461	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s		$ 524.8	
HCM LOS	-	F	

Minor Lane/Major Mvmt	NBLn1	WBLn1	SBL	SBT
Capacity (veh/h)	385	-	-	-
HCM Lane V/C Ratio	2.096	-	-	-
HCM Control Delay (s)	$ 524.8	-	-	-
HCM Lane LOS	F	-	-	-
HCM 95th %tile Q(veh)	58	-	-	-

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)	455	0	270	0	0	0	80	763	0	10	609	40
Future Volume (veh/h)	455	0	270	0	0	0	80	763	0	10	609	40
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	1845	1845	1845				1845	1845	0	1845	1845	1845
Adj Flow Rate, veh/h	632	0	0				111	1060	0	14	846	56
Adj No. of Lanes	2	0	1				1	2	0	1	2	1
Peak Hour Factor	0.72	0.72	0.72				0.72	0.72	0.72	0.72	0.72	0.72
Percent Heavy Veh, %	3	3	3				3	3	0	3	3	3
Cap, veh/h	823	0	367				145	1988	0	24	1746	781
Arrive On Green	0.23	0.00	0.00				0.08	0.57	0.00	0.01	0.50	0.50
Sat Flow, veh/h	3514	0	1568				1757	3597	0	1757	3505	1568
Grp Volume(v), veh/h	632	0	0				111	1060	0	14	846	56
Grp Sat Flow(s),veh/h/ln	1757	0	1568				1757	1752	0	1757	1752	1568
Q Serve(g_s), s	10.9	0.0	0.0				4.0	12.2	0.0	0.5	10.4	1.2
Cycle Q Clear(g_c), s	10.9	0.0	0.0				4.0	12.2	0.0	0.5	10.4	1.2
Prop In Lane	1.00		1.00				1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	823	0	367				145	1988	0	24	1746	781
V/C Ratio(X)	0.77	0.00	0.00				0.76	0.53	0.00	0.58	0.48	0.07
Avail Cap(c_a), veh/h	2491	0	1111				514	3511	0	190	2863	1281
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				1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.2	0.0	0.0				29.1	8.7	0.0	31.8	10.8	8.5
Incr Delay (d2), s/veh	1.5	0.0	0.0				8.0	0.2	0.0	20.1	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	5.4	0.0	0.0				2.3	5.8	0.0	0.4	5.0	0.5
LnGrp Delay(d),s/veh	24.7	0.0	0.0				37.2	8.9	0.0	51.9	11.0	8.5
LnGrp LOS	C						D	A		D	B	A
Approach Vol, veh/h		632						1171			916	
Approach Delay, s/veh		24.7						11.6			11.5	
Approach LOS		C						B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		
Phs Duration (G+Y+Rc), s	4.9	40.8		19.2	9.4	36.3		
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		
Max Green Setting (Gmax), s	7.0	65.0		46.0	19.0	53.0		
Max Q Clear Time (g_c+I1), s	2.5	14.2		12.9	6.0	12.4		
Green Ext Time (p_c), s	0.0	21.9		2.3	0.2	20.0		

Intersection Summary	
HCM 2010 Ctrl Delay	14.6
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	20	10	257	30	250	10	352	133	60	376	50
Future Volume (veh/h)	30	20	10	257	30	250	10	352	133	60	376	50
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		0.99	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	1900	1845	1900	1900	1845	1900	1900	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	33	22	11	282	33	275	11	387	146	66	413	55
Adj No. of Lanes	0	1	0	0	1	0	0	1	1	1	1	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	42	28	14	282	33	275	11	394	345	462	419	56
Arrive On Green	0.05	0.05	0.05	0.36	0.36	0.36	0.22	0.22	0.22	0.26	0.26	0.26
Sat Flow, veh/h	875	583	292	794	93	775	51	1791	1568	1757	1595	212
Grp Volume(v), veh/h	66	0	0	590	0	0	398	0	146	66	0	468
Grp Sat Flow(s),veh/h/ln	1749	0	0	1662	0	0	1842	0	1568	1757	0	1807
Q Serve(g_s), s	5.3	0.0	0.0	50.0	0.0	0.0	30.3	0.0	11.3	4.1	0.0	36.3
Cycle Q Clear(g_c), s	5.3	0.0	0.0	50.0	0.0	0.0	30.3	0.0	11.3	4.1	0.0	36.3
Prop In Lane	0.50		0.17	0.48		0.47	0.03		1.00	1.00		0.12
Lane Grp Cap(c), veh/h	85	0	0	590	0	0	405	0	345	462	0	475
V/C Ratio(X)	0.78	0.00	0.00	1.00	0.00	0.00	0.98	0.00	0.42	0.14	0.00	0.99
Avail Cap(c_a), veh/h	199	0	0	590	0	0	405	0	345	462	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	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	66.2	0.0	0.0	45.4	0.0	0.0	54.6	0.0	47.2	39.8	0.0	51.7
Incr Delay (d2), s/veh	14.0	0.0	0.0	37.1	0.0	0.0	39.7	0.0	0.8	0.1	0.0	37.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	0.0	0.0	28.9	0.0	0.0	19.8	0.0	5.0	2.0	0.0	23.0
LnGrp Delay(d),s/veh	80.3	0.0	0.0	82.5	0.0	0.0	94.3	0.0	48.0	39.9	0.0	89.1
LnGrp LOS	F			F			F		D	D		F
Approach Vol, veh/h		66			590			544			534	
Approach Delay, s/veh		80.3			82.5			81.9			83.0	
Approach LOS		F			F			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		35.0		10.8		41.0		54.0
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		31.0		16.0		37.0		50.0
Max Q Clear Time (g_c+I1), s		32.3		7.3		38.3		52.0
Green Ext Time (p_c), s		0.0		0.1		0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	82.4
HCM 2010 LOS	F

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	80	30	465	10	50	593
Future Volume (veh/h)	80	30	465	10	50	593
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	1845	1900	1845	1900	1845	1845
Adj Flow Rate, veh/h	105	39	612	13	66	780
Adj No. of Lanes	0	0	2	0	1	1
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76
Percent Heavy Veh, %	0	0	3	3	3	3
Cap, veh/h	112	42	800	17	876	920
Arrive On Green	0.09	0.09	0.23	0.23	0.50	0.50
Sat Flow, veh/h	1233	458	3602	75	1757	1845
Grp Volume(v), veh/h	145	0	305	320	66	780
Grp Sat Flow(s),veh/h/ln	1702	0	1752	1832	1757	1845
Q Serve(g_s), s	5.6	0.0	10.7	10.7	1.3	24.2
Cycle Q Clear(g_c), s	5.6	0.0	10.7	10.7	1.3	24.2
Prop In Lane	0.72	0.27		0.04	1.00	
Lane Grp Cap(c), veh/h	155	0	399	417	876	920
V/C Ratio(X)	0.93	0.00	0.76	0.77	0.08	0.85
Avail Cap(c_a), veh/h	155	0	559	585	2964	3112
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	29.7	0.0	23.8	23.8	8.6	14.3
Incr Delay (d2), s/veh	52.9	0.0	4.1	3.9	0.0	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	0.0	5.6	5.9	0.6	12.7
LnGrp Delay(d),s/veh	82.6	0.0	27.8	27.7	8.6	16.6
LnGrp LOS	F		C	C	A	B
Approach Vol, veh/h	145		625			846
Approach Delay, s/veh	82.6		27.8			16.0
Approach LOS	F		C			B

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		19.0				36.8		10.0
Change Period (Y+Rc), s		4.0				4.0		4.0
Max Green Setting (Gmax), s		21.0				111.0		6.0
Max Q Clear Time (g_c+I1), s		12.7				26.2		7.6
Green Ext Time (p_c), s		2.3				6.6		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	26.5
HCM 2010 LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	445	0	300	0	0	0	100	600	0	0	739	50
Future Volume (veh/h)	445	0	300	0	0	0	100	600	0	0	739	50
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		0.98
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	1845	1845	1845				1845	1845	0	1845	1845	1845
Adj Flow Rate, veh/h	454	0	0				102	612	0	0	754	51
Adj No. of Lanes	2	0	1				1	2	0	1	2	1
Peak Hour Factor	0.98	0.98	0.98				0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	3	3	3				3	3	0	3	3	3
Cap, veh/h	689	0	308				135	2213	0	4	1642	719
Arrive On Green	0.20	0.00	0.00				0.08	0.63	0.00	0.00	0.47	0.47
Sat Flow, veh/h	3514	0	1568				1757	3597	0	1757	3505	1535
Grp Volume(v), veh/h	454	0	0				102	612	0	0	754	51
Grp Sat Flow(s),veh/h/ln	1757	0	1568				1757	1752	0	1757	1752	1535
Q Serve(g_s), s	5.5	0.0	0.0				2.6	3.6	0.0	0.0	6.8	0.8
Cycle Q Clear(g_c), s	5.5	0.0	0.0				2.6	3.6	0.0	0.0	6.8	0.8
Prop In Lane	1.00		1.00				1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	689	0	308				135	2213	0	4	1642	719
V/C Ratio(X)	0.66	0.00	0.00				0.76	0.28	0.00	0.00	0.46	0.07
Avail Cap(c_a), veh/h	3636	0	1622				909	6498	0	151	4987	2185
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				1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	17.2	0.0	0.0				21.0	3.8	0.0	0.0	8.3	6.8
Incr Delay (d2), s/veh	1.1	0.0	0.0				8.4	0.1	0.0	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	2.8	0.0	0.0				1.6	1.7	0.0	0.0	3.3	0.4
LnGrp Delay(d),s/veh	18.3	0.0	0.0				29.4	3.9	0.0	0.0	8.5	6.8
LnGrp LOS	B						C	A			A	A
Approach Vol, veh/h		454						714			805	
Approach Delay, s/veh		18.3						7.5			8.4	
Approach LOS		B						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		
Phs Duration (G+Y+Rc), s	0.0	33.3		13.1	7.6	25.7		
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		
Max Green Setting (Gmax), s	4.0	86.0		48.0	24.0	66.0		
Max Q Clear Time (g_c+I1), s	0.0	5.6		7.5	4.6	8.8		
Green Ext Time (p_c), s	0.0	13.3		1.6	0.2	13.0		

Intersection Summary	
HCM 2010 Ctrl Delay	10.4
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	10	10	206	10	230	10	627	397	150	317	10
Future Volume (veh/h)	10	10	10	206	10	230	10	627	397	150	317	10
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	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	1845	1900	1900	1845	1900	1900	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	11	11	11	231	11	258	11	704	446	169	356	11
Adj No. of Lanes	0	1	0	0	1	0	0	1	1	1	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	14	14	14	196	9	219	12	784	677	283	286	9
Arrive On Green	0.02	0.02	0.02	0.26	0.26	0.26	0.43	0.43	0.43	0.16	0.16	0.16
Sat Flow, veh/h	572	572	572	754	36	842	28	1815	1568	1757	1780	55
Grp Volume(v), veh/h	33	0	0	500	0	0	715	0	446	169	0	367
Grp Sat Flow(s),veh/h/ln	1715	0	0	1633	0	0	1843	0	1568	1757	0	1835
Q Serve(g_s), s	2.5	0.0	0.0	34.0	0.0	0.0	47.0	0.0	29.5	11.7	0.0	21.0
Cycle Q Clear(g_c), s	2.5	0.0	0.0	34.0	0.0	0.0	47.0	0.0	29.5	11.7	0.0	21.0
Prop In Lane	0.33		0.33	0.46		0.52	0.02		1.00	1.00		0.03
Lane Grp Cap(c), veh/h	41	0	0	425	0	0	796	0	677	283	0	295
V/C Ratio(X)	0.80	0.00	0.00	1.18	0.00	0.00	0.90	0.00	0.66	0.60	0.00	1.24
Avail Cap(c_a), veh/h	79	0	0	425	0	0	1031	0	877	283	0	295
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	63.4	0.0	0.0	48.3	0.0	0.0	34.4	0.0	29.4	50.9	0.0	54.8
Incr Delay (d2), s/veh	28.4	0.0	0.0	101.2	0.0	0.0	8.7	0.0	1.2	3.4	0.0	134.8
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	1.5	0.0	0.0	27.2	0.0	0.0	25.8	0.0	13.0	6.0	0.0	21.6
LnGrp Delay(d),s/veh	91.8	0.0	0.0	149.5	0.0	0.0	43.1	0.0	30.6	54.3	0.0	189.6
LnGrp LOS	F			F			D		C	D		F
Approach Vol, veh/h		33			500			1161			536	
Approach Delay, s/veh		91.8			149.5			38.3			146.9	
Approach LOS		F			F			D			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		60.4		7.1		25.0		38.0
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		73.0		6.0		21.0		34.0
Max Q Clear Time (g_c+I1), s		49.0		4.5		23.0		36.0
Green Ext Time (p_c), s		7.4		0.0		0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	90.1
HCM 2010 LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	350	684	10	30	503
Future Volume (veh/h)	10	350	684	10	30	503
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		0.98	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1900	1845	1900	1845	1845
Adj Flow Rate, veh/h	12	407	795	12	35	585
Adj No. of Lanes	0	0	2	0	1	1
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	0	0	3	3	3	3
Cap, veh/h	11	383	970	15	629	660
Arrive On Green	0.25	0.25	0.27	0.27	0.36	0.36
Sat Flow, veh/h	45	1525	3625	53	1757	1845
Grp Volume(v), veh/h	420	0	394	413	35	585
Grp Sat Flow(s),veh/h/ln	1573	0	1752	1834	1757	1845
Q Serve(g_s), s	26.0	0.0	21.8	21.8	1.3	30.8
Cycle Q Clear(g_c), s	26.0	0.0	21.8	21.8	1.3	30.8
Prop In Lane	0.03	0.97		0.03	1.00	
Lane Grp Cap(c), veh/h	396	0	481	503	629	660
V/C Ratio(X)	1.06	0.00	0.82	0.82	0.06	0.89
Avail Cap(c_a), veh/h	396	0	729	763	1512	1588
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	38.7	0.0	35.1	35.1	21.7	31.2
Incr Delay (d2), s/veh	62.5	0.0	4.5	4.3	0.0	4.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	18.1	0.0	11.1	11.6	0.7	16.4
LnGrp Delay(d),s/veh	101.3	0.0	39.6	39.5	21.8	35.4
LnGrp LOS	F		D	D	C	D
Approach Vol, veh/h	420		807			620
Approach Delay, s/veh	101.3		39.5			34.7
Approach LOS	F		D			C

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		32.4				41.0		30.0
Change Period (Y+Rc), s		4.0				4.0		4.0
Max Green Setting (Gmax), s		43.0				89.0		26.0
Max Q Clear Time (g_c+I1), s		23.8				32.8		28.0
Green Ext Time (p_c), s		4.6				4.2		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	51.9
HCM 2010 LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	272	420	190	243	71	121	310	160	111	580	120
Future Volume (veh/h)	40	272	420	190	243	71	121	310	160	111	580	120
Number	5	2	12	1	6	16	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		0.99	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	1845	1845	1845	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	43	296	258	207	264	31	132	337	122	121	630	116
Adj No. of Lanes	1	2	1	1	3	0	2	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	66	825	365	243	1542	177	262	776	276	103	829	152
Arrive On Green	0.04	0.24	0.24	0.14	0.34	0.34	0.08	0.31	0.31	0.06	0.28	0.28
Sat Flow, veh/h	1757	3505	1552	1757	4584	526	3408	2532	901	1757	2958	544
Grp Volume(v), veh/h	43	296	258	207	192	103	132	231	228	121	373	373
Grp Sat Flow(s),veh/h/ln	1757	1752	1552	1757	1679	1752	1704	1752	1680	1757	1752	1749
Q Serve(g_s), s	2.1	6.0	13.0	9.8	3.4	3.5	3.2	9.0	9.2	5.0	16.6	16.6
Cycle Q Clear(g_c), s	2.1	6.0	13.0	9.8	3.4	3.5	3.2	9.0	9.2	5.0	16.6	16.6
Prop In Lane	1.00		1.00	1.00		0.30	1.00		0.54	1.00		0.31
Lane Grp Cap(c), veh/h	66	825	365	243	1129	589	262	537	515	103	491	490
V/C Ratio(X)	0.65	0.36	0.71	0.85	0.17	0.18	0.50	0.43	0.44	1.17	0.76	0.76
Avail Cap(c_a), veh/h	186	1812	802	306	1965	1025	397	803	770	103	702	701
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	40.4	27.2	29.8	35.8	19.9	19.9	37.7	23.6	23.7	40.0	28.0	28.0
Incr Delay (d2), s/veh	4.0	0.1	0.9	14.2	0.0	0.1	1.8	0.8	0.8	142.2	3.9	4.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	2.9	5.6	5.7	1.6	1.7	1.6	4.4	4.4	6.5	8.5	8.5
LnGrp Delay(d),s/veh	44.4	27.3	30.8	50.0	19.9	20.0	39.5	24.4	24.5	182.2	31.9	32.0
LnGrp LOS	D	C	C	D	B	B	D	C	C	F	C	C
Approach Vol, veh/h		597			502			591			867	
Approach Delay, s/veh		30.0			32.3			27.8			52.9	
Approach LOS		C			C			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.0	25.9	10.2	32.0	8.4	34.5	12.4	29.7
Change Period (Y+Rc), s	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9	5.9	* 5.9
Max Green Setting (Gmax), s	* 15	44.0	* 5	39.0	* 9	49.8	9.9	* 34
Max Q Clear Time (g_c+I1), s	11.8	15.0	7.0	11.2	4.1	5.5	5.2	18.6
Green Ext Time (p_c), s	0.1	2.7	0.0	4.4	0.0	2.8	1.7	5.2

Intersection Summary	
HCM 2010 Ctrl Delay	37.7
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	92	440	179	83	61	750	480	489	60	1060	70
Future Volume (veh/h)	50	92	440	179	83	61	750	480	489	60	1060	70
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	1845	1845	1845	1845	1845	1900	1845	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	53	97	156	201	68	33	789	505	203	63	1116	72
Adj No. of Lanes	1	1	2	2	1	0	2	2	1	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	214	225	643	429	143	70	283	1532	683	82	1339	86
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.08	0.44	0.44	0.05	0.40	0.40
Sat Flow, veh/h	1757	1845	3136	3514	1174	570	3408	3505	1563	1757	3343	216
Grp Volume(v), veh/h	53	97	156	201	0	101	789	505	203	63	585	603
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	0	1744	1704	1752	1563	1757	1752	1807
Q Serve(g_s), s	2.2	4.0	3.4	4.4	0.0	4.4	6.8	7.8	6.9	2.9	24.6	24.6
Cycle Q Clear(g_c), s	2.2	4.0	3.4	4.4	0.0	4.4	6.8	7.8	6.9	2.9	24.6	24.6
Prop In Lane	1.00		1.00	1.00		0.33	1.00		1.00	1.00		0.12
Lane Grp Cap(c), veh/h	214	225	643	429	0	213	283	1532	683	82	702	724
V/C Ratio(X)	0.25	0.43	0.24	0.47	0.00	0.47	2.79	0.33	0.30	0.77	0.83	0.83
Avail Cap(c_a), veh/h	966	1014	1984	1588	0	788	283	1532	683	135	726	748
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.5	33.3	27.2	33.5	0.0	33.5	37.5	15.2	14.9	38.6	22.1	22.1
Incr Delay (d2), s/veh	0.6	1.3	0.2	1.1	0.0	2.3	814.0	0.5	0.9	5.7	10.3	10.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	2.1	1.5	2.2	0.0	2.3	35.2	3.8	3.1	1.5	13.9	14.3
LnGrp Delay(d),s/veh	33.1	34.6	27.4	34.6	0.0	35.8	851.6	15.6	15.8	44.3	32.4	32.2
LnGrp LOS	C	C	C	C		D	F	B	B	D	C	C
Approach Vol, veh/h		306			302			1497			1251	
Approach Delay, s/veh		30.7			35.0			456.2			32.9	
Approach LOS		C			D			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.0	41.7		15.6	12.0	38.7		15.6
Change Period (Y+Rc), s	* 5.2	5.9		5.6	* 5.2	5.9		5.6
Max Green Setting (Gmax), s	* 6.3	34.4		37.0	* 6.8	33.9		45.0
Max Q Clear Time (g_c+I1), s	4.4	9.8		6.4	8.8	26.6		6.0
Green Ext Time (p_c), s	0.0	21.9		1.9	0.0	6.2		1.3

Intersection Summary	
HCM 2010 Ctrl Delay	221.7
HCM 2010 LOS	F

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	960	0	730	140	989	0	0	1046	633
Future Volume (veh/h)	0	0	0	960	0	730	140	989	0	0	1046	633
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		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				1845	1845	1845	1845	1845	0	0	1845	1900
Adj Flow Rate, veh/h				1230	0	469	147	1041	0	0	1101	575
Adj No. of Lanes				2	0	1	1	3	0	0	3	0
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				1450	0	647	174	2517	0	0	1193	557
Arrive On Green				0.41	0.00	0.41	0.10	0.50	0.00	0.00	0.36	0.37
Sat Flow, veh/h				3514	0	1568	1757	5202	0	0	3523	1568
Grp Volume(v), veh/h				1230	0	469	147	1041	0	0	1101	575
Grp Sat Flow(s),veh/h/ln				1757	0	1568	1757	1679	0	0	1679	1568
Q Serve(g_s), s				32.9	0.0	26.0	8.5	13.5	0.0	0.0	32.7	36.9
Cycle Q Clear(g_c), s				32.9	0.0	26.0	8.5	13.5	0.0	0.0	32.7	36.9
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				1450	0	647	174	2517	0	0	1193	557
V/C Ratio(X)				0.85	0.00	0.73	0.84	0.41	0.00	0.00	0.92	1.03
Avail Cap(c_a), veh/h				1996	0	891	174	2517	0	0	1193	557
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	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				27.6	0.0	25.6	46.0	16.4	0.0	0.0	32.1	32.9
Incr Delay (d2), s/veh				2.7	0.0	1.9	28.6	0.2	0.0	0.0	11.8	46.6
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				16.4	0.0	11.5	5.6	6.3	0.0	0.0	17.1	23.0
LnGrp Delay(d),s/veh				30.2	0.0	27.4	74.6	16.6	0.0	0.0	43.9	79.5
LnGrp LOS				C		C	E	B			D	F
Approach Vol, veh/h					1699			1188			1676	
Approach Delay, s/veh					29.5			23.8			56.1	
Approach LOS					C			C			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		57.0			15.0	42.0		46.8
Change Period (Y+Rc), s		5.1			* 4.7	5.1		4.0
Max Green Setting (Gmax), s		51.9			* 10	36.9		59.0
Max Q Clear Time (g_c+I1), s		15.5			10.5	38.9		34.9
Green Ext Time (p_c), s		30.4			0.0	0.0		8.0

Intersection Summary	
HCM 2010 Ctrl Delay	37.8
HCM 2010 LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	497	110	310	632	1216	790
Future Volume (veh/h)	497	110	310	632	1216	790
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	540	107	337	687	1322	531
Adj No. of Lanes	2	1	2	3	3	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	658	506	443	3368	2389	744
Arrive On Green	0.19	0.19	0.13	0.67	0.47	0.47
Sat Flow, veh/h	3408	1568	3408	5202	5202	1568
Grp Volume(v), veh/h	540	107	337	687	1322	531
Grp Sat Flow(s),veh/h/ln	1704	1568	1704	1679	1679	1568
Q Serve(g_s), s	11.1	3.6	7.0	3.8	13.7	19.7
Cycle Q Clear(g_c), s	11.1	3.6	7.0	3.8	13.7	19.7
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	658	506	443	3368	2389	744
V/C Ratio(X)	0.82	0.21	0.76	0.20	0.55	0.71
Avail Cap(c_a), veh/h	994	661	1087	5418	3488	1086
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.3	18.0	30.7	4.6	13.7	15.3
Incr Delay (d2), s/veh	2.0	0.1	1.0	0.0	0.1	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	3.7	3.3	1.7	6.3	8.5
LnGrp Delay(d),s/veh	30.2	18.0	31.7	4.7	13.8	15.7
LnGrp LOS	C	B	C	A	B	B
Approach Vol, veh/h	647			1024	1853	
Approach Delay, s/veh	28.2			13.6	14.3	
Approach LOS	C			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		54.3		18.8	14.2	40.1		
Change Period (Y+Rc), s		5.4		* 4.7	* 4.7	5.4		
Max Green Setting (Gmax), s		78.6		* 21	* 23	50.6		
Max Q Clear Time (g_c+I1), s		5.8		13.1	9.0	21.7		
Green Ext Time (p_c), s		16.1		1.0	0.5	13.0		

Intersection Summary	
HCM 2010 Ctrl Delay	16.7
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	0	404	0	360	110	175	91	0	0	70	130
Future Volume (veh/h)	110	0	404	0	360	110	175	91	0	0	70	130
Number	1	6	16	5	2	12	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		1.00	1.00		1.00	1.00		0.99
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	0	1845	1900	1845	1845	0	0	1845	1900
Adj Flow Rate, veh/h	120	0	66	0	391	112	190	99	0	0	76	17
Adj No. of Lanes	2	1	2	0	1	0	2	1	0	0	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, %	3	3	3	0	3	3	3	3	0	0	3	3
Cap, veh/h	279	977	1762	0	490	140	383	201	0	0	234	51
Arrive On Green	0.08	0.00	0.53	0.00	0.35	0.35	0.11	0.11	0.00	0.00	0.08	0.08
Sat Flow, veh/h	3408	1845	2760	0	1380	395	3514	1845	0	0	2951	619
Grp Volume(v), veh/h	120	0	66	0	0	503	190	99	0	0	46	47
Grp Sat Flow(s),veh/h/ln	1704	1845	1380	0	0	1775	1757	1845	0	0	1752	1725
Q Serve(g_s), s	1.7	0.0	0.4	0.0	0.0	12.6	2.5	2.5	0.0	0.0	1.2	1.3
Cycle Q Clear(g_c), s	1.7	0.0	0.4	0.0	0.0	12.6	2.5	2.5	0.0	0.0	1.2	1.3
Prop In Lane	1.00		1.00	0.00		0.22	1.00		0.00	0.00		0.36
Lane Grp Cap(c), veh/h	279	977	1762	0	0	630	383	201	0	0	144	141
V/C Ratio(X)	0.43	0.00	0.04	0.00	0.00	0.80	0.50	0.49	0.00	0.00	0.32	0.34
Avail Cap(c_a), veh/h	1725	2360	3832	0	0	1207	1280	672	0	0	887	873
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	21.6	0.0	3.3	0.0	0.0	14.3	20.7	20.7	0.0	0.0	21.4	21.4
Incr Delay (d2), s/veh	1.1	0.0	0.0	0.0	0.0	2.4	1.0	1.9	0.0	0.0	1.3	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.2	0.0	0.0	6.6	1.3	1.4	0.0	0.0	0.6	0.7
LnGrp Delay(d),s/veh	22.6	0.0	3.3	0.0	0.0	16.7	21.7	22.6	0.0	0.0	22.6	22.8
LnGrp LOS	C		A			B	C	C			C	C
Approach Vol, veh/h		186			503			289			93	
Approach Delay, s/veh		15.8			16.7			22.0			22.7	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	8.6	22.1		8.6		30.8		10.0
Change Period (Y+Rc), s	4.6	4.6		4.6		4.6		4.6
Max Green Setting (Gmax), s	25.0	33.6		25.0		63.2		18.0
Max Q Clear Time (g_c+I1), s	3.7	14.6		3.3		2.4		4.5
Green Ext Time (p_c), s	0.6	2.9		0.4		0.7		1.0

Intersection Summary	
HCM 2010 Ctrl Delay	18.5
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	61	360	3	27	704	20	5	5	74	390	4	80
Future Volume (veh/h)	61	360	3	27	704	20	5	5	74	390	4	80
Number	3	8	18	7	4	14	1	6	16	5	2	12
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	1845	1845	1900	1845	1845	1900	1900	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	66	391	2	29	765	20	5	5	5	424	4	28
Adj No. of Lanes	2	2	0	1	2	0	0	1	1	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	196	1289	7	57	1170	31	13	13	23	506	58	403
Arrive On Green	0.06	0.36	0.36	0.03	0.34	0.34	0.01	0.01	0.01	0.29	0.29	0.29
Sat Flow, veh/h	3408	3576	18	1757	3490	91	900	900	1568	1757	200	1398
Grp Volume(v), veh/h	66	192	201	29	384	401	10	0	5	424	0	32
Grp Sat Flow(s),veh/h/ln	1704	1752	1841	1757	1752	1829	1800	0	1568	1757	0	1598
Q Serve(g_s), s	1.0	4.3	4.3	0.9	10.3	10.3	0.3	0.0	0.2	12.5	0.0	0.8
Cycle Q Clear(g_c), s	1.0	4.3	4.3	0.9	10.3	10.3	0.3	0.0	0.2	12.5	0.0	0.8
Prop In Lane	1.00		0.01	1.00		0.05	0.50		1.00	1.00		0.88
Lane Grp Cap(c), veh/h	196	632	664	57	588	613	27	0	23	506	0	460
V/C Ratio(X)	0.34	0.30	0.30	0.51	0.65	0.65	0.37	0.00	0.21	0.84	0.00	0.07
Avail Cap(c_a), veh/h	321	882	926	184	901	940	280	0	244	986	0	897
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.0	12.7	12.7	26.3	15.6	15.6	27.0	0.0	26.9	18.5	0.0	14.3
Incr Delay (d2), s/veh	1.0	0.3	0.3	2.6	1.2	1.2	8.4	0.0	4.5	3.8	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	2.1	2.2	0.5	5.1	5.3	0.2	0.0	0.1	6.5	0.0	0.4
LnGrp Delay(d),s/veh	26.0	13.0	12.9	28.9	16.9	16.8	35.4	0.0	31.4	22.2	0.0	14.4
LnGrp LOS	C	B	B	C	B	B	D		C	C		B
Approach Vol, veh/h		459			814			15			456	
Approach Delay, s/veh		14.8			17.3			34.0			21.7	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		19.9	7.4	23.1		4.8	6.0	24.5
Change Period (Y+Rc), s		4.0	* 4.2	4.6		4.0	* 4.2	4.6
Max Green Setting (Gmax), s		31.0	* 5.2	28.4		8.6	* 5.8	27.8
Max Q Clear Time (g_c+I1), s		14.5	3.0	12.3		2.3	2.9	6.3
Green Ext Time (p_c), s		1.4	0.0	6.2		0.0	0.0	7.0

Intersection Summary	
HCM 2010 Ctrl Delay	17.9
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

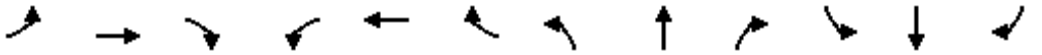
Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	355	6	34	735	20	20	0	49	20	0	0
Future Vol, veh/h	30	355	6	34	735	20	20	0	49	20	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	130	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	33	386	7	37	799	22	22	0	53	22	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	821	0	0	392	0	0	927	1349	196	1142	1342	410
Stage 1	-	-	-	-	-	-	454	454	-	884	884	-
Stage 2	-	-	-	-	-	-	473	895	-	258	458	-
Critical Hdwy	4.16	-	-	4.16	-	-	7.56	6.56	6.96	7.56	6.56	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Follow-up Hdwy	2.23	-	-	2.23	-	-	3.53	4.03	3.33	3.53	4.03	3.33
Pot Cap-1 Maneuver	798	-	-	1156	-	-	222	148	809	154	150	588
Stage 1	-	-	-	-	-	-	552	565	-	305	359	-
Stage 2	-	-	-	-	-	-	538	355	-	721	563	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	798	-	-	1156	-	-	210	137	809	136	139	588
Mov Cap-2 Maneuver	-	-	-	-	-	-	210	137	-	136	139	-
Stage 1	-	-	-	-	-	-	529	542	-	292	348	-
Stage 2	-	-	-	-	-	-	521	344	-	646	540	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	0.4	14.8	36.4
HCM LOS			B	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	443	798	-	-	1156	-	-	136
HCM Lane V/C Ratio	0.169	0.041	-	-	0.032	-	-	0.16
HCM Control Delay (s)	14.8	9.7	-	-	8.2	-	-	36.4
HCM Lane LOS	B	A	-	-	A	-	-	E
HCM 95th %tile Q(veh)	0.6	0.1	-	-	0.1	-	-	0.6



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	60	70	50	60	130	80	783	161	150	402	80
Future Volume (veh/h)	110	60	70	50	60	130	80	783	161	150	402	80
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	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	120	65	40	54	65	23	87	851	154	163	437	69
Adj No. of Lanes	1	1	0	1	2	0	1	3	0	1	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	157	117	72	87	181	61	113	1826	329	207	2108	326
Arrive On Green	0.09	0.11	0.11	0.05	0.07	0.07	0.06	0.43	0.43	0.12	0.48	0.48
Sat Flow, veh/h	1757	1062	653	1757	2573	867	1757	4291	772	1757	4400	680
Grp Volume(v), veh/h	120	0	105	54	43	45	87	665	340	163	331	175
Grp Sat Flow(s),veh/h/ln	1757	0	1715	1757	1752	1688	1757	1679	1706	1757	1679	1722
Q Serve(g_s), s	3.9	0.0	3.4	1.8	1.4	1.5	2.9	8.4	8.4	5.3	3.4	3.5
Cycle Q Clear(g_c), s	3.9	0.0	3.4	1.8	1.4	1.5	2.9	8.4	8.4	5.3	3.4	3.5
Prop In Lane	1.00		0.38	1.00		0.51	1.00		0.45	1.00		0.39
Lane Grp Cap(c), veh/h	157	0	189	87	124	119	113	1429	726	207	1609	825
V/C Ratio(X)	0.77	0.00	0.56	0.62	0.35	0.38	0.77	0.47	0.47	0.79	0.21	0.21
Avail Cap(c_a), veh/h	470	0	1409	366	1336	1287	521	2327	1183	619	2515	1290
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.3	0.0	24.9	27.5	26.1	26.2	27.2	12.1	12.2	25.3	8.9	8.9
Incr Delay (d2), s/veh	7.6	0.0	2.6	6.9	1.7	2.0	10.3	0.3	0.6	2.5	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	2.2	0.0	1.7	1.0	0.7	0.8	1.7	3.9	4.1	2.7	1.6	1.7
LnGrp Delay(d),s/veh	33.8	0.0	27.4	34.4	27.8	28.1	37.5	12.4	12.7	27.8	9.0	9.1
LnGrp LOS	C		C	C	C	C	D	B	B	C	A	A
Approach Vol, veh/h		225			142			1092			669	
Approach Delay, s/veh		30.8			30.4			14.5			13.6	
Approach LOS		C			C			B			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	11.2	29.7	7.1	11.0	8.0	32.9	9.5	8.7
Change Period (Y+Rc), s	* 4.2	4.6	* 4.2	4.5	* 4.2	4.6	* 4.2	4.5
Max Green Setting (Gmax), s	* 21	40.9	* 12	48.5	* 18	44.2	* 16	45.0
Max Q Clear Time (g_c+I1), s	7.3	10.4	3.8	5.4	4.9	5.5	5.9	3.5
Green Ext Time (p_c), s	0.2	13.9	0.1	1.2	0.1	15.4	0.2	1.2

Intersection Summary	
HCM 2010 Ctrl Delay	17.0
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	84	127	611	440	393	30	596	910	550	20	320	182
Future Volume (veh/h)	84	127	611	440	393	30	596	910	550	20	320	182
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		0.99	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	1845	1845	1900	1845	1845	1900	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	88	134	254	463	414	26	627	958	496	21	337	43
Adj No. of Lanes	2	3	0	2	3	0	2	2	1	2	2	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	139	674	311	548	1555	97	734	1458	652	101	808	361
Arrive On Green	0.04	0.20	0.20	0.16	0.32	0.32	0.22	0.42	0.42	0.03	0.23	0.23
Sat Flow, veh/h	3408	3357	1547	3408	4847	301	3408	3505	1568	3408	3505	1568
Grp Volume(v), veh/h	88	134	254	463	286	154	627	958	496	21	337	43
Grp Sat Flow(s),veh/h/ln	1704	1679	1547	1704	1679	1791	1704	1752	1568	1704	1752	1568
Q Serve(g_s), s	2.9	3.8	18.1	15.2	7.3	7.4	20.4	25.3	31.1	0.7	9.4	2.5
Cycle Q Clear(g_c), s	2.9	3.8	18.1	15.2	7.3	7.4	20.4	25.3	31.1	0.7	9.4	2.5
Prop In Lane	1.00		1.00	1.00		0.17	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	139	674	311	548	1077	574	734	1458	652	101	808	361
V/C Ratio(X)	0.63	0.20	0.82	0.84	0.27	0.27	0.85	0.66	0.76	0.21	0.42	0.12
Avail Cap(c_a), veh/h	222	772	356	746	1288	687	1033	1799	805	207	949	425
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.4	38.3	44.0	46.9	29.0	29.1	43.5	27.0	28.7	54.5	37.7	35.1
Incr Delay (d2), s/veh	5.6	0.2	13.0	7.1	0.2	0.3	5.6	0.7	3.7	1.2	0.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	1.8	8.8	7.7	3.4	3.7	10.1	12.4	14.1	0.3	4.6	1.1
LnGrp Delay(d),s/veh	60.0	38.5	57.0	54.0	29.2	29.4	49.0	27.8	32.4	55.8	38.1	35.2
LnGrp LOS	E	D	E	D	C	C	D	C	C	E	D	D
Approach Vol, veh/h		476			903			2081			401	
Approach Delay, s/veh		52.3			42.0			35.3			38.8	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.9	42.8	8.6	53.8	23.7	29.0	30.0	32.4
Change Period (Y+Rc), s	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9
Max Green Setting (Gmax), s	* 7.5	44.2	* 7	59.1	* 25	26.5	* 35	31.2
Max Q Clear Time (g_c+I1), s	4.9	9.4	2.7	33.1	17.2	20.1	22.4	11.4
Green Ext Time (p_c), s	0.1	7.0	0.0	14.8	1.3	3.0	2.4	12.4

Intersection Summary	
HCM 2010 Ctrl Delay	39.3
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	300.7
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1095	0	290	0	0	0	370	961	0	20	689	662
Future Vol, veh/h	1095	0	290	0	0	0	370	961	0	20	689	662
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
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	1153	0	305	0	0	0	389	1012	0	21	725	697
Number of Lanes	1	1	1	0	0	0	1	2	0	0	2	1

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	3	3
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	3	3	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	3	0	3
HCM Control Delay	238.7	270.2	393
HCM LOS	F	F	F

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	100%	100%	0%	8%	0%	0%
Vol Thru, %	0%	100%	100%	0%	0%	0%	92%	100%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	370	481	481	548	548	290	250	459	662
LT Vol	370	0	0	548	548	0	20	0	0
Through Vol	0	481	481	0	0	0	230	459	0
RT Vol	0	0	0	0	0	290	0	0	662
Lane Flow Rate	389	506	506	576	576	305	263	484	697
Geometry Grp	8	8	8	7	7	7	8	8	8
Degree of Util (X)	1.379	1.721	1.475	1.524	1.524	0.706	0.904	1.657	2.253
Departure Headway (Hd)	7.936	7.421	5.616	14.786	14.786	13.56	5.472	5.431	4.706
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	460	491	647	254	254	269	662	672	773
Service Time	5.636	5.121	3.316	12.486	12.486	11.26	3.172	3.131	2.406
HCM Lane V/C Ratio	0.846	1.031	0.782	2.268	2.268	1.134	0.397	0.72	0.902
HCM Control Delay	206.3	351.4	238.3	290.4	290.4	43.3	38.5	316.9	579.6
HCM Lane LOS	F	F	F	F	F	E	E	F	F
HCM 95th-tile Q	29.5	50	45.8	22.2	22.2	4.8	11.5	61.2	125

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	885	20	250	0	0	0	0	446	370	406	573	0
Future Volume (veh/h)	885	20	250	0	0	0	0	446	370	406	573	0
Number	3	8	18				1	6	16	5	2	12
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	1900	1845	1845				0	1845	1845	1845	1845	0
Adj Flow Rate, veh/h	932	21	187				0	469	113	427	603	0
Adj No. of Lanes	0	1	1				0	1	1	2	1	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	887	20	809				0	495	421	378	757	0
Arrive On Green	0.52	0.52	0.52				0.00	0.27	0.27	0.11	0.41	0.00
Sat Flow, veh/h	1720	39	1568				0	1845	1566	3408	1845	0
Grp Volume(v), veh/h	953	0	187				0	469	113	427	603	0
Grp Sat Flow(s),veh/h/ln	1759	0	1568				0	1845	1566	1704	1845	0
Q Serve(g_s), s	61.8	0.0	7.9				0.0	29.9	6.8	13.3	34.3	0.0
Cycle Q Clear(g_c), s	61.8	0.0	7.9				0.0	29.9	6.8	13.3	34.3	0.0
Prop In Lane	0.98		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	907	0	809				0	495	421	378	757	0
V/C Ratio(X)	1.05	0.00	0.23				0.00	0.95	0.27	1.13	0.80	0.00
Avail Cap(c_a), veh/h	907	0	809				0	499	424	378	761	0
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	1.00	1.00	0.00
Uniform Delay (d), s/veh	29.0	0.0	15.9				0.0	43.0	34.5	53.2	30.9	0.0
Incr Delay (d2), s/veh	43.9	0.0	0.1				0.0	27.0	0.1	85.8	5.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	40.8	0.0	3.4				0.0	19.0	3.0	10.7	18.6	0.0
LnGrp Delay(d),s/veh	72.9	0.0	16.0				0.0	69.9	34.7	139.1	36.3	0.0
LnGrp LOS	F		B					E	C	F	D	
Approach Vol, veh/h		1140						582			1030	
Approach Delay, s/veh		63.6						63.1			78.9	
Approach LOS		E						E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		53.8			17.0	36.8		66.0
Change Period (Y+Rc), s		4.6			3.7	4.6		4.2
Max Green Setting (Gmax), s		49.4			13.3	32.4		61.8
Max Q Clear Time (g_c+I1), s		36.3			15.3	31.9		63.8
Green Ext Time (p_c), s		4.0			0.0	0.3		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	69.2
HCM 2010 LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	333	40	20	30	50	190	30	233	30	100	196	427
Future Volume (veh/h)	333	40	20	30	50	190	30	233	30	100	196	427
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	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	362	43	6	33	54	73	33	253	24	109	213	132
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	436	393	55	191	77	104	65	657	62	140	521	310
Arrive On Green	0.25	0.25	0.25	0.11	0.11	0.11	0.04	0.20	0.20	0.08	0.25	0.25
Sat Flow, veh/h	1757	1585	221	1757	712	963	1757	3237	305	1757	2117	1258
Grp Volume(v), veh/h	362	0	49	33	0	127	33	136	141	109	175	170
Grp Sat Flow(s),veh/h/ln	1757	0	1806	1757	0	1675	1757	1752	1789	1757	1752	1623
Q Serve(g_s), s	9.7	0.0	1.0	0.9	0.0	3.7	0.9	3.3	3.4	3.0	4.2	4.4
Cycle Q Clear(g_c), s	9.7	0.0	1.0	0.9	0.0	3.7	0.9	3.3	3.4	3.0	4.2	4.4
Prop In Lane	1.00		0.12	1.00		0.57	1.00		0.17	1.00		0.78
Lane Grp Cap(c), veh/h	436	0	448	191	0	182	65	356	363	140	431	399
V/C Ratio(X)	0.83	0.00	0.11	0.17	0.00	0.70	0.51	0.38	0.39	0.78	0.41	0.43
Avail Cap(c_a), veh/h	1245	0	1280	781	0	745	225	730	745	478	983	910
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.8	0.0	14.5	20.2	0.0	21.5	23.6	17.2	17.2	22.5	15.8	15.9
Incr Delay (d2), s/veh	1.6	0.0	0.0	0.2	0.0	1.8	2.3	0.3	0.3	3.5	0.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	0.0	0.5	0.4	0.0	1.8	0.5	1.6	1.7	1.6	2.0	2.0
LnGrp Delay(d),s/veh	19.4	0.0	14.5	20.4	0.0	23.3	25.9	17.4	17.5	26.0	16.0	16.1
LnGrp LOS	B		B	C		C	C	B	B	C	B	B
Approach Vol, veh/h		411			160			310			454	
Approach Delay, s/veh		18.8			22.7			18.4			18.4	
Approach LOS		B			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.2	14.7		17.0	6.0	16.9		10.0
Change Period (Y+Rc), s	* 4.2	4.6		4.6	* 4.2	4.6		4.6
Max Green Setting (Gmax), s	* 4	20.8		35.4	* 6.4	28.0		22.2
Max Q Clear Time (g_c+I1), s	5.0	5.4		11.7	2.9	6.4		5.7
Green Ext Time (p_c), s	0.1	2.1		0.7	0.0	2.3		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	19.0
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	11.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	343	140	300	20	30	337
Future Vol, veh/h	343	140	300	20	30	337
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	361	147	316	21	32	355

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	337	0	-	0	1195	326
Stage 1	-	-	-	-	326	-
Stage 2	-	-	-	-	869	-
Critical Hdwy	4.14	-	-	-	6.44	6.24
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	2.236	-	-	-	3.536	3.336
Pot Cap-1 Maneuver	1211	-	-	-	204	711
Stage 1	-	-	-	-	727	-
Stage 2	-	-	-	-	407	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1211	-	-	-	138	711
Mov Cap-2 Maneuver	-	-	-	-	138	-
Stage 1	-	-	-	-	727	-
Stage 2	-	-	-	-	275	-

Approach	EB	WB	SB
HCM Control Delay, s	6.6	0	27.8
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1211	-	-	-	531
HCM Lane V/C Ratio	0.298	-	-	-	0.728
HCM Control Delay (s)	9.2	0	-	-	27.8
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	1.3	-	-	-	6

Intersection	
Int Delay, s/veh	406.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	367	360	602	333	120	1156
Future Vol, veh/h	367	360	602	333	120	1156
Conflicting Peds, #/hr	5	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	315	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	386	379	634	351	126	1217

Major/Minor	Minor1		Major1		Minor2	
Conflicting Flow All	1247	634	0	0	823	634
Stage 1	634	-	-	-	0	0
Stage 2	613	-	-	-	823	634
Critical Hdwy	7.13	6.23	-	-	7.13	6.53
Critical Hdwy Stg 1	6.13	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	6.13	5.53
Follow-up Hdwy	3.527	3.327	-	-	3.527	4.027
Pot Cap-1 Maneuver	~ 150	477	-	-	291	~ 395
Stage 1	466	-	-	-	-	-
Stage 2	-	-	-	-	366	~ 471
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	-	477	-	-	~ 60	~ 395
Mov Cap-2 Maneuver	-	-	-	-	~ 60	~ 395
Stage 1	466	-	-	-	-	-
Stage 2	-	-	-	-	~ 75	~ 471

Approach	WB	NB	SB
HCM Control Delay, s		0	$ 935
HCM LOS	-		F

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBLn1	SBLn2
Capacity (veh/h)	-	-	-	60	395
HCM Lane V/C Ratio	-	-	-	2.105	3.081
HCM Control Delay (s)	-	-	-$	658.2	$ 963.7
HCM Lane LOS	-	-	-	F	F
HCM 95th %tile Q(veh)	-	-	-	12.2	107

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

Intersection	
Int Delay, s/veh	1235.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	90	40	895	20	60	1333
Future Vol, veh/h	90	40	895	20	60	1333
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	95	42	942	21	63	1403

Major/Minor	Minor1		Minor2		Major2	
Conflicting Flow All	2011	0	1529	1403	0	0
Stage 1	0	-	1529	-	-	-
Stage 2	2011	-	0	-	-	-
Critical Hdwy	7.13	6.23	6.53	6.23	4.13	-
Critical Hdwy Stg 1	-	-	5.53	-	-	-
Critical Hdwy Stg 2	6.13	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	4.027	3.327	2.227	-
Pot Cap-1 Maneuver	~ 44	-	~ 117	170	-	-
Stage 1	-	-	~ 178	-	-	-
Stage 2	~ 76	-	-	-	-	-
Platoon blocked, %						-
Mov Cap-1 Maneuver	-	-	~ 117	170	-	-
Mov Cap-2 Maneuver	-	-	~ 117	-	-	-
Stage 1	-	-	~ 178	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s		$ 3293	
HCM LOS	-	F	

Minor Lane/Major Mvmt	NBLn1	WBLn1	SBL	SBT
Capacity (veh/h)	118	-	-	-
HCM Lane V/C Ratio	8.162	-	-	-
HCM Control Delay (s)	$ 3293	-	-	-
HCM Lane LOS	F	-	-	-
HCM 95th %tile Q(veh)	109	-	-	-

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)	30	100	160	210	180	114	180	520	180	65	300	50
Future Volume (veh/h)	30	100	160	210	180	114	180	520	180	65	300	50
Number	5	2	12	1	6	16	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		0.98	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	1845	1845	1845	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	33	109	29	228	196	40	196	565	168	71	326	43
Adj No. of Lanes	1	2	1	1	3	0	2	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	60	469	205	274	1079	211	675	863	256	96	529	69
Arrive On Green	0.03	0.13	0.13	0.16	0.26	0.26	0.20	0.32	0.32	0.05	0.17	0.17
Sat Flow, veh/h	1757	3505	1533	1757	4230	825	3408	2667	791	1757	3117	408
Grp Volume(v), veh/h	33	109	29	228	154	82	196	371	362	71	182	187
Grp Sat Flow(s),veh/h/ln	1757	1752	1533	1757	1679	1698	1704	1752	1705	1757	1752	1772
Q Serve(g_s), s	1.2	1.9	1.1	8.4	2.4	2.5	3.3	12.1	12.2	2.7	6.4	6.5
Cycle Q Clear(g_c), s	1.2	1.9	1.1	8.4	2.4	2.5	3.3	12.1	12.2	2.7	6.4	6.5
Prop In Lane	1.00		1.00	1.00		0.49	1.00		0.46	1.00		0.23
Lane Grp Cap(c), veh/h	60	469	205	274	857	433	675	567	552	96	298	301
V/C Ratio(X)	0.55	0.23	0.14	0.83	0.18	0.19	0.29	0.65	0.66	0.74	0.61	0.62
Avail Cap(c_a), veh/h	176	2255	986	415	2618	1324	675	1023	995	131	813	822
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.8	25.9	25.6	27.4	19.4	19.5	22.8	19.4	19.4	31.1	25.7	25.7
Incr Delay (d2), s/veh	2.9	0.1	0.1	5.2	0.0	0.1	0.3	1.8	1.9	7.6	2.9	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	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.9	0.5	4.5	1.1	1.2	1.6	6.2	6.0	1.5	3.3	3.4
LnGrp Delay(d),s/veh	34.6	26.0	25.7	32.6	19.5	19.6	23.1	21.2	21.3	38.7	28.6	28.7
LnGrp LOS	C	C	C	C	B	B	C	C	C	D	C	C
Approach Vol, veh/h		171			464			929			440	
Approach Delay, s/veh		27.6			25.9			21.6			30.3	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.6	14.8	8.9	27.5	7.5	23.0	19.1	17.2
Change Period (Y+Rc), s	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9	5.9	* 5.9
Max Green Setting (Gmax), s	* 16	43.0	* 5	39.0	* 6.7	52.1	13.0	* 31
Max Q Clear Time (g_c+I1), s	10.4	3.9	4.7	14.2	3.2	4.5	5.3	8.5
Green Ext Time (p_c), s	0.1	1.3	0.0	7.3	0.0	1.3	3.8	2.7

Intersection Summary	
HCM 2010 Ctrl Delay	25.0
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	396	880	351	205	70	1090	680	291	30	460	180
Future Volume (veh/h)	130	396	880	351	205	70	1090	680	291	30	460	180
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	1845	1845	1845	1845	1845	1900	1845	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	137	417	793	216	430	62	1147	716	119	32	484	162
Adj No. of Lanes	1	1	2	1	2	0	2	2	1	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	508	533	1117	330	593	85	229	1063	475	49	682	227
Arrive On Green	0.29	0.29	0.29	0.19	0.19	0.19	0.07	0.30	0.30	0.03	0.26	0.26
Sat Flow, veh/h	1757	1845	3136	1757	3157	452	3408	3505	1565	1757	2585	860
Grp Volume(v), veh/h	137	417	793	216	250	242	1147	716	119	32	327	319
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	1845	1765	1704	1752	1565	1757	1752	1693
Q Serve(g_s), s	7.0	24.1	25.3	13.2	14.8	15.0	7.8	20.8	6.7	2.1	19.6	19.9
Cycle Q Clear(g_c), s	7.0	24.1	25.3	13.2	14.8	15.0	7.8	20.8	6.7	2.1	19.6	19.9
Prop In Lane	1.00		1.00	1.00		0.26	1.00		1.00	1.00		0.51
Lane Grp Cap(c), veh/h	508	533	1117	330	347	332	229	1063	475	49	462	447
V/C Ratio(X)	0.27	0.78	0.71	0.65	0.72	0.73	5.01	0.67	0.25	0.66	0.71	0.71
Avail Cap(c_a), veh/h	680	714	1425	559	587	562	229	1063	475	91	496	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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.8	37.9	32.2	43.7	44.3	44.4	54.2	35.4	30.5	56.0	38.7	38.8
Incr Delay (d2), s/veh	0.3	4.0	1.2	3.1	4.0	4.3	1816.1	2.9	1.0	5.5	7.6	8.1
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	3.4	12.9	11.1	6.7	8.0	7.7	61.4	10.5	3.0	1.1	10.5	10.3
LnGrp Delay(d),s/veh	32.1	42.0	33.4	46.8	48.3	48.7	1870.3	38.4	31.5	61.4	46.3	46.9
LnGrp LOS	C	D	C	D	D	D	F	D	C	E	D	D
Approach Vol, veh/h		1347			708			1982			678	
Approach Delay, s/veh		35.9			48.0			1098.1			47.3	
Approach LOS		D			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	8.4	41.1		27.4	13.0	36.6		39.2
Change Period (Y+Rc), s	* 5.2	5.9		5.6	* 5.2	5.9		5.6
Max Green Setting (Gmax), s	* 6	34.7		37.0	* 7.8	32.9		45.0
Max Q Clear Time (g_c+I1), s	4.1	22.8		17.0	9.8	21.9		27.3
Green Ext Time (p_c), s	0.0	10.2		4.9	0.0	8.8		6.3

Intersection Summary	
HCM 2010 Ctrl Delay	485.9
HCM 2010 LOS	F

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	1040	0	650	140	1411	0	0	1147	544
Future Volume (veh/h)	0	0	0	1040	0	650	140	1411	0	0	1147	544
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		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				1845	1845	1845	1845	1845	0	0	1845	1900
Adj Flow Rate, veh/h				1289	0	416	147	1485	0	0	1207	501
Adj No. of Lanes				2	0	1	1	3	0	0	3	0
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				1514	0	676	103	2416	0	0	1312	542
Arrive On Green				0.43	0.00	0.43	0.06	0.48	0.00	0.00	0.37	0.37
Sat Flow, veh/h				3514	0	1568	1757	5202	0	0	3666	1447
Grp Volume(v), veh/h				1289	0	416	147	1485	0	0	1158	550
Grp Sat Flow(s),veh/h/ln				1757	0	1568	1757	1679	0	0	1679	1589
Q Serve(g_s), s				33.6	0.0	20.9	6.0	22.2	0.0	0.0	33.5	33.7
Cycle Q Clear(g_c), s				33.6	0.0	20.9	6.0	22.2	0.0	0.0	33.5	33.7
Prop In Lane				1.00		1.00	1.00		0.00	0.00		0.91
Lane Grp Cap(c), veh/h				1514	0	676	103	2416	0	0	1258	596
V/C Ratio(X)				0.85	0.00	0.62	1.42	0.61	0.00	0.00	0.92	0.92
Avail Cap(c_a), veh/h				2139	0	954	103	2418	0	0	1259	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	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				26.1	0.0	22.5	47.9	19.5	0.0	0.0	30.4	30.4
Incr Delay (d2), s/veh				2.5	0.0	0.9	236.2	0.7	0.0	0.0	11.0	20.3
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				16.8	0.0	9.2	9.7	10.3	0.0	0.0	17.4	18.0
LnGrp Delay(d),s/veh				28.5	0.0	23.4	284.1	20.2	0.0	0.0	41.4	50.7
LnGrp LOS				C		C	F	C			D	D
Approach Vol, veh/h					1705			1632			1708	
Approach Delay, s/veh					27.3			44.0			44.4	
Approach LOS					C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		54.0			10.7	43.3		47.9
Change Period (Y+Rc), s		5.1			* 4.7	5.1		4.0
Max Green Setting (Gmax), s		48.9			* 6	38.2		62.0
Max Q Clear Time (g_c+I1), s		24.2			8.0	35.7		35.6
Green Ext Time (p_c), s		23.4			0.0	2.4		8.3

Intersection Summary		
HCM 2010 Ctrl Delay		38.5
HCM 2010 LOS		D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	714	140	450	837	1117	1070
Future Volume (veh/h)	714	140	450	837	1117	1070
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	752	129	474	881	1176	875
Adj No. of Lanes	2	1	2	3	3	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	801	603	510	3458	2521	785
Arrive On Green	0.24	0.24	0.15	0.69	0.50	0.50
Sat Flow, veh/h	3408	1568	3408	5202	5202	1568
Grp Volume(v), veh/h	752	129	474	881	1176	875
Grp Sat Flow(s),veh/h/ln	1704	1568	1704	1679	1679	1568
Q Serve(g_s), s	27.9	7.1	17.7	8.6	19.6	64.6
Cycle Q Clear(g_c), s	27.9	7.1	17.7	8.6	19.6	64.6
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	801	603	510	3458	2521	785
V/C Ratio(X)	0.94	0.21	0.93	0.25	0.47	1.11
Avail Cap(c_a), veh/h	827	615	510	3458	2521	785
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.4	26.6	54.2	7.7	21.0	32.2
Incr Delay (d2), s/veh	17.5	0.1	23.4	0.0	0.1	68.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.1	0.0	10.0	3.9	9.0	42.8
LnGrp Delay(d),s/veh	65.9	26.7	77.6	7.7	21.0	100.7
LnGrp LOS	E	C	E	A	C	F
Approach Vol, veh/h	881			1355	2051	
Approach Delay, s/veh	60.2			32.2	55.0	
Approach LOS	E			C	E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		94.0		35.0	24.0	70.0		
Change Period (Y+Rc), s		5.4		* 4.7	* 4.7	5.4		
Max Green Setting (Gmax), s		88.6		* 31	* 19	64.6		
Max Q Clear Time (g_c+I1), s		10.6		29.9	19.7	66.6		
Green Ext Time (p_c), s		20.3		0.4	0.0	0.0		

Intersection Summary	
HCM 2010 Ctrl Delay	48.8
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	0	522	0	350	30	72	42	0	0	93	140
Future Volume (veh/h)	80	0	522	0	350	30	72	42	0	0	93	140
Number	1	6	16	5	2	12	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		0.96
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	0	1845	1900	1845	1845	0	0	1845	1900
Adj Flow Rate, veh/h	87	0	359	0	380	30	78	46	0	0	101	24
Adj No. of Lanes	2	1	2	0	1	0	2	1	0	0	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, %	3	3	3	0	3	3	3	3	0	0	3	3
Cap, veh/h	258	900	1567	0	512	40	319	167	0	0	265	61
Arrive On Green	0.08	0.00	0.49	0.00	0.30	0.30	0.09	0.09	0.00	0.00	0.09	0.09
Sat Flow, veh/h	3408	1845	2697	0	1688	133	3514	1845	0	0	2903	644
Grp Volume(v), veh/h	87	0	359	0	0	410	78	46	0	0	62	63
Grp Sat Flow(s),veh/h/ln	1704	1845	1349	0	0	1821	1757	1845	0	0	1752	1702
Q Serve(g_s), s	1.0	0.0	2.7	0.0	0.0	8.5	0.9	1.0	0.0	0.0	1.4	1.5
Cycle Q Clear(g_c), s	1.0	0.0	2.7	0.0	0.0	8.5	0.9	1.0	0.0	0.0	1.4	1.5
Prop In Lane	1.00		1.00	0.00		0.07	1.00		0.00	0.00		0.38
Lane Grp Cap(c), veh/h	258	900	1567	0	0	552	319	167	0	0	165	160
V/C Ratio(X)	0.34	0.00	0.23	0.00	0.00	0.74	0.24	0.27	0.00	0.00	0.37	0.40
Avail Cap(c_a), veh/h	2020	2755	4279	0	0	1442	1516	796	0	0	1038	1009
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	18.5	0.0	4.3	0.0	0.0	13.2	17.8	17.9	0.0	0.0	17.9	18.0
Incr Delay (d2), s/veh	0.8	0.0	0.1	0.0	0.0	2.0	0.4	0.9	0.0	0.0	1.4	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	1.2	0.0	0.0	4.5	0.4	0.5	0.0	0.0	0.7	0.8
LnGrp Delay(d),s/veh	19.3	0.0	4.4	0.0	0.0	15.2	18.2	18.8	0.0	0.0	19.3	19.6
LnGrp LOS	B		A			B	B	B			B	B
Approach Vol, veh/h		446			410			124			125	
Approach Delay, s/veh		7.3			15.2			18.4			19.5	
Approach LOS		A			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	7.8	17.4		8.6		25.2		8.4
Change Period (Y+Rc), s	4.6	4.6		4.6		4.6		4.6
Max Green Setting (Gmax), s	25.0	33.4		25.0		63.0		18.2
Max Q Clear Time (g_c+I1), s	3.0	10.5		3.5		4.7		3.0
Green Ext Time (p_c), s	1.7	2.4		0.6		1.8		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	12.9
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	861	13	79	435	20	11	24	74	540	23	52
Future Volume (veh/h)	70	861	13	79	435	20	11	24	74	540	23	52
Number	3	8	18	7	4	14	1	6	16	5	2	12
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	1845	1845	1900	1845	1845	1900	1900	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	76	936	13	86	473	19	12	26	3	587	25	22
Adj No. of Lanes	2	2	0	1	2	0	0	1	1	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	179	1132	16	110	1133	45	17	38	48	644	332	293
Arrive On Green	0.05	0.32	0.32	0.06	0.33	0.33	0.03	0.03	0.03	0.37	0.37	0.37
Sat Flow, veh/h	3408	3539	49	1757	3435	138	573	1243	1568	1757	906	798
Grp Volume(v), veh/h	76	463	486	86	241	251	38	0	3	587	0	47
Grp Sat Flow(s),veh/h/ln	1704	1752	1836	1757	1752	1820	1816	0	1568	1757	0	1704
Q Serve(g_s), s	1.6	18.6	18.6	3.7	8.1	8.2	1.6	0.0	0.1	24.2	0.0	1.4
Cycle Q Clear(g_c), s	1.6	18.6	18.6	3.7	8.1	8.2	1.6	0.0	0.1	24.2	0.0	1.4
Prop In Lane	1.00		0.03	1.00		0.08	0.32		1.00	1.00		0.47
Lane Grp Cap(c), veh/h	179	561	587	110	578	601	55	0	48	644	0	625
V/C Ratio(X)	0.43	0.83	0.83	0.78	0.42	0.42	0.69	0.00	0.06	0.91	0.00	0.08
Avail Cap(c_a), veh/h	241	607	636	157	639	664	95	0	82	829	0	804
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	35.0	24.0	24.0	35.2	19.8	19.9	36.6	0.0	35.9	23.0	0.0	15.7
Incr Delay (d2), s/veh	1.6	8.7	8.3	9.2	0.5	0.5	14.1	0.0	0.5	11.9	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	0.8	10.4	10.8	2.1	4.0	4.2	1.0	0.0	0.1	13.9	0.0	0.6
LnGrp Delay(d),s/veh	36.6	32.7	32.3	44.4	20.3	20.3	50.7	0.0	36.5	34.9	0.0	15.8
LnGrp LOS	D	C	C	D	C	C	D		D	C		B
Approach Vol, veh/h		1025			578			41			634	
Approach Delay, s/veh		32.8			23.9			49.6			33.5	
Approach LOS		C			C			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		32.0	8.2	29.8		6.3	9.0	29.0
Change Period (Y+Rc), s		4.0	* 4.2	4.6		4.0	* 4.2	4.6
Max Green Setting (Gmax), s		36.0	* 5.4	27.8		4.0	* 6.8	26.4
Max Q Clear Time (g_c+I1), s		26.2	3.6	10.2		3.6	5.7	20.6
Green Ext Time (p_c), s		1.7	0.0	8.2		0.0	0.0	3.7

Intersection Summary	
HCM 2010 Ctrl Delay	31.0
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

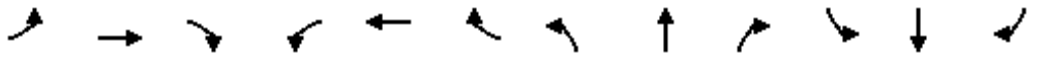
Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	899	11	57	421	20	7	0	15	30	0	30
Future Vol, veh/h	20	899	11	57	421	20	7	0	15	30	0	30
Conflicting Peds, #/hr	2	0	0	0	0	2	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	-	-	130	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	22	977	12	62	458	22	8	0	16	33	0	33

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	481	0	0	989	0	0	1380	1632	495	1126	1627	242
Stage 1	-	-	-	-	-	-	1027	1027	-	594	594	-
Stage 2	-	-	-	-	-	-	353	605	-	532	1033	-
Critical Hdwy	4.16	-	-	4.16	-	-	7.56	6.56	6.96	7.56	6.56	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Follow-up Hdwy	2.23	-	-	2.23	-	-	3.53	4.03	3.33	3.53	4.03	3.33
Pot Cap-1 Maneuver	1071	-	-	689	-	-	103	99	517	158	100	756
Stage 1	-	-	-	-	-	-	249	308	-	456	489	-
Stage 2	-	-	-	-	-	-	634	483	-	496	306	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1071	-	-	689	-	-	90	88	517	140	89	755
Mov Cap-2 Maneuver	-	-	-	-	-	-	90	88	-	140	89	-
Stage 1	-	-	-	-	-	-	244	302	-	446	444	-
Stage 2	-	-	-	-	-	-	552	439	-	470	300	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	1.2	24.8	26
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	206	1071	-	-	689	-	-	236
HCM Lane V/C Ratio	0.116	0.02	-	-	0.09	-	-	0.276
HCM Control Delay (s)	24.8	8.4	-	-	10.7	-	-	26
HCM Lane LOS	C	A	-	-	B	-	-	D
HCM 95th %tile Q(veh)	0.4	0.1	-	-	0.3	-	-	1.1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	70	170	183	80	70	80	755	172	40	576	80
Future Volume (veh/h)	80	70	170	183	80	70	80	755	172	40	576	80
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		0.99
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	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	87	76	113	199	87	25	87	821	162	43	626	74
Adj No. of Lanes	1	1	0	1	2	0	1	3	0	1	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	113	107	159	250	644	178	113	1707	335	71	1738	203
Arrive On Green	0.06	0.16	0.16	0.14	0.24	0.24	0.06	0.40	0.40	0.04	0.38	0.38
Sat Flow, veh/h	1757	671	998	1757	2713	751	1757	4224	828	1757	4566	534
Grp Volume(v), veh/h	87	0	189	199	55	57	87	651	332	43	458	242
Grp Sat Flow(s),veh/h/ln	1757	0	1669	1757	1752	1712	1757	1679	1695	1757	1679	1742
Q Serve(g_s), s	3.4	0.0	7.4	7.6	1.7	1.8	3.4	9.9	10.0	1.7	6.8	6.9
Cycle Q Clear(g_c), s	3.4	0.0	7.4	7.6	1.7	1.8	3.4	9.9	10.0	1.7	6.8	6.9
Prop In Lane	1.00		0.60	1.00		0.44	1.00		0.49	1.00		0.31
Lane Grp Cap(c), veh/h	113	0	266	250	416	407	113	1357	685	71	1278	663
V/C Ratio(X)	0.77	0.00	0.71	0.80	0.13	0.14	0.77	0.48	0.48	0.60	0.36	0.36
Avail Cap(c_a), veh/h	351	0	1099	661	1464	1430	351	2037	1028	231	1808	939
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.8	0.0	27.5	28.6	20.7	20.8	31.8	15.2	15.2	32.6	15.3	15.4
Incr Delay (d2), s/veh	10.5	0.0	3.5	5.7	0.1	0.2	10.5	0.3	0.6	3.0	0.2	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	3.7	4.0	0.8	0.9	2.0	4.6	4.7	0.9	3.2	3.4
LnGrp Delay(d),s/veh	42.3	0.0	31.0	34.4	20.9	20.9	42.3	15.5	15.9	35.6	15.5	15.8
LnGrp LOS	D		C	C	C	C	D	B	B	D	B	B
Approach Vol, veh/h		276			311			1070			743	
Approach Delay, s/veh		34.6			29.5			17.8			16.8	
Approach LOS		C			C			B			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	7.0	32.5	14.0	15.5	8.6	30.9	8.6	20.9
Change Period (Y+Rc), s	* 4.2	4.6	* 4.2	4.5	* 4.2	4.6	* 4.2	4.5
Max Green Setting (Gmax), s	* 9.1	41.9	* 26	45.5	* 14	37.2	* 14	57.7
Max Q Clear Time (g_c+I1), s	3.7	12.0	9.6	9.4	5.4	8.9	5.4	3.8
Green Ext Time (p_c), s	0.0	15.6	0.5	1.9	0.1	15.2	0.1	2.0

Intersection Summary	
HCM 2010 Ctrl Delay	20.9
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	157	686	626	560	218	30	477	820	550	40	670	219
Future Volume (veh/h)	157	686	626	560	218	30	477	820	550	40	670	219
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		0.98
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	1900	1845	1845	1900	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	165	722	541	589	229	19	502	863	484	42	705	55
Adj No. of Lanes	2	3	0	2	3	0	2	2	1	2	2	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	215	939	432	631	1907	155	481	1174	524	138	820	361
Arrive On Green	0.06	0.28	0.28	0.19	0.40	0.40	0.14	0.33	0.33	0.04	0.23	0.23
Sat Flow, veh/h	3408	3357	1545	3408	4746	387	3408	3505	1565	3408	3505	1542
Grp Volume(v), veh/h	165	722	541	589	161	87	502	863	484	42	705	55
Grp Sat Flow(s),veh/h/ln	1704	1679	1545	1704	1679	1775	1704	1752	1565	1704	1752	1542
Q Serve(g_s), s	6.6	27.4	38.8	23.6	4.2	4.3	19.6	30.2	41.3	1.7	26.8	3.9
Cycle Q Clear(g_c), s	6.6	27.4	38.8	23.6	4.2	4.3	19.6	30.2	41.3	1.7	26.8	3.9
Prop In Lane	1.00		1.00	1.00		0.22	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	215	939	432	631	1349	713	481	1174	524	138	820	361
V/C Ratio(X)	0.77	0.77	1.25	0.93	0.12	0.12	1.04	0.74	0.92	0.30	0.86	0.15
Avail Cap(c_a), veh/h	273	939	432	634	1349	713	481	1174	524	172	849	373
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	64.0	45.9	50.0	55.7	26.1	26.1	59.6	40.7	44.4	64.7	51.0	42.2
Incr Delay (d2), s/veh	10.5	4.0	131.5	21.1	0.0	0.1	52.6	2.5	22.3	1.5	8.8	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	3.4	13.3	32.2	13.0	2.0	2.1	12.7	15.0	21.0	0.8	13.9	1.7
LnGrp Delay(d),s/veh	74.6	49.9	181.5	76.8	26.1	26.2	112.2	43.3	66.7	66.2	59.8	42.4
LnGrp LOS	E	D	F	E	C	C	F	D	E	E	E	D
Approach Vol, veh/h		1428			837			1849			802	
Approach Delay, s/veh		102.6			61.8			68.1			58.9	
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	13.9	61.6	10.8	52.4	30.9	44.7	24.8	38.4
Change Period (Y+Rc), s	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9
Max Green Setting (Gmax), s	* 11	53.5	* 7	46.2	* 26	38.8	* 20	33.6
Max Q Clear Time (g_c+I1), s	8.6	6.3	3.7	43.3	25.6	40.8	21.6	28.8
Green Ext Time (p_c), s	0.1	17.6	0.0	2.6	0.1	0.0	0.0	3.7

Intersection Summary	
HCM 2010 Ctrl Delay	75.6
HCM 2010 LOS	E

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	359.5
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	775	0	320	0	0	0	150	1072	0	0	909	947
Future Vol, veh/h	775	0	320	0	0	0	150	1072	0	0	909	947
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
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	816	0	337	0	0	0	158	1128	0	0	957	997
Number of Lanes	1	1	1	0	0	0	1	2	0	0	2	1

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	3	3
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	3	3	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	3	0	3
HCM Control Delay	61.1	328.9	555.8
HCM LOS	F	F	F

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	100%	100%	0%	0%	0%	0%
Vol Thru, %	0%	100%	100%	0%	0%	0%	100%	100%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	150	536	536	388	388	320	455	455	947
LT Vol	150	0	0	388	388	0	0	0	0
Through Vol	0	536	536	0	0	0	455	455	0
RT Vol	0	0	0	0	0	320	0	0	947
Lane Flow Rate	158	564	564	408	408	337	478	478	997
Geometry Grp	8	8	8	7	7	7	8	8	8
Degree of Util (X)	0.56	1.921	1.647	1.081	1.081	0.781	1.604	1.604	2.665
Departure Headway (Hd)	6.73	6.206	4.373	5.033	5.033	3.804	13.874	13.874	11.35
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	537	587	829	722	722	950	268	268	329
Service Time	4.43	3.906	2.073	2.733	2.733	1.504	11.574	11.574	9.05
HCM Lane V/C Ratio	0.294	0.961	0.68	0.565	0.565	0.355	1.784	1.784	3.03
HCM Control Delay	17.7	435.9	309	78.7	78.7	18.6	321.2	321.2	781
HCM Lane LOS	C	F	F	F	F	C	F	F	F
HCM 95th-tile Q	3.4	72.5	73.5	21	21	8.1	25.7	25.7	70.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	728	20	460	0	0	0	0	494	570	687	542	0
Future Volume (veh/h)	728	20	460	0	0	0	0	494	570	687	542	0
Number	3	8	18				1	6	16	5	2	12
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	1900	1845	1845				0	1845	1845	1845	1845	0
Adj Flow Rate, veh/h	766	21	335				0	520	219	723	571	0
Adj No. of Lanes	0	1	1				0	1	1	2	1	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	711	19	651				0	513	435	690	944	0
Arrive On Green	0.41	0.41	0.41				0.00	0.28	0.28	0.20	0.51	0.00
Sat Flow, veh/h	1712	47	1568				0	1845	1565	3408	1845	0
Grp Volume(v), veh/h	787	0	335				0	520	219	723	571	0
Grp Sat Flow(s),veh/h/ln	1759	0	1568				0	1845	1565	1704	1845	0
Q Serve(g_s), s	49.8	0.0	19.1				0.0	33.4	14.1	24.3	26.3	0.0
Cycle Q Clear(g_c), s	49.8	0.0	19.1				0.0	33.4	14.1	24.3	26.3	0.0
Prop In Lane	0.97		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	730	0	651				0	513	435	690	944	0
V/C Ratio(X)	1.08	0.00	0.51				0.00	1.01	0.50	1.05	0.60	0.00
Avail Cap(c_a), veh/h	730	0	651				0	513	435	690	944	0
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	1.00	1.00	0.00
Uniform Delay (d), s/veh	35.1	0.0	26.1				0.0	43.3	36.3	47.8	20.7	0.0
Incr Delay (d2), s/veh	56.4	0.0	0.3				0.0	43.0	0.4	47.4	0.8	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	35.6	0.0	8.3				0.0	23.1	6.1	15.9	13.5	0.0
LnGrp Delay(d),s/veh	91.5	0.0	26.4				0.0	86.3	36.7	95.2	21.5	0.0
LnGrp LOS	F		C					F	D	F	C	
Approach Vol, veh/h		1122						739			1294	
Approach Delay, s/veh		72.0						71.6			62.7	
Approach LOS		E						E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		66.0			28.0	38.0		54.0
Change Period (Y+Rc), s		4.6			3.7	4.6		4.2
Max Green Setting (Gmax), s		61.4			24.3	33.4		49.8
Max Q Clear Time (g_c+I1), s		28.3			26.3	35.4		51.8
Green Ext Time (p_c), s		5.4			0.0	0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	68.1
HCM 2010 LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	557	50	30	50	40	150	20	257	50	180	446	276
Future Volume (veh/h)	557	50	30	50	40	150	20	257	50	180	446	276
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	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	586	53	12	53	42	34	21	271	38	189	469	206
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	643	533	121	120	65	52	42	512	71	233	651	284
Arrive On Green	0.37	0.37	0.37	0.07	0.07	0.07	0.02	0.17	0.17	0.13	0.27	0.27
Sat Flow, veh/h	1757	1456	330	1757	945	765	1757	3091	429	1757	2376	1036
Grp Volume(v), veh/h	586	0	65	53	0	76	21	152	157	189	345	330
Grp Sat Flow(s),veh/h/ln	1757	0	1786	1757	0	1710	1757	1752	1767	1757	1752	1660
Q Serve(g_s), s	21.3	0.0	1.6	1.9	0.0	2.9	0.8	5.3	5.5	7.0	12.0	12.1
Cycle Q Clear(g_c), s	21.3	0.0	1.6	1.9	0.0	2.9	0.8	5.3	5.5	7.0	12.0	12.1
Prop In Lane	1.00		0.18	1.00		0.45	1.00		0.24	1.00		0.62
Lane Grp Cap(c), veh/h	643	0	653	120	0	117	42	290	293	233	480	455
V/C Ratio(X)	0.91	0.00	0.10	0.44	0.00	0.65	0.50	0.52	0.54	0.81	0.72	0.73
Avail Cap(c_a), veh/h	1135	0	1153	277	0	270	131	579	584	413	861	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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.3	0.0	14.0	30.1	0.0	30.5	32.4	25.6	25.7	28.3	22.1	22.1
Incr Delay (d2), s/veh	3.0	0.0	0.0	0.9	0.0	2.3	3.3	0.5	0.6	2.6	0.8	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	10.8	0.0	0.8	1.0	0.0	1.4	0.4	2.6	2.7	3.6	5.9	5.6
LnGrp Delay(d),s/veh	23.3	0.0	14.0	31.0	0.0	32.8	35.7	26.2	26.2	30.9	22.8	22.9
LnGrp LOS	C		B	C		C	D	C	C	C	C	C
Approach Vol, veh/h		651			129			330			864	
Approach Delay, s/veh		22.3			32.1			26.8			24.6	
Approach LOS		C			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	13.1	15.7		29.2	5.8	23.0		9.2
Change Period (Y+Rc), s	* 4.2	4.6		4.6	* 4.2	4.6		4.6
Max Green Setting (Gmax), s	* 16	22.2		43.4	* 5	33.0		10.6
Max Q Clear Time (g_c+I1), s	12.0	7.5		23.3	2.8	14.1		4.9
Green Ext Time (p_c), s	0.1	3.5		1.1	0.0	3.8		0.1

Intersection Summary		
HCM 2010 Ctrl Delay	24.7	
HCM 2010 LOS	C	

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	189.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	467	480	300	20	60	456
Future Vol, veh/h	467	480	300	20	60	456
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	492	505	316	21	63	480

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	337	0	-	0	1814	326
Stage 1	-	-	-	-	326	-
Stage 2	-	-	-	-	1488	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1217	-	-	-	86	713
Stage 1	-	-	-	-	729	-
Stage 2	-	-	-	-	206	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1217	-	-	-	~ 38	713
Mov Cap-2 Maneuver	-	-	-	-	~ 38	-
Stage 1	-	-	-	-	729	-
Stage 2	-	-	-	-	90	-

Approach	EB	WB	SB
HCM Control Delay, s	4.9	0	$ 645.4
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1217	-	-	-	233
HCM Lane V/C Ratio	0.404	-	-	-	2.331
HCM Control Delay (s)	9.9	0	-	-	$ 645.4
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	2	-	-	-	43.5

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

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	296	520	777	527	400	787
Future Vol, veh/h	296	520	777	527	400	787
Conflicting Peds, #/hr	2	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	315	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	312	547	818	555	421	828

Major/Minor	Minor1		Major1		Minor2	
Conflicting Flow All	1234	818	0	0	1092	818
Stage 1	818	-	-	-	0	0
Stage 2	416	-	-	-	1092	818
Critical Hdwy	7.13	6.23	-	-	7.13	6.53
Critical Hdwy Stg 1	6.13	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	6.13	5.53
Follow-up Hdwy	3.527	3.327	-	-	3.527	4.027
Pot Cap-1 Maneuver	~ 153	~ 374	-	-	~ 191	~ 309
Stage 1	369	-	-	-	-	-
Stage 2	-	-	-	-	~ 259	~ 388
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	-	~ 374	-	-	-	~ 309
Mov Cap-2 Maneuver	-	-	-	-	-	~ 309
Stage 1	369	-	-	-	-	-
Stage 2	-	-	-	-	-	~ 388

Approach	WB	NB	SB
HCM Control Delay, s		0	
HCM LOS	-		-

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBLn1	SBLn2
Capacity (veh/h)	-	-	-	-	309
HCM Lane V/C Ratio	-	-	-	-	2.681
HCM Control Delay (s)	-	-	-	-	$ 791.2
HCM Lane LOS	-	-	-	-	F
HCM 95th %tile Q(veh)	-	-	-	-	69.4

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

Intersection	
Int Delay, s/veh	716.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	370	934	20	40	983
Future Vol, veh/h	20	370	934	20	40	983
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	21	389	983	21	42	1035

Major/Minor	Minor1		Minor2		Major2	
Conflicting Flow All	1621	0	1119	1035	0	0
Stage 1	0	-	1119	-	-	-
Stage 2	1621	-	0	-	-	-
Critical Hdwy	7.13	6.23	6.53	6.23	4.13	-
Critical Hdwy Stg 1	-	-	5.53	-	-	-
Critical Hdwy Stg 2	6.13	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	4.027	3.327	2.227	-
Pot Cap-1 Maneuver	82	-	~ 206	280	-	-
Stage 1	-	-	~ 281	-	-	-
Stage 2	129	-	-	-	-	-
Platoon blocked, %						-
Mov Cap-1 Maneuver	-	-	~ 206	280	-	-
Mov Cap-2 Maneuver	-	-	~ 206	-	-	-
Stage 1	-	-	~ 281	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s		$ 1777.1	
HCM LOS	-	F	

Minor Lane/Major Mvmt	NBLn1	WBLn1	SBL	SBT
Capacity (veh/h)	207	-	-	-
HCM Lane V/C Ratio	4.851	-	-	-
HCM Control Delay (s)	$ 1777.1	-	-	-
HCM Lane LOS	F	-	-	-
HCM 95th %tile Q(veh)	103.3	-	-	-

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 (veh/h)	40	272	420	190	243	71	121	310	160	111	580	120
Future Volume (veh/h)	40	272	420	190	243	71	121	310	160	111	580	120
Number	5	2	12	1	6	16	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		0.99	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	1845	1845	1845	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	43	296	258	207	264	32	132	337	122	121	630	116
Adj No. of Lanes	1	2	1	1	3	0	2	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	66	825	365	243	1536	182	262	776	276	103	829	152
Arrive On Green	0.04	0.24	0.24	0.14	0.34	0.34	0.08	0.31	0.31	0.06	0.28	0.28
Sat Flow, veh/h	1757	3505	1552	1757	4566	540	3408	2532	901	1757	2958	544
Grp Volume(v), veh/h	43	296	258	207	192	104	132	231	228	121	373	373
Grp Sat Flow(s),veh/h/ln	1757	1752	1552	1757	1679	1749	1704	1752	1680	1757	1752	1749
Q Serve(g_s), s	2.1	6.0	13.0	9.8	3.4	3.6	3.2	9.0	9.2	5.0	16.6	16.6
Cycle Q Clear(g_c), s	2.1	6.0	13.0	9.8	3.4	3.6	3.2	9.0	9.2	5.0	16.6	16.6
Prop In Lane	1.00		1.00	1.00		0.31	1.00		0.54	1.00		0.31
Lane Grp Cap(c), veh/h	66	825	365	243	1130	589	262	537	515	103	491	490
V/C Ratio(X)	0.65	0.36	0.71	0.85	0.17	0.18	0.50	0.43	0.44	1.17	0.76	0.76
Avail Cap(c_a), veh/h	186	1812	802	306	1965	1024	396	803	770	103	702	701
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	40.4	27.2	29.8	35.8	19.9	19.9	37.7	23.6	23.7	40.1	28.0	28.0
Incr Delay (d2), s/veh	4.0	0.1	0.9	14.2	0.0	0.1	1.8	0.8	0.8	142.2	3.9	4.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	2.9	5.6	5.7	1.6	1.7	1.6	4.4	4.4	6.5	8.5	8.5
LnGrp Delay(d),s/veh	44.4	27.3	30.8	50.0	19.9	20.0	39.5	24.4	24.5	182.3	31.9	32.0
LnGrp LOS	D	C	C	D	B	B	D	C	C	F	C	C
Approach Vol, veh/h		597			503			591			867	
Approach Delay, s/veh		30.0			32.3			27.8			52.9	
Approach LOS		C			C			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.0	25.9	10.2	32.0	8.4	34.5	12.4	29.7
Change Period (Y+Rc), s	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9	5.9	* 5.9
Max Green Setting (Gmax), s	* 15	44.0	* 5	39.0	* 9	49.8	9.9	* 34
Max Q Clear Time (g_c+I1), s	11.8	15.0	7.0	11.2	4.1	5.6	5.2	18.6
Green Ext Time (p_c), s	0.1	2.7	0.0	4.4	0.0	2.8	1.7	5.2

Intersection Summary	
HCM 2010 Ctrl Delay	37.7
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	92	370	179	83	61	620	480	489	60	1060	70
Future Volume (veh/h)	50	92	370	179	83	61	620	480	489	60	1060	70
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	1845	1845	1845	1845	1845	1900	1845	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	53	97	66	200	70	31	653	505	187	63	1116	72
Adj No. of Lanes	1	1	2	2	1	0	2	2	1	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	213	224	641	429	148	66	283	1533	684	82	1340	86
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.08	0.44	0.44	0.05	0.40	0.40
Sat Flow, veh/h	1757	1845	3136	3514	1213	537	3408	3505	1563	1757	3343	216
Grp Volume(v), veh/h	53	97	66	200	0	101	653	505	187	63	585	603
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	0	1750	1704	1752	1563	1757	1752	1807
Q Serve(g_s), s	2.2	4.0	1.4	4.3	0.0	4.4	6.8	7.7	6.3	2.9	24.5	24.6
Cycle Q Clear(g_c), s	2.2	4.0	1.4	4.3	0.0	4.4	6.8	7.7	6.3	2.9	24.5	24.6
Prop In Lane	1.00		1.00	1.00		0.31	1.00		1.00	1.00		0.12
Lane Grp Cap(c), veh/h	213	224	641	429	0	214	283	1533	684	82	702	724
V/C Ratio(X)	0.25	0.43	0.10	0.47	0.00	0.47	2.31	0.33	0.27	0.77	0.83	0.83
Avail Cap(c_a), veh/h	966	1015	1986	1589	0	791	283	1533	684	135	726	749
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.6	33.3	26.4	33.4	0.0	33.5	37.5	15.1	14.7	38.6	22.0	22.0
Incr Delay (d2), s/veh	0.6	1.3	0.1	1.1	0.0	2.3	598.3	0.5	0.8	5.6	10.3	10.0
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	1.1	2.1	0.6	2.2	0.0	2.3	26.7	3.8	2.8	1.5	13.9	14.3
LnGrp Delay(d),s/veh	33.2	34.7	26.5	34.6	0.0	35.8	635.8	15.6	15.5	44.2	32.3	32.1
LnGrp LOS	C	C	C	C		D	F	B	B	D	C	C
Approach Vol, veh/h		216			301			1345			1251	
Approach Delay, s/veh		31.8			35.0			316.7			32.8	
Approach LOS		C			C			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.0	41.7		15.6	12.0	38.7		15.5
Change Period (Y+Rc), s	* 5.2	5.9		5.6	* 5.2	5.9		5.6
Max Green Setting (Gmax), s	* 6.3	34.4		37.0	* 6.8	33.9		45.0
Max Q Clear Time (g_c+I1), s	4.4	9.7		6.4	8.8	26.6		6.0
Green Ext Time (p_c), s	0.0	21.8		1.9	0.0	6.2		0.9

Intersection Summary	
HCM 2010 Ctrl Delay	155.6
HCM 2010 LOS	F

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	960	0	730	140	859	0	0	1046	563
Future Volume (veh/h)	0	0	0	960	0	730	140	859	0	0	1046	563
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		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				1845	1845	1845	1845	1845	0	0	1845	1900
Adj Flow Rate, veh/h				1229	0	468	147	904	0	0	1101	512
Adj No. of Lanes				2	0	1	1	3	0	0	3	0
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				1449	0	647	175	2517	0	0	1195	555
Arrive On Green				0.41	0.00	0.41	0.10	0.50	0.00	0.00	0.36	0.37
Sat Flow, veh/h				3514	0	1568	1757	5202	0	0	3530	1562
Grp Volume(v), veh/h				1229	0	468	147	904	0	0	1099	514
Grp Sat Flow(s),veh/h/ln				1757	0	1568	1757	1679	0	0	1679	1569
Q Serve(g_s), s				32.8	0.0	25.9	8.5	11.3	0.0	0.0	32.5	32.5
Cycle Q Clear(g_c), s				32.8	0.0	25.9	8.5	11.3	0.0	0.0	32.5	32.5
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				1449	0	647	175	2517	0	0	1192	557
V/C Ratio(X)				0.85	0.00	0.72	0.84	0.36	0.00	0.00	0.92	0.92
Avail Cap(c_a), veh/h				2000	0	893	175	2522	0	0	1195	559
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	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				27.5	0.0	25.5	45.9	15.8	0.0	0.0	32.0	31.5
Incr Delay (d2), s/veh				2.6	0.0	1.8	28.3	0.2	0.0	0.0	11.7	21.1
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				16.4	0.0	11.5	5.5	5.3	0.0	0.0	16.9	17.2
LnGrp Delay(d),s/veh				30.2	0.0	27.3	74.2	16.0	0.0	0.0	43.7	52.6
LnGrp LOS				C		C	E	B			D	D
Approach Vol, veh/h					1697			1051			1613	
Approach Delay, s/veh					29.4			24.1			46.5	
Approach LOS					C			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		56.9			15.0	41.9		46.7
Change Period (Y+Rc), s		5.1			* 4.7	5.1		4.0
Max Green Setting (Gmax), s		51.9			* 10	36.9		59.0
Max Q Clear Time (g_c+I1), s		13.3			10.5	34.5		34.8
Green Ext Time (p_c), s		29.8			0.0	2.3		8.0

Intersection Summary	
HCM 2010 Ctrl Delay	34.5
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	367	110	310	632	1216	790
Future Volume (veh/h)	367	110	310	632	1216	790
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	399	107	337	687	1322	538
Adj No. of Lanes	2	1	2	3	3	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	526	450	452	3502	2483	773
Arrive On Green	0.15	0.15	0.13	0.70	0.49	0.49
Sat Flow, veh/h	3408	1568	3408	5202	5202	1568
Grp Volume(v), veh/h	399	107	337	687	1322	538
Grp Sat Flow(s),veh/h/ln	1704	1568	1704	1679	1679	1568
Q Serve(g_s), s	7.5	3.5	6.4	3.2	12.1	17.8
Cycle Q Clear(g_c), s	7.5	3.5	6.4	3.2	12.1	17.8
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	526	450	452	3502	2483	773
V/C Ratio(X)	0.76	0.24	0.75	0.20	0.53	0.70
Avail Cap(c_a), veh/h	1079	704	1180	5881	3786	1179
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.3	18.4	28.1	3.6	11.7	13.2
Incr Delay (d2), s/veh	0.9	0.1	0.9	0.0	0.1	0.4
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	3.4	3.1	1.5	5.6	7.7
LnGrp Delay(d),s/veh	28.1	18.5	29.0	3.6	11.8	13.6
LnGrp LOS	C	B	C	A	B	B
Approach Vol, veh/h	506			1024	1860	
Approach Delay, s/veh	26.1			12.0	12.3	
Approach LOS	C			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		52.2		15.1	13.6	38.6		
Change Period (Y+Rc), s		5.4		* 4.7	* 4.7	5.4		
Max Green Setting (Gmax), s		78.6		* 21	* 23	50.6		
Max Q Clear Time (g_c+I1), s		5.2		9.5	8.4	19.8		
Green Ext Time (p_c), s		16.2		0.9	0.5	13.4		

Intersection Summary	
HCM 2010 Ctrl Delay	14.3
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	0	404	0	360	110	175	91	0	0	70	130
Future Volume (veh/h)	110	0	404	0	360	110	175	91	0	0	70	130
Number	1	6	16	5	2	12	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		1.00	1.00		1.00	1.00		0.99
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	0	1845	1900	1845	1845	0	0	1845	1900
Adj Flow Rate, veh/h	120	0	66	0	391	112	190	99	0	0	76	17
Adj No. of Lanes	2	1	2	0	1	0	2	1	0	0	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, %	3	3	3	0	3	3	3	3	0	0	3	3
Cap, veh/h	279	977	1762	0	490	140	383	201	0	0	234	51
Arrive On Green	0.08	0.00	0.53	0.00	0.35	0.35	0.11	0.11	0.00	0.00	0.08	0.08
Sat Flow, veh/h	3408	1845	2760	0	1380	395	3514	1845	0	0	2951	619
Grp Volume(v), veh/h	120	0	66	0	0	503	190	99	0	0	46	47
Grp Sat Flow(s),veh/h/ln	1704	1845	1380	0	0	1775	1757	1845	0	0	1752	1725
Q Serve(g_s), s	1.7	0.0	0.4	0.0	0.0	12.6	2.5	2.5	0.0	0.0	1.2	1.3
Cycle Q Clear(g_c), s	1.7	0.0	0.4	0.0	0.0	12.6	2.5	2.5	0.0	0.0	1.2	1.3
Prop In Lane	1.00		1.00	0.00		0.22	1.00		0.00	0.00		0.36
Lane Grp Cap(c), veh/h	279	977	1762	0	0	630	383	201	0	0	144	141
V/C Ratio(X)	0.43	0.00	0.04	0.00	0.00	0.80	0.50	0.49	0.00	0.00	0.32	0.34
Avail Cap(c_a), veh/h	1725	2360	3832	0	0	1207	1280	672	0	0	887	873
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	21.6	0.0	3.3	0.0	0.0	14.3	20.7	20.7	0.0	0.0	21.4	21.4
Incr Delay (d2), s/veh	1.1	0.0	0.0	0.0	0.0	2.4	1.0	1.9	0.0	0.0	1.3	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.2	0.0	0.0	6.6	1.3	1.4	0.0	0.0	0.6	0.7
LnGrp Delay(d),s/veh	22.6	0.0	3.3	0.0	0.0	16.7	21.7	22.6	0.0	0.0	22.6	22.8
LnGrp LOS	C		A			B	C	C			C	C
Approach Vol, veh/h		186			503			289			93	
Approach Delay, s/veh		15.8			16.7			22.0			22.7	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	8.6	22.1		8.6		30.8		10.0
Change Period (Y+Rc), s	4.6	4.6		4.6		4.6		4.6
Max Green Setting (Gmax), s	25.0	33.6		25.0		63.2		18.0
Max Q Clear Time (g_c+I1), s	3.7	14.6		3.3		2.4		4.5
Green Ext Time (p_c), s	0.6	2.9		0.4		0.7		1.0

Intersection Summary	
HCM 2010 Ctrl Delay	18.5
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	61	360	3	27	704	20	5	5	74	390	4	80
Future Volume (veh/h)	61	360	3	27	704	20	5	5	74	390	4	80
Number	3	8	18	7	4	14	1	6	16	5	2	12
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	1845	1845	1900	1845	1845	1900	1900	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	66	391	2	29	765	20	5	5	0	424	4	23
Adj No. of Lanes	2	2	0	1	2	0	0	1	1	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	197	1295	7	57	1175	31	9	9	16	506	68	394
Arrive On Green	0.06	0.36	0.36	0.03	0.34	0.34	0.01	0.01	0.00	0.29	0.29	0.29
Sat Flow, veh/h	3408	3576	18	1757	3490	91	900	900	1568	1757	238	1366
Grp Volume(v), veh/h	66	192	201	29	384	401	10	0	0	424	0	27
Grp Sat Flow(s),veh/h/ln	1704	1752	1841	1757	1752	1829	1800	0	1568	1757	0	1604
Q Serve(g_s), s	1.0	4.3	4.3	0.9	10.2	10.2	0.3	0.0	0.0	12.4	0.0	0.7
Cycle Q Clear(g_c), s	1.0	4.3	4.3	0.9	10.2	10.2	0.3	0.0	0.0	12.4	0.0	0.7
Prop In Lane	1.00		0.01	1.00		0.05	0.50		1.00	1.00		0.85
Lane Grp Cap(c), veh/h	197	635	667	57	590	616	19	0	16	506	0	462
V/C Ratio(X)	0.33	0.30	0.30	0.51	0.65	0.65	0.54	0.00	0.00	0.84	0.00	0.06
Avail Cap(c_a), veh/h	324	890	935	186	909	949	283	0	246	995	0	908
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	24.8	12.5	12.5	26.0	15.4	15.4	27.0	0.0	0.0	18.3	0.0	14.1
Incr Delay (d2), s/veh	1.0	0.3	0.3	2.6	1.2	1.2	22.2	0.0	0.0	3.8	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	2.1	2.2	0.5	5.1	5.3	0.3	0.0	0.0	6.5	0.0	0.3
LnGrp Delay(d),s/veh	25.8	12.8	12.8	28.6	16.6	16.6	49.1	0.0	0.0	22.1	0.0	14.2
LnGrp LOS	C	B	B	C	B	B	D			C		B
Approach Vol, veh/h		459			814			10			451	
Approach Delay, s/veh		14.6			17.0			49.1			21.6	
Approach LOS		B			B			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		19.8	7.4	23.0		4.6	6.0	24.4
Change Period (Y+Rc), s		4.0	* 4.2	4.6		4.0	* 4.2	4.6
Max Green Setting (Gmax), s		31.0	* 5.2	28.4		8.6	* 5.8	27.8
Max Q Clear Time (g_c+I1), s		14.4	3.0	12.2		2.3	2.9	6.3
Green Ext Time (p_c), s		1.4	0.0	6.2		0.0	0.0	7.0

Intersection Summary	
HCM 2010 Ctrl Delay	17.8
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	355	6	34	735	20	20	0	49	20	0	0
Future Vol, veh/h	30	355	6	34	735	20	20	0	49	20	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	130	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	33	386	7	37	799	22	22	0	53	22	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	821	0	0	392	0	0	927	1349	196	1142	1342	410
Stage 1	-	-	-	-	-	-	454	454	-	884	884	-
Stage 2	-	-	-	-	-	-	473	895	-	258	458	-
Critical Hdwy	4.16	-	-	4.16	-	-	7.56	6.56	6.96	7.56	6.56	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Follow-up Hdwy	2.23	-	-	2.23	-	-	3.53	4.03	3.33	3.53	4.03	3.33
Pot Cap-1 Maneuver	798	-	-	1156	-	-	222	148	809	154	150	588
Stage 1	-	-	-	-	-	-	552	565	-	305	359	-
Stage 2	-	-	-	-	-	-	538	355	-	721	563	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	798	-	-	1156	-	-	210	137	809	136	139	588
Mov Cap-2 Maneuver	-	-	-	-	-	-	210	137	-	136	139	-
Stage 1	-	-	-	-	-	-	529	542	-	292	348	-
Stage 2	-	-	-	-	-	-	521	344	-	646	540	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	0.4	14.8	36.4
HCM LOS			B	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	443	798	-	-	1156	-	-	136
HCM Lane V/C Ratio	0.169	0.041	-	-	0.032	-	-	0.16
HCM Control Delay (s)	14.8	9.7	-	-	8.2	-	-	36.4
HCM Lane LOS	B	A	-	-	A	-	-	E
HCM 95th %tile Q(veh)	0.6	0.1	-	-	0.1	-	-	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	60	70	50	60	130	80	783	161	150	402	80
Future Volume (veh/h)	110	60	70	50	60	130	80	783	161	150	402	80
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	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	120	65	40	54	65	23	87	851	154	163	437	69
Adj No. of Lanes	1	1	0	1	2	0	1	3	0	1	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	157	117	72	87	181	61	113	1826	329	207	2108	326
Arrive On Green	0.09	0.11	0.11	0.05	0.07	0.07	0.06	0.43	0.43	0.12	0.48	0.48
Sat Flow, veh/h	1757	1062	653	1757	2573	867	1757	4291	772	1757	4400	680
Grp Volume(v), veh/h	120	0	105	54	43	45	87	665	340	163	331	175
Grp Sat Flow(s),veh/h/ln	1757	0	1715	1757	1752	1688	1757	1679	1706	1757	1679	1722
Q Serve(g_s), s	3.9	0.0	3.4	1.8	1.4	1.5	2.9	8.4	8.4	5.3	3.4	3.5
Cycle Q Clear(g_c), s	3.9	0.0	3.4	1.8	1.4	1.5	2.9	8.4	8.4	5.3	3.4	3.5
Prop In Lane	1.00		0.38	1.00		0.51	1.00		0.45	1.00		0.39
Lane Grp Cap(c), veh/h	157	0	189	87	124	119	113	1429	726	207	1609	825
V/C Ratio(X)	0.77	0.00	0.56	0.62	0.35	0.38	0.77	0.47	0.47	0.79	0.21	0.21
Avail Cap(c_a), veh/h	470	0	1409	366	1336	1287	521	2327	1183	619	2515	1290
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.3	0.0	24.9	27.5	26.1	26.2	27.2	12.1	12.2	25.3	8.9	8.9
Incr Delay (d2), s/veh	7.6	0.0	2.6	6.9	1.7	2.0	10.3	0.3	0.6	2.5	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	2.2	0.0	1.7	1.0	0.7	0.8	1.7	3.9	4.1	2.7	1.6	1.7
LnGrp Delay(d),s/veh	33.8	0.0	27.4	34.4	27.8	28.1	37.5	12.4	12.7	27.8	9.0	9.1
LnGrp LOS	C		C	C	C	C	D	B	B	C	A	A
Approach Vol, veh/h		225			142			1092			669	
Approach Delay, s/veh		30.8			30.4			14.5			13.6	
Approach LOS		C			C			B			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	11.2	29.7	7.1	11.0	8.0	32.9	9.5	8.7
Change Period (Y+Rc), s	* 4.2	4.6	* 4.2	4.5	* 4.2	4.6	* 4.2	4.5
Max Green Setting (Gmax), s	* 21	40.9	* 12	48.5	* 18	44.2	* 16	45.0
Max Q Clear Time (g_c+I1), s	7.3	10.4	3.8	5.4	4.9	5.5	5.9	3.5
Green Ext Time (p_c), s	0.2	13.9	0.1	1.2	0.1	15.4	0.2	1.2

Intersection Summary	
HCM 2010 Ctrl Delay	17.0
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	84	127	611	440	393	30	596	910	550	20	320	182
Future Volume (veh/h)	84	127	611	440	393	30	596	910	550	20	320	182
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		0.99	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	1845	1845	1900	1845	1845	1900	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	88	134	254	463	414	26	627	958	496	21	337	43
Adj No. of Lanes	2	3	0	2	3	0	2	2	1	2	2	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	139	674	311	548	1555	97	734	1458	652	101	808	361
Arrive On Green	0.04	0.20	0.20	0.16	0.32	0.32	0.22	0.42	0.42	0.03	0.23	0.23
Sat Flow, veh/h	3408	3357	1547	3408	4847	301	3408	3505	1568	3408	3505	1568
Grp Volume(v), veh/h	88	134	254	463	286	154	627	958	496	21	337	43
Grp Sat Flow(s),veh/h/ln	1704	1679	1547	1704	1679	1791	1704	1752	1568	1704	1752	1568
Q Serve(g_s), s	2.9	3.8	18.1	15.2	7.3	7.4	20.4	25.3	31.1	0.7	9.4	2.5
Cycle Q Clear(g_c), s	2.9	3.8	18.1	15.2	7.3	7.4	20.4	25.3	31.1	0.7	9.4	2.5
Prop In Lane	1.00		1.00	1.00		0.17	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	139	674	311	548	1077	574	734	1458	652	101	808	361
V/C Ratio(X)	0.63	0.20	0.82	0.84	0.27	0.27	0.85	0.66	0.76	0.21	0.42	0.12
Avail Cap(c_a), veh/h	222	772	356	746	1288	687	1033	1799	805	207	949	425
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.4	38.3	44.0	46.9	29.0	29.1	43.5	27.0	28.7	54.5	37.7	35.1
Incr Delay (d2), s/veh	5.6	0.2	13.0	7.1	0.2	0.3	5.6	0.7	3.7	1.2	0.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	1.8	8.8	7.7	3.4	3.7	10.1	12.4	14.1	0.3	4.6	1.1
LnGrp Delay(d),s/veh	60.0	38.5	57.0	54.0	29.2	29.4	49.0	27.8	32.4	55.8	38.1	35.2
LnGrp LOS	E	D	E	D	C	C	D	C	C	E	D	D
Approach Vol, veh/h		476			903			2081			401	
Approach Delay, s/veh		52.3			42.0			35.3			38.8	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.9	42.8	8.6	53.8	23.7	29.0	30.0	32.4
Change Period (Y+Rc), s	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9
Max Green Setting (Gmax), s	* 7.5	44.2	* 7	59.1	* 25	26.5	* 35	31.2
Max Q Clear Time (g_c+I1), s	4.9	9.4	2.7	33.1	17.2	20.1	22.4	11.4
Green Ext Time (p_c), s	0.1	7.0	0.0	14.8	1.3	3.0	2.4	12.4

Intersection Summary	
HCM 2010 Ctrl Delay	39.3
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	300.7
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1095	0	290	0	0	0	370	961	0	20	689	662
Future Vol, veh/h	1095	0	290	0	0	0	370	961	0	20	689	662
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
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	1153	0	305	0	0	0	389	1012	0	21	725	697
Number of Lanes	1	1	1	0	0	0	1	2	0	0	2	1

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	3	3
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	3	3	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	3	0	3
HCM Control Delay	238.7	270.2	393
HCM LOS	F	F	F

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	100%	100%	0%	8%	0%	0%
Vol Thru, %	0%	100%	100%	0%	0%	0%	92%	100%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	370	481	481	548	548	290	250	459	662
LT Vol	370	0	0	548	548	0	20	0	0
Through Vol	0	481	481	0	0	0	230	459	0
RT Vol	0	0	0	0	0	290	0	0	662
Lane Flow Rate	389	506	506	576	576	305	263	484	697
Geometry Grp	8	8	8	7	7	7	8	8	8
Degree of Util (X)	1.379	1.721	1.475	1.524	1.524	0.706	0.904	1.657	2.253
Departure Headway (Hd)	7.936	7.421	5.616	14.786	14.786	13.56	5.472	5.431	4.706
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	460	491	647	254	254	269	662	672	773
Service Time	5.636	5.121	3.316	12.486	12.486	11.26	3.172	3.131	2.406
HCM Lane V/C Ratio	0.846	1.031	0.782	2.268	2.268	1.134	0.397	0.72	0.902
HCM Control Delay	206.3	351.4	238.3	290.4	290.4	43.3	38.5	316.9	579.6
HCM Lane LOS	F	F	F	F	F	E	E	F	F
HCM 95th-tile Q	29.5	50	45.8	22.2	22.2	4.8	11.5	61.2	125

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	885	20	250	0	0	0	0	446	370	406	573	0
Future Volume (veh/h)	885	20	250	0	0	0	0	446	370	406	573	0
Number	3	8	18				1	6	16	5	2	12
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	1900	1845	1845				0	1845	1845	1845	1845	0
Adj Flow Rate, veh/h	932	21	187				0	469	113	427	603	0
Adj No. of Lanes	0	1	1				0	1	1	2	1	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	887	20	809				0	495	421	378	757	0
Arrive On Green	0.52	0.52	0.52				0.00	0.27	0.27	0.11	0.41	0.00
Sat Flow, veh/h	1720	39	1568				0	1845	1566	3408	1845	0
Grp Volume(v), veh/h	953	0	187				0	469	113	427	603	0
Grp Sat Flow(s),veh/h/ln	1759	0	1568				0	1845	1566	1704	1845	0
Q Serve(g_s), s	61.8	0.0	7.9				0.0	29.9	6.8	13.3	34.3	0.0
Cycle Q Clear(g_c), s	61.8	0.0	7.9				0.0	29.9	6.8	13.3	34.3	0.0
Prop In Lane	0.98		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	907	0	809				0	495	421	378	757	0
V/C Ratio(X)	1.05	0.00	0.23				0.00	0.95	0.27	1.13	0.80	0.00
Avail Cap(c_a), veh/h	907	0	809				0	499	424	378	761	0
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	1.00	1.00	0.00
Uniform Delay (d), s/veh	29.0	0.0	15.9				0.0	43.0	34.5	53.2	30.9	0.0
Incr Delay (d2), s/veh	43.9	0.0	0.1				0.0	27.0	0.1	85.8	5.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	40.8	0.0	3.4				0.0	19.0	3.0	10.7	18.6	0.0
LnGrp Delay(d),s/veh	72.9	0.0	16.0				0.0	69.9	34.7	139.1	36.3	0.0
LnGrp LOS	F		B					E	C	F	D	
Approach Vol, veh/h		1140						582			1030	
Approach Delay, s/veh		63.6						63.1			78.9	
Approach LOS		E						E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		53.8			17.0	36.8		66.0
Change Period (Y+Rc), s		4.6			3.7	4.6		4.2
Max Green Setting (Gmax), s		49.4			13.3	32.4		61.8
Max Q Clear Time (g_c+I1), s		36.3			15.3	31.9		63.8
Green Ext Time (p_c), s		4.0			0.0	0.3		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	69.2
HCM 2010 LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	333	40	20	30	50	190	30	233	30	100	196	427
Future Volume (veh/h)	333	40	20	30	50	190	30	233	30	100	196	427
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	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	362	43	6	33	54	73	33	253	24	109	213	132
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	436	393	55	191	77	104	65	657	62	140	521	310
Arrive On Green	0.25	0.25	0.25	0.11	0.11	0.11	0.04	0.20	0.20	0.08	0.25	0.25
Sat Flow, veh/h	1757	1585	221	1757	712	963	1757	3237	305	1757	2117	1258
Grp Volume(v), veh/h	362	0	49	33	0	127	33	136	141	109	175	170
Grp Sat Flow(s),veh/h/ln	1757	0	1806	1757	0	1675	1757	1752	1789	1757	1752	1623
Q Serve(g_s), s	9.7	0.0	1.0	0.9	0.0	3.7	0.9	3.3	3.4	3.0	4.2	4.4
Cycle Q Clear(g_c), s	9.7	0.0	1.0	0.9	0.0	3.7	0.9	3.3	3.4	3.0	4.2	4.4
Prop In Lane	1.00		0.12	1.00		0.57	1.00		0.17	1.00		0.78
Lane Grp Cap(c), veh/h	436	0	448	191	0	182	65	356	363	140	431	399
V/C Ratio(X)	0.83	0.00	0.11	0.17	0.00	0.70	0.51	0.38	0.39	0.78	0.41	0.43
Avail Cap(c_a), veh/h	1245	0	1280	781	0	745	225	730	745	478	983	910
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.8	0.0	14.5	20.2	0.0	21.5	23.6	17.2	17.2	22.5	15.8	15.9
Incr Delay (d2), s/veh	1.6	0.0	0.0	0.2	0.0	1.8	2.3	0.3	0.3	3.5	0.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	0.0	0.5	0.4	0.0	1.8	0.5	1.6	1.7	1.6	2.0	2.0
LnGrp Delay(d),s/veh	19.4	0.0	14.5	20.4	0.0	23.3	25.9	17.4	17.5	26.0	16.0	16.1
LnGrp LOS	B		B	C		C	C	B	B	C	B	B
Approach Vol, veh/h		411			160			310			454	
Approach Delay, s/veh		18.8			22.7			18.4			18.4	
Approach LOS		B			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.2	14.7		17.0	6.0	16.9		10.0
Change Period (Y+Rc), s	* 4.2	4.6		4.6	* 4.2	4.6		4.6
Max Green Setting (Gmax), s	* 4	20.8		35.4	* 6.4	28.0		22.2
Max Q Clear Time (g_c+I1), s	5.0	5.4		11.7	2.9	6.4		5.7
Green Ext Time (p_c), s	0.1	2.1		0.7	0.0	2.3		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	19.0
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	11.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	343	140	300	20	30	337
Future Vol, veh/h	343	140	300	20	30	337
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	361	147	316	21	32	355

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	337	0	-	0	1195	326
Stage 1	-	-	-	-	326	-
Stage 2	-	-	-	-	869	-
Critical Hdwy	4.14	-	-	-	6.44	6.24
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	2.236	-	-	-	3.536	3.336
Pot Cap-1 Maneuver	1211	-	-	-	204	711
Stage 1	-	-	-	-	727	-
Stage 2	-	-	-	-	407	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1211	-	-	-	138	711
Mov Cap-2 Maneuver	-	-	-	-	138	-
Stage 1	-	-	-	-	727	-
Stage 2	-	-	-	-	275	-

Approach	EB	WB	SB
HCM Control Delay, s	6.6	0	27.8
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1211	-	-	-	531
HCM Lane V/C Ratio	0.298	-	-	-	0.728
HCM Control Delay (s)	9.2	0	-	-	27.8
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	1.3	-	-	-	6

Intersection	
Int Delay, s/veh	380

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	367	360	602	333	120	1116
Future Vol, veh/h	367	360	602	333	120	1116
Conflicting Peds, #/hr	5	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	315	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	386	379	634	351	126	1175

Major/Minor	Minor1		Major1		Minor2	
Conflicting Flow All	1226	634	0	0	823	634
Stage 1	634	-	-	-	0	0
Stage 2	592	-	-	-	823	634
Critical Hdwy	7.13	6.23	-	-	7.13	6.53
Critical Hdwy Stg 1	6.13	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	6.13	5.53
Follow-up Hdwy	3.527	3.327	-	-	3.527	4.027
Pot Cap-1 Maneuver	~ 155	477	-	-	291	~ 395
Stage 1	466	-	-	-	-	-
Stage 2	-	-	-	-	366	~ 471
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	-	477	-	-	~ 60	~ 395
Mov Cap-2 Maneuver	-	-	-	-	~ 60	~ 395
Stage 1	466	-	-	-	-	-
Stage 2	-	-	-	-	~ 75	~ 471

Approach	WB	NB	SB
HCM Control Delay, s		0	$ 890.9
HCM LOS	-		F

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBLn1	SBLn2
Capacity (veh/h)	-	-	-	60	395
HCM Lane V/C Ratio	-	-	-	2.105	2.974
HCM Control Delay (s)	-	-	-	$ 658.2	$ 915.9
HCM Lane LOS	-	-	-	F	F
HCM 95th %tile Q(veh)	-	-	-	12.2	101.8

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

Intersection	
Int Delay, s/veh	1235.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	90	40	895	20	60	1333
Future Vol, veh/h	90	40	895	20	60	1333
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	95	42	942	21	63	1403

Major/Minor	Minor1		Minor2		Major2	
Conflicting Flow All	2011	0	1529	1403	0	0
Stage 1	0	-	1529	-	-	-
Stage 2	2011	-	0	-	-	-
Critical Hdwy	7.13	6.23	6.53	6.23	4.13	-
Critical Hdwy Stg 1	-	-	5.53	-	-	-
Critical Hdwy Stg 2	6.13	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	4.027	3.327	2.227	-
Pot Cap-1 Maneuver	~ 44	-	~ 117	170	-	-
Stage 1	-	-	~ 178	-	-	-
Stage 2	~ 76	-	-	-	-	-
Platoon blocked, %						-
Mov Cap-1 Maneuver	-	-	~ 117	170	-	-
Mov Cap-2 Maneuver	-	-	~ 117	-	-	-
Stage 1	-	-	~ 178	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s		$ 3293	
HCM LOS	-	F	

Minor Lane/Major Mvmt	NBLn1	WBLn1	SBL	SBT
Capacity (veh/h)	118	-	-	-
HCM Lane V/C Ratio	8.162	-	-	-
HCM Control Delay (s)	$ 3293	-	-	-
HCM Lane LOS	F	-	-	-
HCM 95th %tile Q(veh)	109	-	-	-

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)	30	100	160	210	180	114	180	520	180	65	300	50
Future Volume (veh/h)	30	100	160	210	180	114	180	520	180	65	300	50
Number	5	2	12	1	6	16	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		0.98	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	1845	1845	1845	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	33	109	29	228	196	40	196	565	168	71	326	43
Adj No. of Lanes	1	2	1	1	3	0	2	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	60	469	205	274	1079	211	675	863	256	96	529	69
Arrive On Green	0.03	0.13	0.13	0.16	0.26	0.26	0.20	0.32	0.32	0.05	0.17	0.17
Sat Flow, veh/h	1757	3505	1533	1757	4230	825	3408	2667	791	1757	3117	408
Grp Volume(v), veh/h	33	109	29	228	154	82	196	371	362	71	182	187
Grp Sat Flow(s),veh/h/ln	1757	1752	1533	1757	1679	1698	1704	1752	1705	1757	1752	1772
Q Serve(g_s), s	1.2	1.9	1.1	8.4	2.4	2.5	3.3	12.1	12.2	2.7	6.4	6.5
Cycle Q Clear(g_c), s	1.2	1.9	1.1	8.4	2.4	2.5	3.3	12.1	12.2	2.7	6.4	6.5
Prop In Lane	1.00		1.00	1.00		0.49	1.00		0.46	1.00		0.23
Lane Grp Cap(c), veh/h	60	469	205	274	857	433	675	567	552	96	298	301
V/C Ratio(X)	0.55	0.23	0.14	0.83	0.18	0.19	0.29	0.65	0.66	0.74	0.61	0.62
Avail Cap(c_a), veh/h	176	2255	986	415	2618	1324	675	1023	995	131	813	822
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.8	25.9	25.6	27.4	19.4	19.5	22.8	19.4	19.4	31.1	25.7	25.7
Incr Delay (d2), s/veh	2.9	0.1	0.1	5.2	0.0	0.1	0.3	1.8	1.9	7.6	2.9	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	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.9	0.5	4.5	1.1	1.2	1.6	6.2	6.0	1.5	3.3	3.4
LnGrp Delay(d),s/veh	34.6	26.0	25.7	32.6	19.5	19.6	23.1	21.2	21.3	38.7	28.6	28.7
LnGrp LOS	C	C	C	C	B	B	C	C	C	D	C	C
Approach Vol, veh/h		171			464			929			440	
Approach Delay, s/veh		27.6			25.9			21.6			30.3	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.6	14.8	8.9	27.5	7.5	23.0	19.1	17.2
Change Period (Y+Rc), s	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9	5.9	* 5.9
Max Green Setting (Gmax), s	* 16	43.0	* 5	39.0	* 6.7	52.1	13.0	* 31
Max Q Clear Time (g_c+I1), s	10.4	3.9	4.7	14.2	3.2	4.5	5.3	8.5
Green Ext Time (p_c), s	0.1	1.3	0.0	7.3	0.0	1.3	3.8	2.7

Intersection Summary	
HCM 2010 Ctrl Delay	25.0
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	396	650	351	205	70	860	680	291	30	460	180
Future Volume (veh/h)	130	396	650	351	205	70	860	680	291	30	460	180
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	1845	1845	1845	1845	1845	1900	1845	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	137	417	551	216	430	62	905	716	119	32	484	162
Adj No. of Lanes	1	1	2	1	2	0	2	2	1	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	484	508	1079	333	598	86	234	1088	486	49	697	232
Arrive On Green	0.28	0.28	0.28	0.19	0.19	0.19	0.07	0.31	0.31	0.03	0.27	0.27
Sat Flow, veh/h	1757	1845	3136	1757	3157	452	3408	3505	1565	1757	2585	860
Grp Volume(v), veh/h	137	417	551	216	250	242	905	716	119	32	327	319
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	1845	1765	1704	1752	1565	1757	1752	1693
Q Serve(g_s), s	6.9	24.0	15.9	12.9	14.4	14.6	7.8	20.1	6.4	2.0	19.0	19.2
Cycle Q Clear(g_c), s	6.9	24.0	15.9	12.9	14.4	14.6	7.8	20.1	6.4	2.0	19.0	19.2
Prop In Lane	1.00		1.00	1.00		0.26	1.00		1.00	1.00		0.51
Lane Grp Cap(c), veh/h	484	508	1079	333	350	334	234	1088	486	49	473	457
V/C Ratio(X)	0.28	0.82	0.51	0.65	0.72	0.72	3.86	0.66	0.24	0.65	0.69	0.70
Avail Cap(c_a), veh/h	697	732	1460	573	602	576	234	1088	486	93	509	491
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.3	38.5	29.6	42.5	43.1	43.2	52.8	33.9	29.2	54.6	37.2	37.3
Incr Delay (d2), s/veh	0.3	5.0	0.4	3.0	3.9	4.2	1297.2	2.7	0.9	5.3	6.9	7.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	12.9	6.9	6.5	7.7	7.5	45.9	10.1	2.9	1.1	10.1	9.9
LnGrp Delay(d),s/veh	32.6	43.5	30.0	45.5	47.0	47.3	1350.0	36.5	30.1	59.8	44.1	44.6
LnGrp LOS	C	D	C	D	D	D	F	D	C	E	D	D
Approach Vol, veh/h		1105			708			1740			678	
Approach Delay, s/veh		35.4			46.6			719.2			45.1	
Approach LOS		D			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	8.4	41.1		27.1	13.0	36.5		36.8
Change Period (Y+Rc), s	* 5.2	5.9		5.6	* 5.2	5.9		5.6
Max Green Setting (Gmax), s	* 6	34.7		37.0	* 7.8	32.9		45.0
Max Q Clear Time (g_c+I1), s	4.0	22.1		16.6	9.8	21.2		26.0
Green Ext Time (p_c), s	0.0	10.7		4.9	0.0	9.3		5.2

Intersection Summary	
HCM 2010 Ctrl Delay	320.0
HCM 2010 LOS	F

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	1040	0	650	140	1181	0	0	1147	314
Future Volume (veh/h)	0	0	0	1040	0	650	140	1181	0	0	1147	314
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		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				1845	1845	1845	1845	1845	0	0	1845	1900
Adj Flow Rate, veh/h				1289	0	416	147	1243	0	0	1207	290
Adj No. of Lanes				2	0	1	1	3	0	0	3	0
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				1516	0	676	104	2410	0	0	1512	363
Arrive On Green				0.43	0.00	0.43	0.06	0.48	0.00	0.00	0.37	0.37
Sat Flow, veh/h				3514	0	1568	1757	5202	0	0	4222	974
Grp Volume(v), veh/h				1289	0	416	147	1243	0	0	999	498
Grp Sat Flow(s),veh/h/ln				1757	0	1568	1757	1679	0	0	1679	1673
Q Serve(g_s), s				33.3	0.0	20.8	6.0	17.3	0.0	0.0	26.9	26.9
Cycle Q Clear(g_c), s				33.3	0.0	20.8	6.0	17.3	0.0	0.0	26.9	26.9
Prop In Lane				1.00		1.00	1.00		0.00	0.00		0.58
Lane Grp Cap(c), veh/h				1516	0	676	104	2410	0	0	1252	624
V/C Ratio(X)				0.85	0.00	0.61	1.41	0.52	0.00	0.00	0.80	0.80
Avail Cap(c_a), veh/h				2154	0	961	104	2435	0	0	1268	632
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	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				25.8	0.0	22.3	47.6	18.3	0.0	0.0	28.3	28.3
Incr Delay (d2), s/veh				2.4	0.0	0.9	232.0	0.4	0.0	0.0	3.7	7.1
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				16.6	0.0	9.2	9.6	8.0	0.0	0.0	13.0	13.5
LnGrp Delay(d),s/veh				28.2	0.0	23.2	279.6	18.6	0.0	0.0	32.0	35.4
LnGrp LOS				C		C	F	B			C	D
Approach Vol, veh/h					1705			1390			1497	
Approach Delay, s/veh					27.0			46.2			33.1	
Approach LOS					C			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		53.5			10.7	42.8		47.6
Change Period (Y+Rc), s		5.1			* 4.7	5.1		4.0
Max Green Setting (Gmax), s		48.9			* 6	38.2		62.0
Max Q Clear Time (g_c+I1), s		19.3			8.0	28.9		35.3
Green Ext Time (p_c), s		25.9			0.0	8.8		8.3

Intersection Summary	
HCM 2010 Ctrl Delay	34.8
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	484	140	450	837	1117	1070
Future Volume (veh/h)	484	140	450	837	1117	1070
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	509	129	474	881	1176	877
Adj No. of Lanes	2	1	2	3	3	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	571	505	528	3784	2815	876
Arrive On Green	0.17	0.17	0.15	0.75	0.56	0.56
Sat Flow, veh/h	3408	1568	3408	5202	5202	1568
Grp Volume(v), veh/h	509	129	474	881	1176	877
Grp Sat Flow(s),veh/h/ln	1704	1568	1704	1679	1679	1568
Q Serve(g_s), s	18.2	7.6	17.0	6.6	16.7	69.6
Cycle Q Clear(g_c), s	18.2	7.6	17.0	6.6	16.7	69.6
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	571	505	528	3784	2815	876
V/C Ratio(X)	0.89	0.26	0.90	0.23	0.42	1.00
Avail Cap(c_a), veh/h	665	549	583	3866	2815	876
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.7	31.2	51.7	4.7	15.8	27.5
Incr Delay (d2), s/veh	11.9	0.1	14.9	0.0	0.0	30.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.5	7.5	9.1	3.0	7.7	37.4
LnGrp Delay(d),s/veh	62.6	31.3	66.6	4.7	15.8	58.1
LnGrp LOS	E	C	E	A	B	F
Approach Vol, veh/h	638			1355	2053	
Approach Delay, s/veh	56.3			26.3	33.9	
Approach LOS	E			C	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		99.0		25.6	24.0	75.0		
Change Period (Y+Rc), s		5.4		* 4.7	* 4.7	5.4		
Max Green Setting (Gmax), s		95.6		* 24	* 21	69.6		
Max Q Clear Time (g_c+I1), s		8.6		20.2	19.0	71.6		
Green Ext Time (p_c), s		20.5		0.7	0.3	0.0		

Intersection Summary	
HCM 2010 Ctrl Delay	34.9
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	0	522	0	350	30	72	42	0	0	93	140
Future Volume (veh/h)	80	0	522	0	350	30	72	42	0	0	93	140
Number	1	6	16	5	2	12	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		0.96
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	0	1845	1900	1845	1845	0	0	1845	1900
Adj Flow Rate, veh/h	87	0	358	0	380	30	78	46	0	0	101	24
Adj No. of Lanes	2	1	2	0	1	0	2	1	0	0	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, %	3	3	3	0	3	3	3	3	0	0	3	3
Cap, veh/h	258	900	1567	0	512	40	319	167	0	0	265	61
Arrive On Green	0.08	0.00	0.49	0.00	0.30	0.30	0.09	0.09	0.00	0.00	0.09	0.09
Sat Flow, veh/h	3408	1845	2697	0	1688	133	3514	1845	0	0	2903	644
Grp Volume(v), veh/h	87	0	358	0	0	410	78	46	0	0	62	63
Grp Sat Flow(s),veh/h/ln	1704	1845	1349	0	0	1821	1757	1845	0	0	1752	1702
Q Serve(g_s), s	1.0	0.0	2.7	0.0	0.0	8.5	0.9	1.0	0.0	0.0	1.4	1.5
Cycle Q Clear(g_c), s	1.0	0.0	2.7	0.0	0.0	8.5	0.9	1.0	0.0	0.0	1.4	1.5
Prop In Lane	1.00		1.00	0.00		0.07	1.00		0.00	0.00		0.38
Lane Grp Cap(c), veh/h	258	900	1567	0	0	552	319	167	0	0	165	160
V/C Ratio(X)	0.34	0.00	0.23	0.00	0.00	0.74	0.24	0.27	0.00	0.00	0.37	0.40
Avail Cap(c_a), veh/h	2020	2755	4279	0	0	1442	1516	796	0	0	1038	1009
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	18.5	0.0	4.3	0.0	0.0	13.2	17.8	17.9	0.0	0.0	17.9	18.0
Incr Delay (d2), s/veh	0.8	0.0	0.1	0.0	0.0	2.0	0.4	0.9	0.0	0.0	1.4	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	1.2	0.0	0.0	4.5	0.4	0.5	0.0	0.0	0.7	0.8
LnGrp Delay(d),s/veh	19.3	0.0	4.4	0.0	0.0	15.2	18.2	18.8	0.0	0.0	19.3	19.6
LnGrp LOS	B		A			B	B	B			B	B
Approach Vol, veh/h		445			410			124			125	
Approach Delay, s/veh		7.3			15.2			18.4			19.5	
Approach LOS		A			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	7.8	17.4		8.6		25.2		8.4
Change Period (Y+Rc), s	4.6	4.6		4.6		4.6		4.6
Max Green Setting (Gmax), s	25.0	33.4		25.0		63.0		18.2
Max Q Clear Time (g_c+I1), s	3.0	10.5		3.5		4.7		3.0
Green Ext Time (p_c), s	1.7	2.4		0.6		1.8		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	12.9
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	861	13	79	435	20	11	24	74	540	23	52
Future Volume (veh/h)	70	861	13	79	435	20	11	24	74	540	23	52
Number	3	8	18	7	4	14	1	6	16	5	2	12
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	1845	1845	1900	1845	1845	1900	1900	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	76	936	13	86	473	19	12	26	3	587	25	22
Adj No. of Lanes	2	2	0	1	2	0	0	1	1	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	179	1132	16	110	1133	45	17	38	48	644	332	293
Arrive On Green	0.05	0.32	0.32	0.06	0.33	0.33	0.03	0.03	0.03	0.37	0.37	0.37
Sat Flow, veh/h	3408	3539	49	1757	3435	138	573	1243	1568	1757	906	798
Grp Volume(v), veh/h	76	463	486	86	241	251	38	0	3	587	0	47
Grp Sat Flow(s),veh/h/ln	1704	1752	1836	1757	1752	1820	1816	0	1568	1757	0	1704
Q Serve(g_s), s	1.6	18.6	18.6	3.7	8.1	8.2	1.6	0.0	0.1	24.2	0.0	1.4
Cycle Q Clear(g_c), s	1.6	18.6	18.6	3.7	8.1	8.2	1.6	0.0	0.1	24.2	0.0	1.4
Prop In Lane	1.00		0.03	1.00		0.08	0.32		1.00	1.00		0.47
Lane Grp Cap(c), veh/h	179	561	587	110	578	601	55	0	48	644	0	625
V/C Ratio(X)	0.43	0.83	0.83	0.78	0.42	0.42	0.69	0.00	0.06	0.91	0.00	0.08
Avail Cap(c_a), veh/h	241	607	636	157	639	664	95	0	82	829	0	804
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	35.0	24.0	24.0	35.2	19.8	19.9	36.6	0.0	35.9	23.0	0.0	15.7
Incr Delay (d2), s/veh	1.6	8.7	8.3	9.2	0.5	0.5	14.1	0.0	0.5	11.9	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	0.8	10.4	10.8	2.1	4.0	4.2	1.0	0.0	0.1	13.9	0.0	0.6
LnGrp Delay(d),s/veh	36.6	32.7	32.3	44.4	20.3	20.3	50.7	0.0	36.5	34.9	0.0	15.8
LnGrp LOS	D	C	C	D	C	C	D		D	C		B
Approach Vol, veh/h		1025			578			41			634	
Approach Delay, s/veh		32.8			23.9			49.6			33.5	
Approach LOS		C			C			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		32.0	8.2	29.8		6.3	9.0	29.0
Change Period (Y+Rc), s		4.0	* 4.2	4.6		4.0	* 4.2	4.6
Max Green Setting (Gmax), s		36.0	* 5.4	27.8		4.0	* 6.8	26.4
Max Q Clear Time (g_c+I1), s		26.2	3.6	10.2		3.6	5.7	20.6
Green Ext Time (p_c), s		1.7	0.0	8.2		0.0	0.0	3.7

Intersection Summary	
HCM 2010 Ctrl Delay	31.0
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	899	11	57	421	20	7	0	15	30	0	30
Future Vol, veh/h	20	899	11	57	421	20	7	0	15	30	0	30
Conflicting Peds, #/hr	2	0	0	0	0	2	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	-	-	130	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	22	977	12	62	458	22	8	0	16	33	0	33

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	481	0	0	989	0	0	1380	1632	495	1126	1627	242
Stage 1	-	-	-	-	-	-	1027	1027	-	594	594	-
Stage 2	-	-	-	-	-	-	353	605	-	532	1033	-
Critical Hdwy	4.16	-	-	4.16	-	-	7.56	6.56	6.96	7.56	6.56	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Follow-up Hdwy	2.23	-	-	2.23	-	-	3.53	4.03	3.33	3.53	4.03	3.33
Pot Cap-1 Maneuver	1071	-	-	689	-	-	103	99	517	158	100	756
Stage 1	-	-	-	-	-	-	249	308	-	456	489	-
Stage 2	-	-	-	-	-	-	634	483	-	496	306	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1071	-	-	689	-	-	90	88	517	140	89	755
Mov Cap-2 Maneuver	-	-	-	-	-	-	90	88	-	140	89	-
Stage 1	-	-	-	-	-	-	244	302	-	446	444	-
Stage 2	-	-	-	-	-	-	552	439	-	470	300	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	1.2	24.8	26
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	206	1071	-	-	689	-	-	236
HCM Lane V/C Ratio	0.116	0.02	-	-	0.09	-	-	0.276
HCM Control Delay (s)	24.8	8.4	-	-	10.7	-	-	26
HCM Lane LOS	C	A	-	-	B	-	-	D
HCM 95th %tile Q(veh)	0.4	0.1	-	-	0.3	-	-	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	70	170	183	80	70	80	755	172	40	576	80
Future Volume (veh/h)	80	70	170	183	80	70	80	755	172	40	576	80
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		0.99
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	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	87	76	113	199	87	25	87	821	162	43	626	74
Adj No. of Lanes	1	1	0	1	2	0	1	3	0	1	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	113	107	159	250	644	178	113	1707	335	71	1738	203
Arrive On Green	0.06	0.16	0.16	0.14	0.24	0.24	0.06	0.40	0.40	0.04	0.38	0.38
Sat Flow, veh/h	1757	671	998	1757	2713	751	1757	4224	828	1757	4566	534
Grp Volume(v), veh/h	87	0	189	199	55	57	87	651	332	43	458	242
Grp Sat Flow(s),veh/h/ln	1757	0	1669	1757	1752	1712	1757	1679	1695	1757	1679	1742
Q Serve(g_s), s	3.4	0.0	7.4	7.6	1.7	1.8	3.4	9.9	10.0	1.7	6.8	6.9
Cycle Q Clear(g_c), s	3.4	0.0	7.4	7.6	1.7	1.8	3.4	9.9	10.0	1.7	6.8	6.9
Prop In Lane	1.00		0.60	1.00		0.44	1.00		0.49	1.00		0.31
Lane Grp Cap(c), veh/h	113	0	266	250	416	407	113	1357	685	71	1278	663
V/C Ratio(X)	0.77	0.00	0.71	0.80	0.13	0.14	0.77	0.48	0.48	0.60	0.36	0.36
Avail Cap(c_a), veh/h	351	0	1099	661	1464	1430	351	2037	1028	231	1808	939
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.8	0.0	27.5	28.6	20.7	20.8	31.8	15.2	15.2	32.6	15.3	15.4
Incr Delay (d2), s/veh	10.5	0.0	3.5	5.7	0.1	0.2	10.5	0.3	0.6	3.0	0.2	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	3.7	4.0	0.8	0.9	2.0	4.6	4.7	0.9	3.2	3.4
LnGrp Delay(d),s/veh	42.3	0.0	31.0	34.4	20.9	20.9	42.3	15.5	15.9	35.6	15.5	15.8
LnGrp LOS	D		C	C	C	C	D	B	B	D	B	B
Approach Vol, veh/h		276			311			1070			743	
Approach Delay, s/veh		34.6			29.5			17.8			16.8	
Approach LOS		C			C			B			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	7.0	32.5	14.0	15.5	8.6	30.9	8.6	20.9
Change Period (Y+Rc), s	* 4.2	4.6	* 4.2	4.5	* 4.2	4.6	* 4.2	4.5
Max Green Setting (Gmax), s	* 9.1	41.9	* 26	45.5	* 14	37.2	* 14	57.7
Max Q Clear Time (g_c+I1), s	3.7	12.0	9.6	9.4	5.4	8.9	5.4	3.8
Green Ext Time (p_c), s	0.0	15.6	0.5	1.9	0.1	15.2	0.1	2.0

Intersection Summary	
HCM 2010 Ctrl Delay	20.9
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	157	686	626	560	218	30	477	820	550	40	670	219
Future Volume (veh/h)	157	686	626	560	218	30	477	820	550	40	670	219
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		0.98
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	1900	1845	1845	1900	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	165	722	541	589	229	19	502	863	484	42	705	55
Adj No. of Lanes	2	3	0	2	3	0	2	2	1	2	2	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	215	939	432	631	1907	155	481	1174	524	138	820	361
Arrive On Green	0.06	0.28	0.28	0.19	0.40	0.40	0.14	0.33	0.33	0.04	0.23	0.23
Sat Flow, veh/h	3408	3357	1545	3408	4746	387	3408	3505	1565	3408	3505	1542
Grp Volume(v), veh/h	165	722	541	589	161	87	502	863	484	42	705	55
Grp Sat Flow(s),veh/h/ln	1704	1679	1545	1704	1679	1775	1704	1752	1565	1704	1752	1542
Q Serve(g_s), s	6.6	27.4	38.8	23.6	4.2	4.3	19.6	30.2	41.3	1.7	26.8	3.9
Cycle Q Clear(g_c), s	6.6	27.4	38.8	23.6	4.2	4.3	19.6	30.2	41.3	1.7	26.8	3.9
Prop In Lane	1.00		1.00	1.00		0.22	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	215	939	432	631	1349	713	481	1174	524	138	820	361
V/C Ratio(X)	0.77	0.77	1.25	0.93	0.12	0.12	1.04	0.74	0.92	0.30	0.86	0.15
Avail Cap(c_a), veh/h	273	939	432	634	1349	713	481	1174	524	172	849	373
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	64.0	45.9	50.0	55.7	26.1	26.1	59.6	40.7	44.4	64.7	51.0	42.2
Incr Delay (d2), s/veh	10.5	4.0	131.5	21.1	0.0	0.1	52.6	2.5	22.3	1.5	8.8	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	3.4	13.3	32.2	13.0	2.0	2.1	12.7	15.0	21.0	0.8	13.9	1.7
LnGrp Delay(d),s/veh	74.6	49.9	181.5	76.8	26.1	26.2	112.2	43.3	66.7	66.2	59.8	42.4
LnGrp LOS	E	D	F	E	C	C	F	D	E	E	E	D
Approach Vol, veh/h		1428			837			1849			802	
Approach Delay, s/veh		102.6			61.8			68.1			58.9	
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	13.9	61.6	10.8	52.4	30.9	44.7	24.8	38.4
Change Period (Y+Rc), s	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9
Max Green Setting (Gmax), s	* 11	53.5	* 7	46.2	* 26	38.8	* 20	33.6
Max Q Clear Time (g_c+I1), s	8.6	6.3	3.7	43.3	25.6	40.8	21.6	28.8
Green Ext Time (p_c), s	0.1	17.6	0.0	2.6	0.1	0.0	0.0	3.7

Intersection Summary	
HCM 2010 Ctrl Delay	75.6
HCM 2010 LOS	E

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	359.5
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	775	0	320	0	0	0	150	1072	0	0	909	947
Future Vol, veh/h	775	0	320	0	0	0	150	1072	0	0	909	947
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
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	816	0	337	0	0	0	158	1128	0	0	957	997
Number of Lanes	1	1	1	0	0	0	1	2	0	0	2	1

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	3	3
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	3	3	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	3	0	3
HCM Control Delay	61.1	328.9	555.8
HCM LOS	F	F	F

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	100%	100%	0%	0%	0%	0%
Vol Thru, %	0%	100%	100%	0%	0%	0%	100%	100%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	150	536	536	388	388	320	455	455	947
LT Vol	150	0	0	388	388	0	0	0	0
Through Vol	0	536	536	0	0	0	455	455	0
RT Vol	0	0	0	0	0	320	0	0	947
Lane Flow Rate	158	564	564	408	408	337	478	478	997
Geometry Grp	8	8	8	7	7	7	8	8	8
Degree of Util (X)	0.56	1.921	1.647	1.081	1.081	0.781	1.604	1.604	2.665
Departure Headway (Hd)	6.73	6.206	4.373	5.033	5.033	3.804	13.874	13.874	11.35
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	537	587	829	722	722	950	268	268	329
Service Time	4.43	3.906	2.073	2.733	2.733	1.504	11.574	11.574	9.05
HCM Lane V/C Ratio	0.294	0.961	0.68	0.565	0.565	0.355	1.784	1.784	3.03
HCM Control Delay	17.7	435.9	309	78.7	78.7	18.6	321.2	321.2	781
HCM Lane LOS	C	F	F	F	F	C	F	F	F
HCM 95th-tile Q	3.4	72.5	73.5	21	21	8.1	25.7	25.7	70.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	728	20	460	0	0	0	0	494	570	687	542	0
Future Volume (veh/h)	728	20	460	0	0	0	0	494	570	687	542	0
Number	3	8	18				1	6	16	5	2	12
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	1900	1845	1845				0	1845	1845	1845	1845	0
Adj Flow Rate, veh/h	766	21	335				0	520	219	723	571	0
Adj No. of Lanes	0	1	1				0	1	1	2	1	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	711	19	651				0	513	435	690	944	0
Arrive On Green	0.41	0.41	0.41				0.00	0.28	0.28	0.20	0.51	0.00
Sat Flow, veh/h	1712	47	1568				0	1845	1565	3408	1845	0
Grp Volume(v), veh/h	787	0	335				0	520	219	723	571	0
Grp Sat Flow(s),veh/h/ln	1759	0	1568				0	1845	1565	1704	1845	0
Q Serve(g_s), s	49.8	0.0	19.1				0.0	33.4	14.1	24.3	26.3	0.0
Cycle Q Clear(g_c), s	49.8	0.0	19.1				0.0	33.4	14.1	24.3	26.3	0.0
Prop In Lane	0.97		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	730	0	651				0	513	435	690	944	0
V/C Ratio(X)	1.08	0.00	0.51				0.00	1.01	0.50	1.05	0.60	0.00
Avail Cap(c_a), veh/h	730	0	651				0	513	435	690	944	0
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	1.00	1.00	0.00
Uniform Delay (d), s/veh	35.1	0.0	26.1				0.0	43.3	36.3	47.8	20.7	0.0
Incr Delay (d2), s/veh	56.4	0.0	0.3				0.0	43.0	0.4	47.4	0.8	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	35.6	0.0	8.3				0.0	23.1	6.1	15.9	13.5	0.0
LnGrp Delay(d),s/veh	91.5	0.0	26.4				0.0	86.3	36.7	95.2	21.5	0.0
LnGrp LOS	F		C					F	D	F	C	
Approach Vol, veh/h		1122						739			1294	
Approach Delay, s/veh		72.0						71.6			62.7	
Approach LOS		E						E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		66.0			28.0	38.0		54.0
Change Period (Y+Rc), s		4.6			3.7	4.6		4.2
Max Green Setting (Gmax), s		61.4			24.3	33.4		49.8
Max Q Clear Time (g_c+I1), s		28.3			26.3	35.4		51.8
Green Ext Time (p_c), s		5.4			0.0	0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	68.1
HCM 2010 LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	557	50	30	50	40	150	20	257	50	180	446	276
Future Volume (veh/h)	557	50	30	50	40	150	20	257	50	180	446	276
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	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	586	53	12	53	42	34	21	271	38	189	469	206
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	643	533	121	120	65	52	42	512	71	233	651	284
Arrive On Green	0.37	0.37	0.37	0.07	0.07	0.07	0.02	0.17	0.17	0.13	0.27	0.27
Sat Flow, veh/h	1757	1456	330	1757	945	765	1757	3091	429	1757	2376	1036
Grp Volume(v), veh/h	586	0	65	53	0	76	21	152	157	189	345	330
Grp Sat Flow(s),veh/h/ln	1757	0	1786	1757	0	1710	1757	1752	1767	1757	1752	1660
Q Serve(g_s), s	21.3	0.0	1.6	1.9	0.0	2.9	0.8	5.3	5.5	7.0	12.0	12.1
Cycle Q Clear(g_c), s	21.3	0.0	1.6	1.9	0.0	2.9	0.8	5.3	5.5	7.0	12.0	12.1
Prop In Lane	1.00		0.18	1.00		0.45	1.00		0.24	1.00		0.62
Lane Grp Cap(c), veh/h	643	0	653	120	0	117	42	290	293	233	480	455
V/C Ratio(X)	0.91	0.00	0.10	0.44	0.00	0.65	0.50	0.52	0.54	0.81	0.72	0.73
Avail Cap(c_a), veh/h	1135	0	1153	277	0	270	131	579	584	413	861	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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.3	0.0	14.0	30.1	0.0	30.5	32.4	25.6	25.7	28.3	22.1	22.1
Incr Delay (d2), s/veh	3.0	0.0	0.0	0.9	0.0	2.3	3.3	0.5	0.6	2.6	0.8	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	10.8	0.0	0.8	1.0	0.0	1.4	0.4	2.6	2.7	3.6	5.9	5.6
LnGrp Delay(d),s/veh	23.3	0.0	14.0	31.0	0.0	32.8	35.7	26.2	26.2	30.9	22.8	22.9
LnGrp LOS	C		B	C		C	D	C	C	C	C	C
Approach Vol, veh/h		651			129			330			864	
Approach Delay, s/veh		22.3			32.1			26.8			24.6	
Approach LOS		C			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	13.1	15.7		29.2	5.8	23.0		9.2
Change Period (Y+Rc), s	* 4.2	4.6		4.6	* 4.2	4.6		4.6
Max Green Setting (Gmax), s	* 16	22.2		43.4	* 5	33.0		10.6
Max Q Clear Time (g_c+I1), s	12.0	7.5		23.3	2.8	14.1		4.9
Green Ext Time (p_c), s	0.1	3.5		1.1	0.0	3.8		0.1

Intersection Summary		
HCM 2010 Ctrl Delay	24.7	
HCM 2010 LOS	C	

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	189.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	467	480	300	20	60	456
Future Vol, veh/h	467	480	300	20	60	456
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	492	505	316	21	63	480

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	337	0	-	0	1814	326
Stage 1	-	-	-	-	326	-
Stage 2	-	-	-	-	1488	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1217	-	-	-	86	713
Stage 1	-	-	-	-	729	-
Stage 2	-	-	-	-	206	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1217	-	-	-	~ 38	713
Mov Cap-2 Maneuver	-	-	-	-	~ 38	-
Stage 1	-	-	-	-	729	-
Stage 2	-	-	-	-	90	-

Approach	EB	WB	SB
HCM Control Delay, s	4.9	0	$ 645.4
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1217	-	-	-	233
HCM Lane V/C Ratio	0.404	-	-	-	2.331
HCM Control Delay (s)	9.9	0	-	-	$ 645.4
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	2	-	-	-	43.5

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

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	296	520	777	527	400	787
Future Vol, veh/h	296	520	777	527	400	787
Conflicting Peds, #/hr	2	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	315	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	312	547	818	555	421	828

Major/Minor	Minor1		Major1		Minor2	
Conflicting Flow All	1234	818	0	0	1092	818
Stage 1	818	-	-	-	0	0
Stage 2	416	-	-	-	1092	818
Critical Hdwy	7.13	6.23	-	-	7.13	6.53
Critical Hdwy Stg 1	6.13	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	6.13	5.53
Follow-up Hdwy	3.527	3.327	-	-	3.527	4.027
Pot Cap-1 Maneuver	~ 153	~ 374	-	-	~ 191	~ 309
Stage 1	369	-	-	-	-	-
Stage 2	-	-	-	-	~ 259	~ 388
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	-	~ 374	-	-	-	~ 309
Mov Cap-2 Maneuver	-	-	-	-	-	~ 309
Stage 1	369	-	-	-	-	-
Stage 2	-	-	-	-	-	~ 388

Approach	WB	NB	SB
HCM Control Delay, s		0	
HCM LOS	-		-

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBLn1	SBLn2
Capacity (veh/h)	-	-	-	-	309
HCM Lane V/C Ratio	-	-	-	-	2.681
HCM Control Delay (s)	-	-	-	-	$ 791.2
HCM Lane LOS	-	-	-	-	F
HCM 95th %tile Q(veh)	-	-	-	-	69.4

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

Intersection	
Int Delay, s/veh	716.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	370	934	20	40	983
Future Vol, veh/h	20	370	934	20	40	983
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	21	389	983	21	42	1035

Major/Minor	Minor1		Minor2		Major2	
Conflicting Flow All	1621	0	1119	1035	0	0
Stage 1	0	-	1119	-	-	-
Stage 2	1621	-	0	-	-	-
Critical Hdwy	7.13	6.23	6.53	6.23	4.13	-
Critical Hdwy Stg 1	-	-	5.53	-	-	-
Critical Hdwy Stg 2	6.13	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	4.027	3.327	2.227	-
Pot Cap-1 Maneuver	82	-	~ 206	280	-	-
Stage 1	-	-	~ 281	-	-	-
Stage 2	129	-	-	-	-	-
Platoon blocked, %						-
Mov Cap-1 Maneuver	-	-	~ 206	280	-	-
Mov Cap-2 Maneuver	-	-	~ 206	-	-	-
Stage 1	-	-	~ 281	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s		$ 1777.1	
HCM LOS	-	F	

Minor Lane/Major Mvmt	NBLn1	WBLn1	SBL	SBT
Capacity (veh/h)	207	-	-	-
HCM Lane V/C Ratio	4.851	-	-	-
HCM Control Delay (s)	$ 1777.1	-	-	-
HCM Lane LOS	F	-	-	-
HCM 95th %tile Q(veh)	103.3	-	-	-

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 (veh/h)	84	127	611	440	393	30	596	910	550	20	320	182
Future Volume (veh/h)	84	127	611	440	393	30	596	910	550	20	320	182
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		0.99	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	1845	1845	1845	1845	1845	1900	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	88	134	581	463	414	25	627	958	503	21	337	37
Adj No. of Lanes	2	2	1	2	3	0	2	2	1	2	2	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	142	751	671	559	1636	98	737	1383	619	102	730	327
Arrive On Green	0.04	0.21	0.21	0.16	0.34	0.34	0.22	0.39	0.39	0.03	0.21	0.21
Sat Flow, veh/h	3408	3505	1548	3408	4859	291	3408	3505	1568	3408	3505	1568
Grp Volume(v), veh/h	88	134	581	463	285	154	627	958	503	21	337	37
Grp Sat Flow(s),veh/h/ln	1704	1752	1548	1704	1679	1793	1704	1752	1568	1704	1752	1568
Q Serve(g_s), s	2.9	3.5	24.1	14.8	6.9	7.0	19.9	25.6	32.2	0.7	9.5	2.2
Cycle Q Clear(g_c), s	2.9	3.5	24.1	14.8	6.9	7.0	19.9	25.6	32.2	0.7	9.5	2.2
Prop In Lane	1.00		1.00	1.00		0.16	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	142	751	671	559	1130	603	737	1383	619	102	730	327
V/C Ratio(X)	0.62	0.18	0.87	0.83	0.25	0.26	0.85	0.69	0.81	0.21	0.46	0.11
Avail Cap(c_a), veh/h	206	751	671	872	1376	735	1054	1529	684	479	938	419
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.0	36.1	29.2	45.5	27.1	27.1	42.3	28.4	30.4	53.3	39.0	36.1
Incr Delay (d2), s/veh	5.3	0.1	11.7	4.5	0.1	0.3	5.2	1.3	7.1	1.2	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	1.4	1.7	18.5	7.3	3.2	3.5	9.8	12.6	15.1	0.3	4.6	1.0
LnGrp Delay(d),s/veh	58.3	36.3	40.9	50.0	27.2	27.4	47.5	29.7	37.5	54.5	39.6	36.3
LnGrp LOS	E	D	D	D	C	C	D	C	D	D	D	D
Approach Vol, veh/h		803			902			2088			395	
Approach Delay, s/veh		42.0			38.9			36.9			40.1	
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	9.9	43.8	8.6	50.3	23.7	30.0	29.5	29.3
Change Period (Y+Rc), s	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9
Max Green Setting (Gmax), s	* 6.8	46.1	* 16	49.1	* 29	24.1	* 35	30.1
Max Q Clear Time (g_c+I1), s	4.9	9.0	2.7	34.2	16.8	26.1	21.9	11.5
Green Ext Time (p_c), s	0.0	8.4	0.0	10.2	1.7	0.0	2.4	12.0

Intersection Summary	
HCM 2010 Ctrl Delay	38.6
HCM 2010 LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1095	0	290	0	0	0	370	961	0	20	689	662
Future Volume (veh/h)	1095	0	290	0	0	0	370	961	0	20	689	662
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	1845	1845	1845				1845	1845	0	1845	1845	1845
Adj Flow Rate, veh/h	1153	0	0				389	1012	0	21	725	444
Adj No. of Lanes	2	0	1				1	2	0	1	2	1
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3				3	3	0	3	3	3
Cap, veh/h	1239	0	553				413	1893	0	29	1127	504
Arrive On Green	0.35	0.00	0.00				0.24	0.54	0.00	0.02	0.32	0.32
Sat Flow, veh/h	3514	0	1568				1757	3597	0	1757	3505	1568
Grp Volume(v), veh/h	1153	0	0				389	1012	0	21	725	444
Grp Sat Flow(s),veh/h/ln	1757	0	1568				1757	1752	0	1757	1752	1568
Q Serve(g_s), s	41.8	0.0	0.0				28.8	24.7	0.0	1.6	23.4	35.4
Cycle Q Clear(g_c), s	41.8	0.0	0.0				28.8	24.7	0.0	1.6	23.4	35.4
Prop In Lane	1.00		1.00				1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	1239	0	553				413	1893	0	29	1127	504
V/C Ratio(X)	0.93	0.00	0.00				0.94	0.53	0.00	0.73	0.64	0.88
Avail Cap(c_a), veh/h	1355	0	605				439	1893	0	80	1166	522
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				1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.2	0.0	0.0				49.7	19.6	0.0	64.7	38.4	42.5
Incr Delay (d2), s/veh	11.0	0.0	0.0				28.1	0.3	0.0	30.1	1.2	15.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	22.1	0.0	0.0				17.2	12.0	0.0	1.0	11.5	17.5
LnGrp Delay(d),s/veh	52.2	0.0	0.0				77.8	19.9	0.0	94.9	39.5	58.1
LnGrp LOS	D						E	B		F	D	E
Approach Vol, veh/h		1153						1401			1190	
Approach Delay, s/veh		52.2						36.0			47.4	
Approach LOS		D						D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		
Phs Duration (G+Y+Rc), s	6.2	75.4		50.6	35.1	46.5		
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		
Max Green Setting (Gmax), s	6.0	71.0		51.0	33.0	44.0		
Max Q Clear Time (g_c+I1), s	2.6	26.7		43.8	30.8	37.4		
Green Ext Time (p_c), s	0.0	21.4		2.8	0.3	5.1		

Intersection Summary	
HCM 2010 Ctrl Delay	44.6
HCM 2010 LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	885	20	250	0	0	0	0	446	370	406	573	0
Future Volume (veh/h)	885	20	250	0	0	0	0	446	370	406	573	0
Number	3	8	18				1	6	16	5	2	12
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	1845	1845	1900				0	1845	1845	1845	1845	0
Adj Flow Rate, veh/h	590	500	227				0	469	113	427	603	0
Adj No. of Lanes	1	1	0				0	1	1	2	1	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	714	489	222				0	534	453	492	887	0
Arrive On Green	0.41	0.41	0.41				0.00	0.29	0.29	0.14	0.48	0.00
Sat Flow, veh/h	1757	1202	546				0	1845	1566	3408	1845	0
Grp Volume(v), veh/h	590	0	727				0	469	113	427	603	0
Grp Sat Flow(s),veh/h/ln	1757	0	1748				0	1845	1566	1704	1845	0
Q Serve(g_s), s	23.5	0.0	31.8				0.0	19.0	4.3	9.6	19.7	0.0
Cycle Q Clear(g_c), s	23.5	0.0	31.8				0.0	19.0	4.3	9.6	19.7	0.0
Prop In Lane	1.00		0.31				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	714	0	711				0	534	453	492	887	0
V/C Ratio(X)	0.83	0.00	1.02				0.00	0.88	0.25	0.87	0.68	0.00
Avail Cap(c_a), veh/h	714	0	711				0	575	488	492	929	0
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	1.00	1.00	0.00
Uniform Delay (d), s/veh	20.8	0.0	23.2				0.0	26.5	21.3	32.7	15.6	0.0
Incr Delay (d2), s/veh	7.4	0.0	39.7				0.0	13.0	0.1	14.6	1.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.8	0.0	23.0				0.0	11.6	1.9	5.5	10.3	0.0
LnGrp Delay(d),s/veh	28.2	0.0	63.0				0.0	39.5	21.4	47.3	17.2	0.0
LnGrp LOS	C		F					D	C	D	B	
Approach Vol, veh/h		1317						582			1030	
Approach Delay, s/veh		47.4						36.0			29.6	
Approach LOS		D						D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		42.2			15.0	27.2		36.0
Change Period (Y+Rc), s		4.6			3.7	4.6		4.2
Max Green Setting (Gmax), s		39.4			11.3	24.4		31.8
Max Q Clear Time (g_c+I1), s		21.7			11.6	21.0		33.8
Green Ext Time (p_c), s		4.5			0.0	1.7		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	38.9
HCM 2010 LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	30	20	277	40	320	20	582	333	120	1096	20
Future Volume (veh/h)	40	30	20	277	40	320	20	582	333	120	1096	20
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		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	1900	1845	1900	1900	1845	1900	1900	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	42	32	21	292	42	337	21	613	351	126	1154	21
Adj No. of Lanes	0	1	0	0	1	0	0	1	1	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	21	16	11	180	26	208	18	524	462	595	612	11
Arrive On Green	0.03	0.03	0.03	0.25	0.25	0.25	0.29	0.29	0.29	0.34	0.34	0.34
Sat Flow, veh/h	769	586	384	721	104	832	61	1781	1568	1757	1806	33
Grp Volume(v), veh/h	95	0	0	671	0	0	634	0	351	126	0	1175
Grp Sat Flow(s),veh/h/ln	1738	0	0	1656	0	0	1842	0	1568	1757	0	1839
Q Serve(g_s), s	5.0	0.0	0.0	45.0	0.0	0.0	53.0	0.0	36.6	9.2	0.0	61.0
Cycle Q Clear(g_c), s	5.0	0.0	0.0	45.0	0.0	0.0	53.0	0.0	36.6	9.2	0.0	61.0
Prop In Lane	0.44		0.22	0.44		0.50	0.03		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	48	0	0	414	0	0	542	0	462	595	0	623
V/C Ratio(X)	1.97	0.00	0.00	1.62	0.00	0.00	1.17	0.00	0.76	0.21	0.00	1.89
Avail Cap(c_a), veh/h	48	0	0	414	0	0	542	0	462	595	0	623
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	87.5	0.0	0.0	67.5	0.0	0.0	63.5	0.0	57.7	42.4	0.0	59.5
Incr Delay (d2), s/veh	501.1	0.0	0.0	290.3	0.0	0.0	94.6	0.0	7.2	0.2	0.0	404.5
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	9.1	0.0	0.0	54.0	0.0	0.0	41.2	0.0	16.8	4.5	0.0	101.0
LnGrp Delay(d),s/veh	588.6	0.0	0.0	357.8	0.0	0.0	158.1	0.0	65.0	42.6	0.0	464.0
LnGrp LOS	F			F			F		E	D		F
Approach Vol, veh/h		95			671			985			1301	
Approach Delay, s/veh		588.6			357.8			124.9			423.2	
Approach LOS		F			F			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		57.0		9.0		65.0		49.0
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		53.0		5.0		61.0		45.0
Max Q Clear Time (g_c+I1), s		55.0		7.0		63.0		47.0
Green Ext Time (p_c), s		0.0		0.0		0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	317.7
HCM 2010 LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	90	40	895	20	60	1333
Future Volume (veh/h)	90	40	895	20	60	1333
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	1845	1900	1845	1900	1845	1845
Adj Flow Rate, veh/h	95	42	942	21	63	1403
Adj No. of Lanes	0	0	2	0	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	3	3	3	3
Cap, veh/h	71	32	740	16	1161	1220
Arrive On Green	0.06	0.06	0.21	0.21	0.66	0.66
Sat Flow, veh/h	1167	516	3597	78	1757	1845
Grp Volume(v), veh/h	138	0	471	492	63	1403
Grp Sat Flow(s),veh/h/ln	1695	0	1752	1831	1757	1845
Q Serve(g_s), s	11.0	0.0	38.0	38.0	2.3	119.0
Cycle Q Clear(g_c), s	11.0	0.0	38.0	38.0	2.3	119.0
Prop In Lane	0.69	0.30		0.04	1.00	
Lane Grp Cap(c), veh/h	104	0	370	387	1161	1220
V/C Ratio(X)	1.33	0.00	1.27	1.27	0.05	1.15
Avail Cap(c_a), veh/h	104	0	370	387	1161	1220
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	84.5	0.0	71.0	71.0	10.7	30.5
Incr Delay (d2), s/veh	201.2	0.0	142.4	141.7	0.0	77.6
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	0.0	33.0	34.4	1.1	86.6
LnGrp Delay(d),s/veh	285.7	0.0	213.4	212.7	10.7	108.1
LnGrp LOS	F		F	F	B	F
Approach Vol, veh/h	138		963			1466
Approach Delay, s/veh	285.7		213.0			103.9
Approach LOS	F		F			F

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		42.0				123.0		15.0
Change Period (Y+Rc), s		4.0				4.0		4.0
Max Green Setting (Gmax), s		38.0				119.0		11.0
Max Q Clear Time (g_c+I1), s		40.0				121.0		13.0
Green Ext Time (p_c), s		0.0				0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	154.6
HCM 2010 LOS	F

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Mitigated

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	157	686	626	560	218	30	477	820	550	40	670	219
Future Volume (veh/h)	157	686	626	560	218	30	477	820	550	40	670	219
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		0.98
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	1845	1845	1900	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	165	722	605	589	229	20	502	863	496	42	705	68
Adj No. of Lanes	2	2	1	2	3	0	2	2	1	2	2	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	217	892	659	647	1798	154	577	1091	487	277	783	344
Arrive On Green	0.06	0.25	0.25	0.19	0.38	0.38	0.17	0.31	0.31	0.08	0.22	0.22
Sat Flow, veh/h	3408	3505	1544	3408	4725	405	3408	3505	1565	3408	3505	1541
Grp Volume(v), veh/h	165	722	605	589	161	88	502	863	496	42	705	68
Grp Sat Flow(s),veh/h/ln	1704	1752	1544	1704	1679	1772	1704	1752	1565	1704	1752	1541
Q Serve(g_s), s	6.5	26.3	20.0	23.1	4.3	4.4	19.5	30.6	25.7	1.6	26.6	4.0
Cycle Q Clear(g_c), s	6.5	26.3	20.0	23.1	4.3	4.4	19.5	30.6	25.7	1.6	26.6	4.0
Prop In Lane	1.00		1.00	1.00		0.23	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	217	892	659	647	1278	675	577	1091	487	277	783	344
V/C Ratio(X)	0.76	0.81	0.92	0.91	0.13	0.13	0.87	0.79	1.02	0.15	0.90	0.20
Avail Cap(c_a), veh/h	318	975	695	695	1306	689	746	1418	633	277	831	365
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	47.7	13.7	54.1	27.5	27.5	55.1	42.9	17.2	58.2	51.4	28.4
Incr Delay (d2), s/veh	7.1	5.0	17.0	15.7	0.1	0.1	9.3	2.6	38.2	0.3	12.6	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	3.3	13.4	12.9	12.3	2.0	2.2	10.0	15.3	17.6	0.7	14.3	2.0
LnGrp Delay(d),s/veh	69.8	52.6	30.7	69.8	27.5	27.6	64.5	45.4	55.4	58.5	64.0	28.7
LnGrp LOS	E	D	C	E	C	C	E	D	F	E	E	C
Approach Vol, veh/h		1492			838			1861			815	
Approach Delay, s/veh		45.7			57.2			53.2			60.8	
Approach LOS		D			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	13.9	57.8	16.3	48.3	31.1	40.6	28.3	36.3
Change Period (Y+Rc), s	* 5.2	5.9	5.2	* 5.9	* 5.2	5.9	5.2	* 5.9
Max Green Setting (Gmax), s	* 13	53.0	7.0	* 55	* 28	37.9	29.8	* 32
Max Q Clear Time (g_c+I1), s	8.5	6.4	3.6	32.6	25.1	28.3	21.5	28.6
Green Ext Time (p_c), s	0.2	14.9	0.9	9.8	0.8	6.3	1.5	1.8

Intersection Summary	
HCM 2010 Ctrl Delay	52.9
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	775	0	320	0	0	0	150	1072	0	1	909	947
Future Volume (veh/h)	775	0	320	0	0	0	150	1072	0	1	909	947
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		0.98
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	1845	1845	1845				1845	1845	0	1845	1845	1845
Adj Flow Rate, veh/h	816	0	0				158	1128	0	1	957	735
Adj No. of Lanes	2	0	1				1	2	0	1	2	1
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3				3	3	0	3	3	3
Cap, veh/h	873	0	390				174	2332	0	2	1988	871
Arrive On Green	0.25	0.00	0.00				0.10	0.67	0.00	0.00	0.57	0.57
Sat Flow, veh/h	3514	0	1568				1757	3597	0	1757	3505	1536
Grp Volume(v), veh/h	816	0	0				158	1128	0	1	957	735
Grp Sat Flow(s),veh/h/ln	1757	0	1568				1757	1752	0	1757	1752	1536
Q Serve(g_s), s	32.1	0.0	0.0				12.6	22.4	0.0	0.1	22.9	56.1
Cycle Q Clear(g_c), s	32.1	0.0	0.0				12.6	22.4	0.0	0.1	22.9	56.1
Prop In Lane	1.00		1.00				1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	873	0	390				174	2332	0	2	1988	871
V/C Ratio(X)	0.93	0.00	0.00				0.91	0.48	0.00	0.52	0.48	0.84
Avail Cap(c_a), veh/h	921	0	411				174	2408	0	50	2159	946
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				1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.9	0.0	0.0				63.0	11.7	0.0	70.5	18.2	25.4
Incr Delay (d2), s/veh	15.7	0.0	0.0				42.7	0.2	0.0	136.1	0.2	6.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	17.5	0.0	0.0				8.2	10.9	0.0	0.1	11.1	25.3
LnGrp Delay(d),s/veh	67.7	0.0	0.0				105.6	11.8	0.0	206.6	18.4	32.0
LnGrp LOS	E						F	B		F	B	C
Approach Vol, veh/h		816						1286			1693	
Approach Delay, s/veh		67.7						23.3			24.4	
Approach LOS		E						C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		
Phs Duration (G+Y+Rc), s	4.2	98.0		39.1	18.0	84.1		
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		
Max Green Setting (Gmax), s	4.0	97.0		37.0	14.0	87.0		
Max Q Clear Time (g_c+I1), s	2.1	24.4		34.1	14.6	58.1		
Green Ext Time (p_c), s	0.0	40.0		1.0	0.0	22.0		

Intersection Summary	
HCM 2010 Ctrl Delay	33.3
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
User approved changes to right turn type.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	728	20	460	0	0	0	0	494	570	687	542	0
Future Volume (veh/h)	728	20	460	0	0	0	0	494	570	687	542	0
Number	3	8	18				1	6	16	5	2	12
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	1845	1845	1900				0	1845	1845	1845	1845	0
Adj Flow Rate, veh/h	561	308	335				0	520	219	723	571	0
Adj No. of Lanes	1	1	0				0	1	1	2	1	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	684	315	342				0	527	447	722	979	0
Arrive On Green	0.39	0.39	0.39				0.00	0.29	0.29	0.21	0.53	0.00
Sat Flow, veh/h	1757	809	880				0	1845	1565	3408	1845	0
Grp Volume(v), veh/h	561	0	643				0	520	219	723	571	0
Grp Sat Flow(s),veh/h/ln	1757	0	1689				0	1845	1565	1704	1845	0
Q Serve(g_s), s	31.5	0.0	41.3				0.0	30.9	12.8	23.3	23.1	0.0
Cycle Q Clear(g_c), s	31.5	0.0	41.3				0.0	30.9	12.8	23.3	23.1	0.0
Prop In Lane	1.00		0.52				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	684	0	657				0	527	447	722	979	0
V/C Ratio(X)	0.82	0.00	0.98				0.00	0.99	0.49	1.00	0.58	0.00
Avail Cap(c_a), veh/h	684	0	657				0	527	447	722	979	0
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	1.00	1.00	0.00
Uniform Delay (d), s/veh	30.2	0.0	33.1				0.0	39.1	32.7	43.4	17.5	0.0
Incr Delay (d2), s/veh	7.4	0.0	29.5				0.0	35.8	0.3	33.9	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	16.7	0.0	24.5				0.0	21.0	5.6	14.3	11.9	0.0
LnGrp Delay(d),s/veh	37.6	0.0	62.6				0.0	74.9	33.0	77.2	18.1	0.0
LnGrp LOS	D		E					E	C	F	B	
Approach Vol, veh/h		1204						739			1294	
Approach Delay, s/veh		50.9						62.5			51.1	
Approach LOS		D						E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		63.0			27.0	36.0		47.0
Change Period (Y+Rc), s		4.6			3.7	4.6		4.2
Max Green Setting (Gmax), s		58.4			23.3	31.4		42.8
Max Q Clear Time (g_c+I1), s		25.1			25.3	32.9		43.3
Green Ext Time (p_c), s		5.4			0.0	0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	53.7
HCM 2010 LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	20	20	236	20	500	20	757	527	400	767	20
Future Volume (veh/h)	20	20	20	236	20	500	20	757	527	400	767	20
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		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	1900	1845	1900	1900	1845	1900	1900	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	22	22	22	248	22	526	22	797	555	421	807	22
Adj No. of Lanes	0	1	0	0	1	0	0	1	1	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.95	0.92	0.95	0.92	0.95	0.95	0.95	0.95	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	13	13	13	142	13	302	16	588	514	488	496	14
Arrive On Green	0.02	0.02	0.02	0.28	0.28	0.28	0.33	0.33	0.33	0.28	0.28	0.28
Sat Flow, veh/h	572	572	572	502	45	1066	49	1793	1568	1757	1787	49
Grp Volume(v), veh/h	66	0	0	796	0	0	819	0	555	421	0	829
Grp Sat Flow(s),veh/h/ln	1715	0	0	1613	0	0	1842	0	1568	1757	0	1836
Q Serve(g_s), s	4.0	0.0	0.0	51.0	0.0	0.0	59.0	0.0	59.0	41.0	0.0	50.0
Cycle Q Clear(g_c), s	4.0	0.0	0.0	51.0	0.0	0.0	59.0	0.0	59.0	41.0	0.0	50.0
Prop In Lane	0.33		0.33	0.31		0.66	0.03		1.00	1.00		0.03
Lane Grp Cap(c), veh/h	38	0	0	457	0	0	604	0	514	488	0	510
V/C Ratio(X)	1.73	0.00	0.00	1.74	0.00	0.00	1.36	0.00	1.08	0.86	0.00	1.63
Avail Cap(c_a), veh/h	38	0	0	457	0	0	604	0	514	488	0	510
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	88.0	0.0	0.0	64.5	0.0	0.0	60.5	0.0	60.5	61.7	0.0	65.0
Incr Delay (d2), s/veh	417.4	0.0	0.0	343.0	0.0	0.0	171.0	0.0	63.0	14.7	0.0	290.3
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	6.3	0.0	0.0	66.2	0.0	0.0	58.7	0.0	34.5	21.9	0.0	66.5
LnGrp Delay(d),s/veh	505.4	0.0	0.0	407.5	0.0	0.0	231.5	0.0	123.5	76.4	0.0	355.3
LnGrp LOS	F			F			F		F	E		F
Approach Vol, veh/h		66			796			1374			1250	
Approach Delay, s/veh		505.4			407.5			187.9			261.4	
Approach LOS		F			F			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		63.0		8.0		54.0		55.0
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		59.0		4.0		50.0		51.0
Max Q Clear Time (g_c+I1), s		61.0		6.0		52.0		53.0
Green Ext Time (p_c), s		0.0		0.0		0.0		0.0

Intersection Summary		
HCM 2010 Ctrl Delay		270.4
HCM 2010 LOS		F

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	20	370	934	20	40	983
Future Volume (veh/h)	20	370	934	20	40	983
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		0.98	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1900	1845	1900	1845	1845
Adj Flow Rate, veh/h	21	389	983	21	42	1035
Adj No. of Lanes	0	0	2	0	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	3	3	3	3
Cap, veh/h	8	155	813	17	1039	1091
Arrive On Green	0.10	0.10	0.23	0.23	0.59	0.59
Sat Flow, veh/h	81	1493	3599	75	1757	1845
Grp Volume(v), veh/h	411	0	491	513	42	1035
Grp Sat Flow(s),veh/h/ln	1577	0	1752	1829	1757	1845
Q Serve(g_s), s	17.0	0.0	38.0	38.0	1.6	85.6
Cycle Q Clear(g_c), s	17.0	0.0	38.0	38.0	1.6	85.6
Prop In Lane	0.05	0.95		0.04	1.00	
Lane Grp Cap(c), veh/h	164	0	406	424	1039	1091
V/C Ratio(X)	2.51	0.00	1.21	1.21	0.04	0.95
Avail Cap(c_a), veh/h	164	0	406	424	1211	1272
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	73.4	0.0	62.9	62.9	14.0	31.2
Incr Delay (d2), s/veh	698.3	0.0	114.9	114.2	0.0	13.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	39.1	0.0	31.3	32.5	0.8	47.5
LnGrp Delay(d),s/veh	771.7	0.0	177.9	177.1	14.0	44.9
LnGrp LOS	F		F	F	B	D
Approach Vol, veh/h	411		1004			1077
Approach Delay, s/veh	771.7		177.5			43.7
Approach LOS	F		F			D

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		42.0				100.9		21.0
Change Period (Y+Rc), s		4.0				4.0		4.0
Max Green Setting (Gmax), s		38.0				113.0		17.0
Max Q Clear Time (g_c+I1), s		40.0				87.6		19.0
Green Ext Time (p_c), s		0.0				9.2		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	217.7
HCM 2010 LOS	F

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

PROJECT ALTERNATIVE 2 (APARTMENTS AND FIRE STATION)
SCENARIO OUTPUTS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	231	486	147	202	32	172	107	64	13	198	98
Future Volume (veh/h)	24	231	486	147	202	32	172	107	64	13	198	98
Number	5	2	12	1	6	16	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		0.99	1.00		1.00	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	1845	1845	1845	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	28	272	128	173	238	22	202	126	27	15	233	68
Adj No. of Lanes	1	2	1	1	3	0	2	2	0	1	2	0
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	55	627	277	218	1278	116	401	842	176	33	487	139
Arrive On Green	0.03	0.18	0.18	0.12	0.27	0.27	0.12	0.29	0.29	0.02	0.18	0.18
Sat Flow, veh/h	1757	3505	1547	1757	4701	426	3408	2885	602	1757	2693	768
Grp Volume(v), veh/h	28	272	128	173	169	91	202	75	78	15	150	151
Grp Sat Flow(s),veh/h/ln	1757	1752	1547	1757	1679	1769	1704	1752	1735	1757	1752	1709
Q Serve(g_s), s	0.9	4.0	4.3	5.5	2.2	2.3	3.2	1.8	1.9	0.5	4.4	4.6
Cycle Q Clear(g_c), s	0.9	4.0	4.3	5.5	2.2	2.3	3.2	1.8	1.9	0.5	4.4	4.6
Prop In Lane	1.00		1.00	1.00		0.24	1.00		0.35	1.00		0.45
Lane Grp Cap(c), veh/h	55	627	277	218	913	481	401	512	507	33	317	309
V/C Ratio(X)	0.51	0.43	0.46	0.79	0.18	0.19	0.50	0.15	0.15	0.46	0.47	0.49
Avail Cap(c_a), veh/h	306	2622	1157	458	913	481	1482	1189	1177	306	610	595
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.4	21.0	21.1	24.5	16.0	16.1	23.8	15.1	15.1	27.9	21.1	21.2
Incr Delay (d2), s/veh	2.7	0.2	0.4	2.5	0.0	0.1	1.2	0.2	0.2	3.7	1.6	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.9	1.9	2.8	1.0	1.1	1.6	0.9	0.9	0.3	2.3	2.3
LnGrp Delay(d),s/veh	30.1	21.2	21.6	26.9	16.1	16.1	25.0	15.2	15.3	31.7	22.6	22.9
LnGrp LOS	C	C	C	C	B	B	C	B	B	C	C	C
Approach Vol, veh/h		428			433			355			316	
Approach Delay, s/veh		21.9			20.4			20.8			23.2	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.3	16.2	6.3	22.7	7.0	21.5	12.7	16.3
Change Period (Y+Rc), s	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9	5.9	* 5.9
Max Green Setting (Gmax), s	* 15	43.0	* 10	39.0	* 10	15.0	25.0	* 20
Max Q Clear Time (g_c+I1), s	7.5	6.3	2.5	3.9	2.9	4.3	5.2	6.6
Green Ext Time (p_c), s	0.1	1.9	0.0	2.1	0.0	1.8	1.8	1.7

Intersection Summary	
HCM 2010 Ctrl Delay	21.5
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	56	205	547	244	79	203	230	180	9	744	78
Future Volume (veh/h)	34	56	205	547	244	79	203	230	180	9	744	78
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	1845	1845	1845	1845	1845	1900	1845	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	38	62	170	625	247	81	226	256	94	10	827	84
Adj No. of Lanes	1	1	2	2	1	0	2	2	1	1	2	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	162	170	560	900	341	112	295	1524	679	21	1157	118
Arrive On Green	0.09	0.09	0.09	0.26	0.26	0.26	0.09	0.43	0.43	0.01	0.36	0.36
Sat Flow, veh/h	1757	1845	3136	3514	1331	437	3408	3505	1563	1757	3213	326
Grp Volume(v), veh/h	38	62	170	625	0	328	226	256	94	10	451	460
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	0	1768	1704	1752	1563	1757	1752	1787
Q Serve(g_s), s	2.2	3.4	5.1	17.5	0.0	18.4	7.0	4.8	3.9	0.6	24.1	24.1
Cycle Q Clear(g_c), s	2.2	3.4	5.1	17.5	0.0	18.4	7.0	4.8	3.9	0.6	24.1	24.1
Prop In Lane	1.00		1.00	1.00		0.25	1.00		1.00	1.00		0.18
Lane Grp Cap(c), veh/h	162	170	560	900	0	453	295	1524	679	21	631	644
V/C Ratio(X)	0.24	0.37	0.30	0.69	0.00	0.72	0.77	0.17	0.14	0.47	0.71	0.71
Avail Cap(c_a), veh/h	728	764	1570	1779	0	895	941	1524	679	404	726	740
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.8	46.3	38.8	36.6	0.0	36.9	48.6	18.7	18.5	53.3	29.9	29.9
Incr Delay (d2), s/veh	0.7	1.3	0.3	1.4	0.0	3.1	1.6	0.2	0.3	6.0	5.7	5.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	1.8	2.2	8.7	0.0	9.4	3.4	2.4	1.8	0.3	12.7	12.9
LnGrp Delay(d),s/veh	46.5	47.7	39.1	38.0	0.0	40.1	50.1	18.9	18.8	59.4	35.7	35.6
LnGrp LOS	D	D	D	D		D	D	B	B	E	D	D
Approach Vol, veh/h		270			953			576			921	
Approach Delay, s/veh		42.1			38.7			31.1			35.9	
Approach LOS		D			D			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.5	53.1		33.4	14.6	45.0		15.6
Change Period (Y+Rc), s	* 5.2	5.9		5.6	* 5.2	5.9		5.6
Max Green Setting (Gmax), s	* 25	45.0		55.0	* 30	45.0		45.0
Max Q Clear Time (g_c+I1), s	2.6	6.8		20.4	9.0	26.1		7.1
Green Ext Time (p_c), s	0.0	22.9		7.4	0.4	13.0		1.1

Intersection Summary	
HCM 2010 Ctrl Delay	36.5
HCM 2010 LOS	D

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	17
Intersection LOS	C

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	245	0	0	411	459	106
Future Vol, veh/h	245	0	0	411	459	106
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	292	0	0	489	546	126
Number of Lanes	2	0	0	2	2	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	2
HCM Control Delay	11.5	13.5	22
HCM LOS	B	B	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2
Vol Left, %	100%	59%	0%	0%	0%	0%
Vol Thru, %	0%	0%	100%	100%	100%	100%
Vol Right, %	0%	41%	0%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	306	259	123	123	206	206
LT Vol	306	153	0	0	0	0
Through Vol	0	0	123	123	206	206
RT Vol	0	106	0	0	0	0
Lane Flow Rate	364	308	146	146	245	245
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.716	0.563	0.295	0.222	0.476	0.354
Departure Headway (Hd)	7.073	6.576	7.271	5.473	7.002	5.211
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	510	546	491	650	511	685
Service Time	4.833	4.335	5.057	3.259	4.781	2.989
HCM Lane V/C Ratio	0.714	0.564	0.297	0.225	0.479	0.358
HCM Control Delay	25.8	17.5	13.1	9.8	16	10.9
HCM Lane LOS	D	C	B	A	C	B
HCM 95th-tile Q	5.7	3.5	1.2	0.8	2.5	1.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	114	613	950	546
Future Volume (veh/h)	0	0	114	613	950	546
Number			5	2	6	16
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)			1.00			1.00
Parking Bus, Adj			1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln			1845	1845	1845	1845
Adj Flow Rate, veh/h			124	666	1033	441
Adj No. of Lanes			2	1	1	1
Peak Hour Factor			0.92	0.92	0.92	0.92
Percent Heavy Veh, %			3	3	3	3
Cap, veh/h			393	1664	1285	1125
Arrive On Green			0.12	0.90	0.70	0.72
Sat Flow, veh/h			3408	1845	1845	1568
Grp Volume(v), veh/h			124	666	1033	441
Grp Sat Flow(s),veh/h/ln			1704	1845	1845	1568
Q Serve(g_s), s			1.7	2.9	20.1	5.8
Cycle Q Clear(g_c), s			1.7	2.9	20.1	5.8
Prop In Lane			1.00			1.00
Lane Grp Cap(c), veh/h			393	1664	1285	1125
V/C Ratio(X)			0.32	0.40	0.80	0.39
Avail Cap(c_a), veh/h			1637	1664	1772	1539
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh			21.1	0.4	5.4	2.9
Incr Delay (d2), s/veh			0.2	0.3	1.9	0.2
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			0.8	1.4	10.5	2.5
LnGrp Delay(d),s/veh			21.4	0.7	7.4	3.1
LnGrp LOS			C	A	A	A
Approach Vol, veh/h				790	1474	
Approach Delay, s/veh				4.0	6.1	
Approach LOS				A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		
Phs Duration (G+Y+Rc), s		52.1			10.7	41.4		
Change Period (Y+Rc), s		5.1			* 4.7	5.1		
Max Green Setting (Gmax), s		25.0			* 25	50.0		
Max Q Clear Time (g_c+I1), s		4.9			3.7	22.1		
Green Ext Time (p_c), s		15.6			0.2	14.2		

Intersection Summary	
HCM 2010 Ctrl Delay	5.4
HCM 2010 LOS	A

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	334	65	151	393	406	544
Future Volume (veh/h)	334	65	151	393	406	544
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	367	37	166	432	446	246
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	440	584	215	1004	602	512
Arrive On Green	0.25	0.25	0.12	0.54	0.33	0.33
Sat Flow, veh/h	1757	1568	1757	1845	1845	1568
Grp Volume(v), veh/h	367	37	166	432	446	246
Grp Sat Flow(s),veh/h/ln	1757	1568	1757	1845	1845	1568
Q Serve(g_s), s	9.7	0.7	4.5	6.8	10.6	6.2
Cycle Q Clear(g_c), s	9.7	0.7	4.5	6.8	10.6	6.2
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	440	584	215	1004	602	512
V/C Ratio(X)	0.83	0.06	0.77	0.43	0.74	0.48
Avail Cap(c_a), veh/h	1180	1244	965	1689	1164	989
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.5	9.9	20.9	6.7	14.7	13.2
Incr Delay (d2), s/veh	1.6	0.0	2.3	0.1	0.7	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	4.9	0.8	2.3	3.4	5.4	2.7
LnGrp Delay(d),s/veh	19.1	9.9	23.2	6.8	15.4	13.5
LnGrp LOS	B	A	C	A	B	B
Approach Vol, veh/h	404			598	692	
Approach Delay, s/veh	18.2			11.3	14.7	
Approach LOS	B			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		32.1		17.0	10.7	21.4		
Change Period (Y+Rc), s		5.4		* 4.7	* 4.7	5.4		
Max Green Setting (Gmax), s		45.0		* 33	* 27	31.0		
Max Q Clear Time (g_c+I1), s		8.8		11.7	6.5	12.6		
Green Ext Time (p_c), s		3.8		0.6	0.2	3.5		

Intersection Summary	
HCM 2010 Ctrl Delay	14.4
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	91	0	225	0	157	51	10	30	0	0	53	110
Future Volume (veh/h)	91	0	225	0	157	51	10	30	0	0	53	110
Number	1	6	16	5	2	12	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		1.00	1.00		1.00	1.00		0.99
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	0	1845	1900	1845	1845	0	0	1845	1900
Adj Flow Rate, veh/h	112	0	34	0	194	53	12	37	0	0	65	22
Adj No. of Lanes	2	1	2	0	1	0	1	2	0	0	2	0
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	3	3	3	0	3	3	3	3	0	0	3	3
Cap, veh/h	330	807	1359	0	283	77	96	202	0	0	240	77
Arrive On Green	0.10	0.00	0.44	0.00	0.20	0.20	0.05	0.05	0.00	0.00	0.09	0.09
Sat Flow, veh/h	3408	1845	2760	0	1396	381	1757	3689	0	0	2693	838
Grp Volume(v), veh/h	112	0	34	0	0	247	12	37	0	0	43	44
Grp Sat Flow(s),veh/h/ln	1704	1845	1380	0	0	1777	1757	1845	0	0	1752	1687
Q Serve(g_s), s	1.0	0.0	0.2	0.0	0.0	4.3	0.2	0.3	0.0	0.0	0.8	0.8
Cycle Q Clear(g_c), s	1.0	0.0	0.2	0.0	0.0	4.3	0.2	0.3	0.0	0.0	0.8	0.8
Prop In Lane	1.00		1.00	0.00		0.21	1.00		0.00	0.00		0.50
Lane Grp Cap(c), veh/h	330	807	1359	0	0	360	96	202	0	0	162	156
V/C Ratio(X)	0.34	0.00	0.03	0.00	0.00	0.69	0.12	0.18	0.00	0.00	0.26	0.28
Avail Cap(c_a), veh/h	2563	1387	2226	0	0	1337	1321	2775	0	0	1318	1269
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	14.0	0.0	4.3	0.0	0.0	12.3	15.0	15.0	0.0	0.0	14.0	14.1
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.0	0.0	2.3	0.6	0.4	0.0	0.0	0.9	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	0.5	0.0	0.1	0.0	0.0	2.3	0.1	0.2	0.0	0.0	0.4	0.4
LnGrp Delay(d),s/veh	14.6	0.0	4.3	0.0	0.0	14.6	15.5	15.4	0.0	0.0	14.9	15.0
LnGrp LOS	B		A			B	B	B			B	B
Approach Vol, veh/h		146			247			49			87	
Approach Delay, s/veh		12.2			14.6			15.5			15.0	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	7.8	11.3		7.7		19.1		6.4
Change Period (Y+Rc), s	4.6	4.6		4.6		4.6		4.6
Max Green Setting (Gmax), s	25.0	25.0		25.0		25.0		25.0
Max Q Clear Time (g_c+I1), s	3.0	6.3		2.8		2.2		2.3
Green Ext Time (p_c), s	0.4	1.2		0.4		0.4		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	14.1
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	135	9	23	554	2	42	5	57	225	2	51
Future Volume (veh/h)	33	135	9	23	554	2	42	5	57	225	2	51
Number	3	8	18	7	4	14	1	6	16	5	2	12
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	1845	1845	1900	1845	1845	1900	1900	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	40	163	5	28	667	2	51	6	23	271	2	16
Adj No. of Lanes	2	2	0	1	2	0	0	1	1	1	1	0
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	150	1101	34	58	1097	3	90	11	90	357	36	288
Arrive On Green	0.04	0.32	0.32	0.03	0.31	0.31	0.06	0.06	0.06	0.20	0.20	0.20
Sat Flow, veh/h	3408	3472	106	1757	3584	11	1580	186	1568	1757	177	1417
Grp Volume(v), veh/h	40	82	86	28	326	343	57	0	23	271	0	18
Grp Sat Flow(s),veh/h/ln	1704	1752	1826	1757	1752	1843	1766	0	1568	1757	0	1595
Q Serve(g_s), s	0.5	1.4	1.5	0.7	6.8	6.8	1.4	0.0	0.6	6.3	0.0	0.4
Cycle Q Clear(g_c), s	0.5	1.4	1.5	0.7	6.8	6.8	1.4	0.0	0.6	6.3	0.0	0.4
Prop In Lane	1.00		0.06	1.00		0.01	0.89		1.00	1.00		0.89
Lane Grp Cap(c), veh/h	150	556	579	58	536	564	101	0	90	357	0	324
V/C Ratio(X)	0.27	0.15	0.15	0.48	0.61	0.61	0.56	0.00	0.26	0.76	0.00	0.06
Avail Cap(c_a), veh/h	458	1032	1075	236	1032	1085	368	0	327	937	0	850
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.9	10.5	10.6	20.5	12.8	12.8	19.8	0.0	19.5	16.2	0.0	13.8
Incr Delay (d2), s/veh	0.9	0.1	0.1	2.3	1.1	1.1	4.9	0.0	1.5	3.3	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.7	0.7	0.4	3.4	3.6	0.8	0.0	0.3	3.3	0.0	0.2
LnGrp Delay(d),s/veh	20.9	10.7	10.7	22.8	13.9	13.8	24.7	0.0	20.9	19.5	0.0	13.9
LnGrp LOS	C	B	B	C	B	B	C		C	B		B
Approach Vol, veh/h		208			697			80			289	
Approach Delay, s/veh		12.6			14.2			23.6			19.2	
Approach LOS		B			B			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		12.8	6.1	17.8		6.5	5.6	18.3
Change Period (Y+Rc), s		4.0	* 4.2	4.6		4.0	* 4.2	4.6
Max Green Setting (Gmax), s		23.0	* 5.8	25.4		9.0	* 5.8	25.4
Max Q Clear Time (g_c+I1), s		8.3	2.5	8.8		3.4	2.7	3.5
Green Ext Time (p_c), s		0.8	0.0	4.4		0.1	0.0	4.8

Intersection Summary	
HCM 2010 Ctrl Delay	15.7
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	138	13	19	460	2	62	0	38	1	0	0
Future Vol, veh/h	12	138	13	19	460	2	62	0	38	1	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	130	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	16	182	17	25	605	3	82	0	50	1	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	608	0	0	199	0	0	575	880	99	779	887	304
Stage 1	-	-	-	-	-	-	222	222	-	657	657	-
Stage 2	-	-	-	-	-	-	353	658	-	122	230	-
Critical Hdwy	4.16	-	-	4.16	-	-	7.56	6.56	6.96	7.56	6.56	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Follow-up Hdwy	2.23	-	-	2.23	-	-	3.53	4.03	3.33	3.53	4.03	3.33
Pot Cap-1 Maneuver	960	-	-	1363	-	-	399	283	934	284	280	689
Stage 1	-	-	-	-	-	-	757	716	-	418	457	-
Stage 2	-	-	-	-	-	-	634	457	-	866	710	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	960	-	-	1363	-	-	388	273	934	262	270	689
Mov Cap-2 Maneuver	-	-	-	-	-	-	388	273	-	262	270	-
Stage 1	-	-	-	-	-	-	744	704	-	411	449	-
Stage 2	-	-	-	-	-	-	622	449	-	806	698	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.3	14.8	18.8
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	499	960	-	-	1363	-	-	262
HCM Lane V/C Ratio	0.264	0.016	-	-	0.018	-	-	0.005
HCM Control Delay (s)	14.8	8.8	-	-	7.7	-	-	18.8
HCM Lane LOS	B	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	1.1	0.1	-	-	0.1	-	-	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	93	10	48	21	35	109	56	649	25	42	304	64
Future Volume (veh/h)	93	10	48	21	35	109	56	649	25	42	304	64
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	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	135	14	21	30	51	25	81	941	33	61	441	73
Adj No. of Lanes	1	1	0	1	2	0	1	3	0	1	3	0
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	178	91	136	59	163	75	117	2176	76	99	1859	301
Arrive On Green	0.10	0.14	0.14	0.03	0.07	0.07	0.07	0.44	0.44	0.06	0.43	0.43
Sat Flow, veh/h	1757	660	990	1757	2336	1069	1757	4996	175	1757	4367	707
Grp Volume(v), veh/h	135	0	35	30	37	39	81	632	342	61	337	177
Grp Sat Flow(s),veh/h/ln	1757	0	1649	1757	1752	1652	1757	1679	1813	1757	1679	1717
Q Serve(g_s), s	3.9	0.0	1.0	0.9	1.1	1.2	2.3	6.8	6.8	1.8	3.3	3.4
Cycle Q Clear(g_c), s	3.9	0.0	1.0	0.9	1.1	1.2	2.3	6.8	6.8	1.8	3.3	3.4
Prop In Lane	1.00		0.60	1.00		0.65	1.00		0.10	1.00		0.41
Lane Grp Cap(c), veh/h	178	0	227	59	123	116	117	1462	790	99	1429	731
V/C Ratio(X)	0.76	0.00	0.15	0.51	0.30	0.33	0.70	0.43	0.43	0.62	0.24	0.24
Avail Cap(c_a), veh/h	676	0	1428	845	1517	1430	676	2389	1290	676	2260	1156
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.7	0.0	19.8	24.7	23.0	23.0	23.8	10.2	10.2	24.0	9.5	9.6
Incr Delay (d2), s/veh	6.4	0.0	0.3	6.5	1.4	1.7	7.2	0.2	0.5	2.3	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	2.2	0.0	0.5	0.5	0.6	0.6	1.4	3.1	3.5	0.9	1.6	1.7
LnGrp Delay(d),s/veh	29.1	0.0	20.1	31.2	24.4	24.7	31.0	10.4	10.7	26.3	9.6	9.8
LnGrp LOS	C		C	C	C	C	C	B	B	C	A	A
Approach Vol, veh/h		170			106			1055			575	
Approach Delay, s/veh		27.3			26.4			12.1			11.4	
Approach LOS		C			C			B			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	7.1	27.3	6.0	11.7	7.6	26.7	9.5	8.1
Change Period (Y+Rc), s	* 4.2	4.6	* 4.2	4.5	* 4.2	4.6	* 4.2	4.5
Max Green Setting (Gmax), s	* 20	37.0	* 25	45.0	* 20	35.0	* 20	45.0
Max Q Clear Time (g_c+I1), s	3.8	8.8	2.9	3.0	4.3	5.4	5.9	3.2
Green Ext Time (p_c), s	0.0	13.1	0.0	0.7	0.1	13.4	0.3	0.7

Intersection Summary	
HCM 2010 Ctrl Delay	14.0
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	93	279	42	284	19	339	666	96	9	236	128
Future Volume (veh/h)	45	93	279	42	284	19	339	666	96	9	236	128
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		0.99	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	1845	1845	1900	1845	1845	1900	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	66	137	109	62	418	22	499	979	82	13	347	45
Adj No. of Lanes	2	3	0	2	3	0	2	2	1	2	2	1
Peak Hour Factor	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	174	575	265	237	929	49	641	1490	667	76	909	407
Arrive On Green	0.05	0.17	0.17	0.07	0.19	0.19	0.19	0.43	0.43	0.02	0.26	0.26
Sat Flow, veh/h	3408	3357	1547	3408	4900	256	3408	3505	1568	3408	3505	1568
Grp Volume(v), veh/h	66	137	109	62	285	155	499	979	82	13	347	45
Grp Sat Flow(s),veh/h/ln	1704	1679	1547	1704	1679	1799	1704	1752	1568	1704	1752	1568
Q Serve(g_s), s	1.3	2.5	4.5	1.2	5.4	5.4	9.9	15.9	2.3	0.3	5.8	1.6
Cycle Q Clear(g_c), s	1.3	2.5	4.5	1.2	5.4	5.4	9.9	15.9	2.3	0.3	5.8	1.6
Prop In Lane	1.00		1.00	1.00		0.14	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	174	575	265	237	637	341	641	1490	667	76	909	407
V/C Ratio(X)	0.38	0.24	0.41	0.26	0.45	0.45	0.78	0.66	0.12	0.17	0.38	0.11
Avail Cap(c_a), veh/h	957	1178	543	957	1980	1061	957	1490	667	957	1476	660
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	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	32.7	25.5	26.3	31.4	25.6	25.6	27.5	16.3	12.4	34.2	21.7	20.1
Incr Delay (d2), s/veh	1.6	0.3	1.2	0.7	0.6	1.1	2.8	1.1	0.1	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	0.7	1.2	2.0	0.6	2.5	2.8	4.9	7.8	1.0	0.1	2.8	0.7
LnGrp Delay(d),s/veh	34.3	25.7	27.5	32.1	26.2	26.7	30.3	17.5	12.5	35.4	22.0	20.2
LnGrp LOS	C	C	C	C	C	C	C	B	B	D	C	C
Approach Vol, veh/h		312			502			1560			405	
Approach Delay, s/veh		28.2			27.1			21.3			22.2	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.8	19.4	6.8	36.2	10.1	18.1	18.6	24.4
Change Period (Y+Rc), s	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9
Max Green Setting (Gmax), s	* 20	42.0	* 20	30.0	* 20	25.0	* 20	30.0
Max Q Clear Time (g_c+I1), s	3.3	7.4	2.3	17.9	3.2	6.5	11.9	7.8
Green Ext Time (p_c), s	0.2	5.5	0.0	7.7	0.1	4.6	1.5	10.7

Intersection Summary	
HCM 2010 Ctrl Delay	23.3
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	122.5
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	429	0	249	0	0	0	72	672	0	1	534	22
Future Vol, veh/h	429	0	249	0	0	0	72	672	0	1	534	22
Peak Hour Factor	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	596	0	346	0	0	0	100	933	0	1	742	31
Number of Lanes	1	1	1	0	0	0	1	2	0	0	2	1

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	3	3
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	3	3	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	3	0	3
HCM Control Delay	39.1	145.7	193.1
HCM LOS	E	F	F

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	100%	100%	0%	1%	0%	0%
Vol Thru, %	0%	100%	100%	0%	0%	0%	99%	100%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	72	336	336	215	215	249	179	356	22
LT Vol	72	0	0	215	215	0	1	0	0
Through Vol	0	336	336	0	0	0	178	356	0
RT Vol	0	0	0	0	0	249	0	0	22
Lane Flow Rate	100	467	467	298	298	346	249	494	31
Geometry Grp	8	8	8	7	7	7	8	8	8
Degree of Util (X)	0.302	1.344	1.117	0.772	0.772	0.781	0.763	1.518	0.088
Departure Headway (Hd)	11.975	11.457	9.642	10.221	10.221	8.994	11.962	11.959	11.235
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	302	322	383	358	358	405	306	307	321
Service Time	9.675	9.157	7.342	7.921	7.921	6.694	9.662	9.659	8.935
HCM Lane V/C Ratio	0.331	1.45	1.219	0.832	0.832	0.854	0.814	1.609	0.097
HCM Control Delay	19.8	205.2	113.1	40.2	40.2	37.2	44.7	278.7	15
HCM Lane LOS	C	F	F	E	E	E	E	F	B
HCM 95th-tile Q	1.2	21	15.5	6.3	6.3	6.7	5.8	26.1	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	502	3	199	0	0	0	0	242	262	337	446	0
Future Volume (veh/h)	502	3	199	0	0	0	0	242	262	337	446	0
Number	3	8	18				1	6	16	5	2	12
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	1900	1845	1845				0	1845	1845	1845	1845	0
Adj Flow Rate, veh/h	605	4	132				0	292	73	406	537	0
Adj No. of Lanes	0	1	1				0	1	1	2	1	0
Peak Hour Factor	0.83	0.83	0.83				0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	710	5	638				0	394	335	544	809	0
Arrive On Green	0.41	0.41	0.41				0.00	0.21	0.21	0.16	0.44	0.00
Sat Flow, veh/h	1746	12	1568				0	1845	1566	3408	1845	0
Grp Volume(v), veh/h	609	0	132				0	292	73	406	537	0
Grp Sat Flow(s),veh/h/ln	1757	0	1568				0	1845	1566	1704	1845	0
Q Serve(g_s), s	17.9	0.0	3.1				0.0	8.4	2.2	6.5	13.1	0.0
Cycle Q Clear(g_c), s	17.9	0.0	3.1				0.0	8.4	2.2	6.5	13.1	0.0
Prop In Lane	0.99		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	715	0	638				0	394	335	544	809	0
V/C Ratio(X)	0.85	0.00	0.21				0.00	0.74	0.22	0.75	0.66	0.00
Avail Cap(c_a), veh/h	2009	0	1793				0	844	716	1199	809	0
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	1.00	1.00	0.00
Uniform Delay (d), s/veh	15.3	0.0	10.9				0.0	20.9	18.4	22.8	12.6	0.0
Incr Delay (d2), s/veh	1.1	0.0	0.1				0.0	1.0	0.1	0.8	1.7	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	8.9	0.0	1.3				0.0	4.3	0.9	3.1	6.9	0.0
LnGrp Delay(d),s/veh	16.5	0.0	11.0				0.0	21.9	18.6	23.6	14.3	0.0
LnGrp LOS	B		B					C	B	C	B	
Approach Vol, veh/h		741						365			943	
Approach Delay, s/veh		15.5						21.2			18.3	
Approach LOS		B						C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		29.5			12.8	16.7		27.3
Change Period (Y+Rc), s		4.6			3.7	4.6		4.2
Max Green Setting (Gmax), s		24.0			20.0	26.0		65.0
Max Q Clear Time (g_c+I1), s		15.1			8.5	10.4		19.9
Green Ext Time (p_c), s		2.5			0.6	1.7		3.2

Intersection Summary	
HCM 2010 Ctrl Delay	17.8
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	186	19	5	16	29	100	12	155	11	80	164	290
Future Volume (veh/h)	186	19	5	16	29	100	12	155	11	80	164	290
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	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	209	21	2	18	33	13	13	174	8	90	184	122
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	280	264	25	112	80	32	30	858	39	138	647	408
Arrive On Green	0.16	0.16	0.16	0.06	0.06	0.06	0.02	0.25	0.25	0.08	0.31	0.31
Sat Flow, veh/h	1757	1659	158	1757	1260	497	1757	3413	156	1757	2066	1302
Grp Volume(v), veh/h	209	0	23	18	0	46	13	89	93	90	155	151
Grp Sat Flow(s),veh/h/ln	1757	0	1817	1757	0	1757	1757	1752	1816	1757	1752	1615
Q Serve(g_s), s	4.6	0.0	0.4	0.4	0.0	1.0	0.3	1.6	1.6	2.0	2.7	2.9
Cycle Q Clear(g_c), s	4.6	0.0	0.4	0.4	0.0	1.0	0.3	1.6	1.6	2.0	2.7	2.9
Prop In Lane	1.00		0.09	1.00		0.28	1.00		0.09	1.00		0.81
Lane Grp Cap(c), veh/h	280	0	289	112	0	112	30	440	456	138	549	506
V/C Ratio(X)	0.75	0.00	0.08	0.16	0.00	0.41	0.44	0.20	0.20	0.65	0.28	0.30
Avail Cap(c_a), veh/h	1310	0	1354	1310	0	1310	1091	1306	1354	1310	1306	1204
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.1	0.0	14.4	17.8	0.0	18.1	19.6	11.9	11.9	18.0	10.4	10.5
Incr Delay (d2), s/veh	1.5	0.0	0.0	0.2	0.0	0.9	3.8	0.1	0.1	1.9	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	2.3	0.0	0.2	0.2	0.0	0.5	0.2	0.8	0.8	1.0	1.3	1.3
LnGrp Delay(d),s/veh	17.7	0.0	14.5	18.1	0.0	19.0	23.4	12.0	12.0	19.9	10.5	10.6
LnGrp LOS	B		B	B		B	C	B	B	B	B	B
Approach Vol, veh/h		232			64			195			396	
Approach Delay, s/veh		17.3			18.8			12.7			12.7	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.4	14.7		11.0	4.9	17.2		7.2
Change Period (Y+Rc), s	* 4.2	4.6		4.6	* 4.2	4.6		4.6
Max Green Setting (Gmax), s	* 3.6	30.0		30.0	* 25	30.0		30.0
Max Q Clear Time (g_c+I1), s	4.0	3.6		6.6	2.3	4.9		3.0
Green Ext Time (p_c), s	0.1	1.8		0.4	0.0	1.8		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	14.3
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	6.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	68	108	201	4	15	275
Future Vol, veh/h	68	108	201	4	15	275
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	71	113	209	4	16	286

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	214	0	-	0	465	211
Stage 1	-	-	-	-	211	-
Stage 2	-	-	-	-	254	-
Critical Hdwy	4.14	-	-	-	6.44	6.24
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	2.236	-	-	-	3.536	3.336
Pot Cap-1 Maneuver	1344	-	-	-	552	824
Stage 1	-	-	-	-	819	-
Stage 2	-	-	-	-	784	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1344	-	-	-	521	824
Mov Cap-2 Maneuver	-	-	-	-	521	-
Stage 1	-	-	-	-	819	-
Stage 2	-	-	-	-	740	-

Approach	EB	WB	SB
HCM Control Delay, s	3	0	12.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1344	-	-	-	800
HCM Lane V/C Ratio	0.053	-	-	-	0.378
HCM Control Delay (s)	7.8	0	-	-	12.2
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	1.8

Intersection	
Int Delay, s/veh	183.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	273	234	300	119	47	380
Future Vol, veh/h	273	234	300	119	47	380
Conflicting Peds, #/hr	5	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	315	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	300	257	330	131	52	418

Major/Minor	Minor1		Major1		Minor2	
Conflicting Flow All	544	330	0	0	458	330
Stage 1	330	-	-	-	0	0
Stage 2	214	-	-	-	458	330
Critical Hdwy	7.13	6.23	-	-	7.13	6.53
Critical Hdwy Stg 1	6.13	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	6.13	5.53
Follow-up Hdwy	3.527	3.327	-	-	3.527	4.027
Pot Cap-1 Maneuver	448	709	-	-	511	588
Stage 1	681	-	-	-	-	-
Stage 2	-	-	-	-	581	644
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	~ 189	709	-	-	326	588
Mov Cap-2 Maneuver	~ 189	-	-	-	326	588
Stage 1	681	-	-	-	-	-
Stage 2	-	-	-	-	370	644

Approach	WB	NB	SB
HCM Control Delay, s	$ 468.7	0	24
HCM LOS	F		C

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBLn1	SBLn2
Capacity (veh/h)	-	-	286	326	588
HCM Lane V/C Ratio	-	-	1.948	0.158	0.71
HCM Control Delay (s)	-	-	$ 468.7	18.1	24.7
HCM Lane LOS	-	-	F	C	C
HCM 95th %tile Q(veh)	-	-	39.2	0.6	5.8

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

Intersection	
Int Delay, s/veh	134

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	72	21	398	9	42	528
Future Vol, veh/h	72	21	398	9	42	528
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	76	76	76	76	76	76
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	95	28	524	12	55	695

Major/Minor	Minor1		Minor2		Major2	
Conflicting Flow All	1073	0	805	695	0	0
Stage 1	0	-	805	-	-	-
Stage 2	1073	-	0	-	-	-
Critical Hdwy	7.13	6.23	6.53	6.23	4.13	-
Critical Hdwy Stg 1	-	-	5.53	-	-	-
Critical Hdwy Stg 2	6.13	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	4.027	3.327	2.227	-
Pot Cap-1 Maneuver	197	-	~ 315	440	-	-
Stage 1	-	-	~ 394	-	-	-
Stage 2	265	-	-	-	-	-
Platoon blocked, %						-
Mov Cap-1 Maneuver	-	-	~ 315	440	-	-
Mov Cap-2 Maneuver	-	-	~ 315	-	-	-
Stage 1	-	-	~ 394	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s		$ 352.3	
HCM LOS	-	F	

Minor Lane/Major Mvmt	NBLn1	WBLn1	SBL	SBT
Capacity (veh/h)	317	-	-	-
HCM Lane V/C Ratio	1.689	-	-	-
HCM Control Delay (s)	$ 352.3	-	-	-
HCM Lane LOS	F	-	-	-
HCM 95th %tile Q(veh)	33.3	-	-	-

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 (veh/h)	17	71	208	171	145	37	256	202	128	16	131	37
Future Volume (veh/h)	17	71	208	171	145	37	256	202	128	16	131	37
Number	5	2	12	1	6	16	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		0.98	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	1845	1845	1845	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	20	82	46	197	167	14	294	232	70	18	151	23
Adj No. of Lanes	1	2	1	1	3	0	2	2	0	1	2	0
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	42	486	213	244	1205	99	570	874	257	38	519	78
Arrive On Green	0.02	0.14	0.14	0.14	0.25	0.25	0.17	0.33	0.33	0.02	0.17	0.17
Sat Flow, veh/h	1757	3505	1534	1757	4743	390	3408	2671	787	1757	3058	458
Grp Volume(v), veh/h	20	82	46	197	117	64	294	150	152	18	85	89
Grp Sat Flow(s),veh/h/ln	1757	1752	1534	1757	1679	1775	1704	1752	1706	1757	1752	1763
Q Serve(g_s), s	0.7	1.2	1.6	6.5	1.6	1.7	4.7	3.8	3.9	0.6	2.5	2.6
Cycle Q Clear(g_c), s	0.7	1.2	1.6	6.5	1.6	1.7	4.7	3.8	3.9	0.6	2.5	2.6
Prop In Lane	1.00		1.00	1.00		0.22	1.00		0.46	1.00		0.26
Lane Grp Cap(c), veh/h	42	486	213	244	853	451	570	573	558	38	297	299
V/C Ratio(X)	0.48	0.17	0.22	0.81	0.14	0.14	0.52	0.26	0.27	0.47	0.29	0.30
Avail Cap(c_a), veh/h	296	2536	1110	444	853	451	1434	1150	1120	296	590	593
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	28.6	22.6	22.7	24.8	17.1	17.2	22.5	14.7	14.8	28.7	21.5	21.6
Incr Delay (d2), s/veh	3.2	0.1	0.2	2.4	0.0	0.1	0.9	0.3	0.4	3.4	0.7	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.6	0.7	3.3	0.7	0.8	2.3	1.8	1.9	0.3	1.3	1.3
LnGrp Delay(d),s/veh	31.8	22.6	22.9	27.2	17.2	17.2	23.4	15.1	15.1	32.1	22.3	22.3
LnGrp LOS	C	C	C	C	B	B	C	B	B	C	C	C
Approach Vol, veh/h		148			378			596			192	
Approach Delay, s/veh		24.0			22.4			19.2			23.2	
Approach LOS		C			C			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	13.5	14.1	6.5	25.3	6.6	21.0	15.8	16.0
Change Period (Y+Rc), s	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9	5.9	* 5.9
Max Green Setting (Gmax), s	* 15	43.0	* 10	39.0	* 10	15.0	25.0	* 20
Max Q Clear Time (g_c+I1), s	8.5	3.6	2.6	5.9	2.7	3.7	6.7	4.6
Green Ext Time (p_c), s	0.1	0.9	0.0	3.8	0.0	0.8	3.3	0.9

Intersection Summary	
HCM 2010 Ctrl Delay	21.2
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	157	208	617	513	369	77	410	352	116	2	377	131
Future Volume (veh/h)	157	208	617	513	369	77	410	352	116	2	377	131
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	1845	1845	1845	1845	1845	1900	1845	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	173	229	583	350	705	80	451	387	50	2	414	128
Adj No. of Lanes	1	1	2	1	2	0	2	2	1	1	2	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	343	360	1079	491	909	103	507	1275	570	5	576	176
Arrive On Green	0.20	0.20	0.20	0.28	0.28	0.28	0.15	0.36	0.36	0.00	0.22	0.22
Sat Flow, veh/h	1757	1845	3136	1757	3255	369	3408	3505	1565	1757	2645	809
Grp Volume(v), veh/h	173	229	583	350	399	386	451	387	50	2	273	269
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	1845	1780	1704	1752	1565	1757	1752	1702
Q Serve(g_s), s	12.3	16.0	21.0	25.1	27.9	28.0	18.2	11.1	2.9	0.2	20.2	20.6
Cycle Q Clear(g_c), s	12.3	16.0	21.0	25.1	27.9	28.0	18.2	11.1	2.9	0.2	20.2	20.6
Prop In Lane	1.00		1.00	1.00		0.21	1.00		1.00	1.00		0.48
Lane Grp Cap(c), veh/h	343	360	1079	491	515	497	507	1275	570	5	382	371
V/C Ratio(X)	0.50	0.64	0.54	0.71	0.78	0.78	0.89	0.30	0.09	0.43	0.71	0.73
Avail Cap(c_a), veh/h	564	592	1473	689	723	698	729	1275	570	313	562	546
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	50.4	51.8	37.1	45.5	46.5	46.5	58.6	31.9	29.3	69.8	50.8	51.0
Incr Delay (d2), s/veh	1.1	1.9	0.4	2.9	4.4	4.6	7.4	0.5	0.2	21.1	8.7	9.4
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	6.1	8.3	9.1	12.6	14.8	14.3	9.1	5.5	1.3	0.1	10.7	10.7
LnGrp Delay(d),s/veh	51.5	53.7	37.5	48.3	50.9	51.1	66.0	32.4	29.6	90.9	59.5	60.4
LnGrp LOS	D	D	D	D	D	D	E	C	C	F	E	E
Approach Vol, veh/h		985			1135			888			544	
Approach Delay, s/veh		43.7			50.2			49.3			60.0	
Approach LOS		D			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	5.6	56.9		44.8	26.1	36.4		33.0
Change Period (Y+Rc), s	* 5.2	5.9		5.6	* 5.2	5.9		5.6
Max Green Setting (Gmax), s	* 25	45.0		55.0	* 30	45.0		45.0
Max Q Clear Time (g_c+I1), s	12.3	13.1		30.0	20.2	22.6		23.0
Green Ext Time (p_c), s	0.0	15.7		9.2	0.6	7.9		4.4

Intersection Summary	
HCM 2010 Ctrl Delay	49.7
HCM 2010 LOS	D

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	14.6
Intersection LOS	B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	326	0	0	462	497	14
Future Vol, veh/h	326	0	0	462	497	14
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	329	0	0	467	502	14
Number of Lanes	2	0	0	2	2	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	2
HCM Control Delay	11.1	12.3	19
HCM LOS	B	B	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2
Vol Left, %	100%	92%	0%	0%	0%	0%
Vol Thru, %	0%	0%	100%	100%	100%	100%
Vol Right, %	0%	8%	0%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	331	180	163	163	231	231
LT Vol	331	166	0	0	0	0
Through Vol	0	0	163	163	231	231
RT Vol	0	14	0	0	0	0
Lane Flow Rate	335	181	165	165	233	233
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.653	0.349	0.315	0.233	0.434	0.319
Departure Headway (Hd)	7.024	6.929	6.878	5.087	6.701	4.914
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	512	519	520	700	534	726
Service Time	4.778	4.683	4.655	2.863	4.475	2.686
HCM Lane V/C Ratio	0.654	0.349	0.317	0.236	0.436	0.321
HCM Control Delay	22.1	13.4	12.8	9.4	14.6	10
HCM Lane LOS	C	B	B	A	B	A
HCM 95th-tile Q	4.7	1.6	1.3	0.9	2.2	1.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	115	878	858	649
Future Volume (veh/h)	0	0	115	878	858	649
Number			5	2	6	16
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)			1.00			1.00
Parking Bus, Adj			1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln			1845	1845	1845	1845
Adj Flow Rate, veh/h			126	965	943	518
Adj No. of Lanes			2	1	1	1
Peak Hour Factor			0.91	0.91	0.91	0.91
Percent Heavy Veh, %			3	3	3	3
Cap, veh/h			414	1654	1255	1067
Arrive On Green			0.12	0.90	0.68	0.68
Sat Flow, veh/h			3408	1845	1845	1568
Grp Volume(v), veh/h			126	965	943	518
Grp Sat Flow(s),veh/h/ln			1704	1845	1845	1568
Q Serve(g_s), s			1.7	5.6	16.5	7.8
Cycle Q Clear(g_c), s			1.7	5.6	16.5	7.8
Prop In Lane			1.00			1.00
Lane Grp Cap(c), veh/h			414	1654	1255	1067
V/C Ratio(X)			0.30	0.58	0.75	0.49
Avail Cap(c_a), veh/h			1724	1654	1867	1587
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh			19.8	0.6	5.2	3.8
Incr Delay (d2), s/veh			0.2	0.8	1.0	0.3
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			0.8	2.8	8.5	3.4
LnGrp Delay(d),s/veh			20.0	1.4	6.1	4.1
LnGrp LOS			C	A	A	A
Approach Vol, veh/h				1091	1461	
Approach Delay, s/veh				3.5	5.4	
Approach LOS				A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		
Phs Duration (G+Y+Rc), s		49.4			10.7	38.7		
Change Period (Y+Rc), s		5.1			* 4.7	5.1		
Max Green Setting (Gmax), s		25.0			* 25	50.0		
Max Q Clear Time (g_c+I1), s		7.6			3.7	18.5		
Green Ext Time (p_c), s		15.3			0.2	15.1		

Intersection Summary	
HCM 2010 Ctrl Delay	4.6
HCM 2010 LOS	A

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	449	110	215	544	355	503
Future Volume (veh/h)	449	110	215	544	355	503
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	468	68	224	567	370	142
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	532	723	278	959	515	438
Arrive On Green	0.30	0.30	0.16	0.52	0.28	0.28
Sat Flow, veh/h	1757	1568	1757	1845	1845	1568
Grp Volume(v), veh/h	468	68	224	567	370	142
Grp Sat Flow(s),veh/h/ln	1757	1568	1757	1845	1845	1568
Q Serve(g_s), s	14.4	1.4	7.0	12.1	10.3	4.1
Cycle Q Clear(g_c), s	14.4	1.4	7.0	12.1	10.3	4.1
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	532	723	278	959	515	438
V/C Ratio(X)	0.88	0.09	0.81	0.59	0.72	0.32
Avail Cap(c_a), veh/h	1017	1156	832	1456	1003	853
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.9	8.7	23.2	9.5	18.5	16.3
Incr Delay (d2), s/veh	1.9	0.0	2.1	0.2	0.7	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	7.2	0.0	3.5	6.2	5.3	1.8
LnGrp Delay(d),s/veh	20.8	8.7	25.3	9.7	19.2	16.4
LnGrp LOS	C	A	C	A	B	B
Approach Vol, veh/h	536			791	512	
Approach Delay, s/veh	19.3			14.1	18.4	
Approach LOS	B			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		35.0		22.0	13.7	21.3		
Change Period (Y+Rc), s		5.4		* 4.7	* 4.7	5.4		
Max Green Setting (Gmax), s		45.0		* 33	* 27	31.0		
Max Q Clear Time (g_c+I1), s		14.1		16.4	9.0	12.3		
Green Ext Time (p_c), s		3.9		0.8	0.3	3.6		

Intersection Summary	
HCM 2010 Ctrl Delay	16.8
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	0	151	0	259	13	16	22	0	0	68	116
Future Volume (veh/h)	63	0	151	0	259	13	16	22	0	0	68	116
Number	1	6	16	5	2	12	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		0.97
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	0	1845	1900	1845	1845	0	0	1845	1900
Adj Flow Rate, veh/h	77	0	99	0	316	15	16	33	0	0	83	23
Adj No. of Lanes	2	1	2	0	1	0	1	2	0	0	2	0
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	3	3	3	0	3	3	3	3	0	0	3	3
Cap, veh/h	256	852	1394	0	449	21	95	199	0	0	257	68
Arrive On Green	0.07	0.00	0.46	0.00	0.26	0.26	0.05	0.05	0.00	0.00	0.09	0.09
Sat Flow, veh/h	3408	1845	2697	0	1747	83	1757	3689	0	0	2812	721
Grp Volume(v), veh/h	77	0	99	0	0	331	16	33	0	0	52	54
Grp Sat Flow(s),veh/h/ln	1704	1845	1349	0	0	1830	1757	1845	0	0	1752	1688
Q Serve(g_s), s	0.8	0.0	0.7	0.0	0.0	5.8	0.3	0.3	0.0	0.0	1.0	1.1
Cycle Q Clear(g_c), s	0.8	0.0	0.7	0.0	0.0	5.8	0.3	0.3	0.0	0.0	1.0	1.1
Prop In Lane	1.00		1.00	0.00		0.05	1.00		0.00	0.00		0.43
Lane Grp Cap(c), veh/h	256	852	1394	0	0	470	95	199	0	0	166	160
V/C Ratio(X)	0.30	0.00	0.07	0.00	0.00	0.70	0.17	0.17	0.00	0.00	0.31	0.34
Avail Cap(c_a), veh/h	2407	1303	2054	0	0	1292	1241	2605	0	0	1237	1192
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	15.5	0.0	4.3	0.0	0.0	11.9	16.0	16.0	0.0	0.0	15.0	15.0
Incr Delay (d2), s/veh	0.7	0.0	0.0	0.0	0.0	1.9	0.8	0.4	0.0	0.0	1.1	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.3	0.0	0.0	3.2	0.2	0.2	0.0	0.0	0.5	0.5
LnGrp Delay(d),s/veh	16.2	0.0	4.3	0.0	0.0	13.9	16.8	16.4	0.0	0.0	16.0	16.2
LnGrp LOS	B		A			B	B	B			B	B
Approach Vol, veh/h		176			331			49			106	
Approach Delay, s/veh		9.5			13.9			16.5			16.1	
Approach LOS		A			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	7.3	13.7		7.9		20.9		6.5
Change Period (Y+Rc), s	4.6	4.6		4.6		4.6		4.6
Max Green Setting (Gmax), s	25.0	25.0		25.0		25.0		25.0
Max Q Clear Time (g_c+I1), s	2.8	7.8		3.1		2.7		2.3
Green Ext Time (p_c), s	0.6	1.6		0.5		0.6		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	13.3
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	456	18	44	263	1	15	2	21	188	2	29
Future Volume (veh/h)	35	456	18	44	263	1	15	2	21	188	2	29
Number	3	8	18	7	4	14	1	6	16	5	2	12
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	1845	1845	1900	1845	1845	1900	1900	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	48	625	20	60	360	1	21	3	29	258	3	10
Adj No. of Lanes	2	2	0	1	2	0	0	1	1	1	1	0
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	172	1102	35	104	1171	3	67	10	68	340	73	242
Arrive On Green	0.05	0.32	0.32	0.06	0.33	0.33	0.04	0.04	0.04	0.19	0.19	0.19
Sat Flow, veh/h	3408	3467	111	1757	3585	10	1546	221	1568	1757	375	1249
Grp Volume(v), veh/h	48	316	329	60	176	185	24	0	29	258	0	13
Grp Sat Flow(s),veh/h/ln	1704	1752	1825	1757	1752	1843	1767	0	1568	1757	0	1624
Q Serve(g_s), s	0.6	6.5	6.5	1.4	3.3	3.3	0.6	0.0	0.8	6.0	0.0	0.3
Cycle Q Clear(g_c), s	0.6	6.5	6.5	1.4	3.3	3.3	0.6	0.0	0.8	6.0	0.0	0.3
Prop In Lane	1.00		0.06	1.00		0.01	0.87		1.00	1.00		0.77
Lane Grp Cap(c), veh/h	172	557	580	104	572	602	77	0	68	340	0	314
V/C Ratio(X)	0.28	0.57	0.57	0.58	0.31	0.31	0.31	0.00	0.43	0.76	0.00	0.04
Avail Cap(c_a), veh/h	454	1022	1065	234	1022	1075	365	0	324	928	0	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	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.9	12.4	12.4	20.0	11.0	11.0	20.2	0.0	20.3	16.6	0.0	14.3
Incr Delay (d2), s/veh	0.9	0.9	0.9	1.9	0.3	0.3	2.3	0.0	4.2	3.5	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	3.3	3.4	0.8	1.6	1.7	0.3	0.0	0.4	3.3	0.0	0.1
LnGrp Delay(d),s/veh	20.8	13.3	13.2	21.8	11.3	11.3	22.5	0.0	24.5	20.1	0.0	14.3
LnGrp LOS	C	B	B	C	B	B	C		C	C		B
Approach Vol, veh/h		693			421			53			271	
Approach Delay, s/veh		13.8			12.8			23.6			19.8	
Approach LOS		B			B			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		12.4	6.4	18.8		5.9	6.8	18.4
Change Period (Y+Rc), s		4.0	* 4.2	4.6		4.0	* 4.2	4.6
Max Green Setting (Gmax), s		23.0	* 5.8	25.4		9.0	* 5.8	25.4
Max Q Clear Time (g_c+I1), s		8.0	2.6	5.3		2.8	3.4	8.5
Green Ext Time (p_c), s		0.7	0.0	5.7		0.1	0.0	5.3

Intersection Summary	
HCM 2010 Ctrl Delay	15.0
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	484	28	50	317	2	22	0	14	11	0	10
Future Vol, veh/h	3	484	28	50	317	2	22	0	14	11	0	10
Conflicting Peds, #/hr	2	0	0	0	0	2	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	-	-	130	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	4	598	35	62	391	2	27	0	17	14	0	12

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	396	0	0	632	0	0	941	1141	316	824	1158	199
Stage 1	-	-	-	-	-	-	622	622	-	518	518	-
Stage 2	-	-	-	-	-	-	319	519	-	306	640	-
Critical Hdwy	4.16	-	-	4.16	-	-	7.56	6.56	6.96	7.56	6.56	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Follow-up Hdwy	2.23	-	-	2.23	-	-	3.53	4.03	3.33	3.53	4.03	3.33
Pot Cap-1 Maneuver	1152	-	-	940	-	-	216	198	677	263	193	806
Stage 1	-	-	-	-	-	-	439	475	-	506	529	-
Stage 2	-	-	-	-	-	-	664	528	-	676	466	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1152	-	-	940	-	-	201	184	677	242	179	805
Mov Cap-2 Maneuver	-	-	-	-	-	-	201	184	-	242	179	-
Stage 1	-	-	-	-	-	-	437	473	-	503	493	-
Stage 2	-	-	-	-	-	-	611	492	-	656	464	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1.2	20.5	15.7
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	277	1152	-	-	940	-	-	363
HCM Lane V/C Ratio	0.16	0.003	-	-	0.066	-	-	0.071
HCM Control Delay (s)	20.5	8.1	-	-	9.1	-	-	15.7
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.6	0	-	-	0.2	-	-	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	33	61	20	34	37	62	580	40	19	412	65
Future Volume (veh/h)	63	33	61	20	34	37	62	580	40	19	412	65
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		0.99
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	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	72	38	18	23	39	7	71	667	43	22	474	64
Adj No. of Lanes	1	1	0	1	2	0	1	3	0	1	3	0
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	120	106	50	49	148	26	118	2087	134	47	1757	233
Arrive On Green	0.07	0.09	0.09	0.03	0.05	0.05	0.07	0.43	0.43	0.03	0.39	0.39
Sat Flow, veh/h	1757	1185	561	1757	2984	521	1757	4836	310	1757	4493	595
Grp Volume(v), veh/h	72	0	56	23	22	24	71	462	248	22	352	186
Grp Sat Flow(s),veh/h/ln	1757	0	1746	1757	1752	1753	1757	1679	1789	1757	1679	1731
Q Serve(g_s), s	1.6	0.0	1.2	0.5	0.5	0.5	1.6	3.7	3.8	0.5	2.9	3.0
Cycle Q Clear(g_c), s	1.6	0.0	1.2	0.5	0.5	0.5	1.6	3.7	3.8	0.5	2.9	3.0
Prop In Lane	1.00		0.32	1.00		0.30	1.00		0.17	1.00		0.34
Lane Grp Cap(c), veh/h	120	0	156	49	87	87	118	1449	772	47	1313	677
V/C Ratio(X)	0.60	0.00	0.36	0.47	0.26	0.27	0.60	0.32	0.32	0.46	0.27	0.27
Avail Cap(c_a), veh/h	851	0	1902	1063	1909	1910	851	3008	1602	851	2845	1467
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.7	0.0	17.7	19.8	18.9	18.9	18.7	7.7	7.7	19.8	8.6	8.6
Incr Delay (d2), s/veh	4.8	0.0	1.4	6.7	1.5	1.6	4.8	0.2	0.3	2.6	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	1.0	0.0	0.7	0.3	0.3	0.3	0.9	1.8	1.9	0.3	1.4	1.5
LnGrp Delay(d),s/veh	23.5	0.0	19.1	26.5	20.4	20.6	23.5	7.9	8.0	22.4	8.7	8.8
LnGrp LOS	C		B	C	C	C	C	A	A	C	A	A
Approach Vol, veh/h		128			69			781			560	
Approach Delay, s/veh		21.6			22.5			9.4			9.3	
Approach LOS		C			C			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.3	22.4	5.4	8.2	7.0	20.8	7.0	6.6
Change Period (Y+Rc), s	* 4.2	4.6	* 4.2	4.5	* 4.2	4.6	* 4.2	4.5
Max Green Setting (Gmax), s	* 20	37.0	* 25	45.0	* 20	35.0	* 20	45.0
Max Q Clear Time (g_c+I1), s	2.5	5.8	2.5	3.2	3.6	5.0	3.6	2.5
Green Ext Time (p_c), s	0.0	10.9	0.0	0.6	0.1	10.8	0.1	0.6

Intersection Summary			
HCM 2010 Ctrl Delay		10.9	
HCM 2010 LOS		B	

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	105	290	270	47	163	10	259	567	81	14	332	147
Future Volume (veh/h)	105	290	270	47	163	10	259	567	81	14	332	147
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		0.98	1.00		1.00	1.00		1.00	1.00		0.98
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	1900	1845	1845	1900	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	115	319	160	52	179	6	285	623	36	15	365	36
Adj No. of Lanes	2	3	0	2	3	0	2	2	1	2	2	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	233	678	312	226	999	33	429	1248	557	87	897	395
Arrive On Green	0.07	0.20	0.20	0.07	0.20	0.20	0.13	0.36	0.36	0.03	0.26	0.26
Sat Flow, veh/h	3408	3357	1543	3408	5005	166	3408	3505	1565	3408	3505	1542
Grp Volume(v), veh/h	115	319	160	52	120	65	285	623	36	15	365	36
Grp Sat Flow(s),veh/h/ln	1704	1679	1543	1704	1679	1814	1704	1752	1565	1704	1752	1542
Q Serve(g_s), s	2.1	5.3	5.9	0.9	1.9	1.9	5.1	8.8	1.0	0.3	5.5	1.1
Cycle Q Clear(g_c), s	2.1	5.3	5.9	0.9	1.9	1.9	5.1	8.8	1.0	0.3	5.5	1.1
Prop In Lane	1.00		1.00	1.00		0.09	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	233	678	312	226	670	362	429	1248	557	87	897	395
V/C Ratio(X)	0.49	0.47	0.51	0.23	0.18	0.18	0.67	0.50	0.06	0.17	0.41	0.09
Avail Cap(c_a), veh/h	1075	1324	608	1075	2224	1202	1075	1658	741	1075	1658	730
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	28.5	22.3	22.5	28.1	21.1	21.1	26.4	16.0	13.5	30.2	19.6	18.0
Incr Delay (d2), s/veh	1.9	0.6	1.6	0.6	0.2	0.3	2.1	0.4	0.1	1.1	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	1.0	2.5	2.6	0.5	0.9	1.0	2.5	4.3	0.4	0.1	2.7	0.5
LnGrp Delay(d),s/veh	30.4	22.9	24.1	28.7	21.2	21.4	28.6	16.4	13.5	31.3	19.9	18.1
LnGrp LOS	C	C	C	C	C	C	C	B	B	C	B	B
Approach Vol, veh/h		594			237			944			416	
Approach Delay, s/veh		24.7			22.9			19.9			20.2	
Approach LOS		C			C			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	9.5	18.6	6.8	28.5	9.4	18.7	13.2	22.1
Change Period (Y+Rc), s	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9
Max Green Setting (Gmax), s	* 20	42.0	* 20	30.0	* 20	25.0	* 20	30.0
Max Q Clear Time (g_c+I1), s	4.1	3.9	2.3	10.8	2.9	7.9	7.1	7.5
Green Ext Time (p_c), s	0.3	5.5	0.0	7.5	0.1	4.4	1.0	8.1

Intersection Summary	
HCM 2010 Ctrl Delay	21.6
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	23.9
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	388	0	278	0	0	0	89	519	0	0	609	40
Future Vol, veh/h	388	0	278	0	0	0	89	519	0	0	609	40
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
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	396	0	284	0	0	0	91	530	0	0	621	41
Number of Lanes	1	1	1	0	0	0	1	2	0	0	2	1

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	3	3
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	3	3	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	3	0	3
HCM Control Delay	18.8	21.1	31.9
HCM LOS	C	C	D

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	100%	100%	0%	0%	0%	0%
Vol Thru, %	0%	100%	100%	0%	0%	0%	100%	100%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	89	260	260	194	194	278	305	305	40
LT Vol	89	0	0	194	194	0	0	0	0
Through Vol	0	260	260	0	0	0	305	305	0
RT Vol	0	0	0	0	0	278	0	0	40
Lane Flow Rate	91	265	265	198	198	284	311	311	41
Geometry Grp	8	8	8	7	7	7	8	8	8
Degree of Util (X)	0.237	0.652	0.519	0.465	0.465	0.571	0.749	0.749	0.07
Departure Headway (Hd)	9.375	8.86	7.058	8.465	8.465	7.248	8.68	8.68	6.16
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	381	405	508	426	426	496	416	416	576
Service Time	7.169	6.654	4.851	6.232	6.232	5.014	6.474	6.474	3.953
HCM Lane V/C Ratio	0.239	0.654	0.522	0.465	0.465	0.573	0.748	0.748	0.071
HCM Control Delay	15.1	26.9	17.3	18.4	18.4	19.3	33.4	33.4	9.4
HCM Lane LOS	C	D	C	C	C	C	D	D	A
HCM 95th-tile Q	0.9	4.5	2.9	2.4	2.4	3.5	6.1	6.1	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	290	3	267	0	0	0	0	318	402	437	450	0
Future Volume (veh/h)	290	3	267	0	0	0	0	318	402	437	450	0
Number	3	8	18				1	6	16	5	2	12
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	1900	1845	1845				0	1845	1845	1845	1845	0
Adj Flow Rate, veh/h	322	3	145				0	353	139	486	500	0
Adj No. of Lanes	0	1	1				0	1	1	2	1	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, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	435	4	392				0	508	431	667	1021	0
Arrive On Green	0.25	0.25	0.25				0.00	0.28	0.28	0.20	0.55	0.00
Sat Flow, veh/h	1741	16	1568				0	1845	1565	3408	1845	0
Grp Volume(v), veh/h	325	0	145				0	353	139	486	500	0
Grp Sat Flow(s),veh/h/ln	1758	0	1568				0	1845	1565	1704	1845	0
Q Serve(g_s), s	7.6	0.0	3.4				0.0	7.7	3.2	6.0	7.4	0.0
Cycle Q Clear(g_c), s	7.6	0.0	3.4				0.0	7.7	3.2	6.0	7.4	0.0
Prop In Lane	0.99		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	439	0	392				0	508	431	667	1021	0
V/C Ratio(X)	0.74	0.00	0.37				0.00	0.70	0.32	0.73	0.49	0.00
Avail Cap(c_a), veh/h	2550	0	2275				0	1071	908	1522	1021	0
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	1.00	1.00	0.00
Uniform Delay (d), s/veh	15.5	0.0	13.9				0.0	14.6	12.9	16.9	6.1	0.0
Incr Delay (d2), s/veh	0.9	0.0	0.2				0.0	0.6	0.2	0.6	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	0.0	1.5				0.0	3.9	1.4	2.8	3.8	0.0
LnGrp Delay(d),s/veh	16.4	0.0	14.1				0.0	15.2	13.1	17.5	6.3	0.0
LnGrp LOS	B		B					B	B	B	A	
Approach Vol, veh/h		470						492			986	
Approach Delay, s/veh		15.7						14.6			11.8	
Approach LOS		B						B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		29.4			12.5	16.9		15.4
Change Period (Y+Rc), s		4.6			3.7	4.6		4.2
Max Green Setting (Gmax), s		24.0			20.0	26.0		65.0
Max Q Clear Time (g_c+I1), s		9.4			8.0	9.7		9.6
Green Ext Time (p_c), s		3.3			0.8	2.5		1.6

Intersection Summary	
HCM 2010 Ctrl Delay	13.4
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	300	29	16	34	24	125	6	199	35	152	273	192
Future Volume (veh/h)	300	29	16	34	24	125	6	199	35	152	273	192
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	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	312	30	5	35	25	13	6	207	26	158	284	123
Adj No. of Lanes	1	1	0	1	1	0	1	2	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	0.96	0.96	0.96
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	397	348	58	114	74	39	14	669	83	205	774	327
Arrive On Green	0.23	0.23	0.23	0.07	0.07	0.07	0.01	0.21	0.21	0.12	0.32	0.32
Sat Flow, veh/h	1757	1541	257	1757	1144	595	1757	3138	389	1757	2401	1015
Grp Volume(v), veh/h	312	0	35	35	0	38	6	114	119	158	205	202
Grp Sat Flow(s),veh/h/ln	1757	0	1798	1757	0	1740	1757	1752	1775	1757	1752	1664
Q Serve(g_s), s	7.9	0.0	0.7	0.9	0.0	1.0	0.2	2.6	2.7	4.1	4.3	4.4
Cycle Q Clear(g_c), s	7.9	0.0	0.7	0.9	0.0	1.0	0.2	2.6	2.7	4.1	4.3	4.4
Prop In Lane	1.00		0.14	1.00		0.34	1.00		0.22	1.00		0.61
Lane Grp Cap(c), veh/h	397	0	406	114	0	113	14	374	379	205	565	536
V/C Ratio(X)	0.79	0.00	0.09	0.31	0.00	0.34	0.43	0.31	0.31	0.77	0.36	0.38
Avail Cap(c_a), veh/h	1109	0	1135	1109	0	1098	924	1106	1121	1109	1106	1050
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.3	0.0	14.5	21.2	0.0	21.2	23.5	15.7	15.8	20.4	12.4	12.4
Incr Delay (d2), s/veh	1.3	0.0	0.0	0.6	0.0	0.6	7.4	0.2	0.2	2.3	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	4.0	0.0	0.4	0.5	0.0	0.5	0.1	1.3	1.3	2.1	2.1	2.0
LnGrp Delay(d),s/veh	18.6	0.0	14.6	21.7	0.0	21.9	30.9	15.9	15.9	22.7	12.5	12.6
LnGrp LOS	B		B	C		C	C	B	B	C	B	B
Approach Vol, veh/h		347			73			239			565	
Approach Delay, s/veh		18.2			21.8			16.3			15.4	
Approach LOS		B			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.8	14.7		15.3	4.6	19.9		7.7
Change Period (Y+Rc), s	* 4.2	4.6		4.6	* 4.2	4.6		4.6
Max Green Setting (Gmax), s	* 6	30.0		30.0	* 25	30.0		30.0
Max Q Clear Time (g_c+I1), s	6.1	4.7		9.9	2.2	6.4		3.0
Green Ext Time (p_c), s	0.2	2.4		0.5	0.0	2.4		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	16.7
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	6.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	109	394	129	3	46	247
Future Vol, veh/h	109	394	129	3	46	247
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	136	493	161	4	58	309

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	165	0	-	0	928	163
Stage 1	-	-	-	-	163	-
Stage 2	-	-	-	-	765	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1407	-	-	-	296	879
Stage 1	-	-	-	-	864	-
Stage 2	-	-	-	-	458	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1407	-	-	-	257	879
Mov Cap-2 Maneuver	-	-	-	-	257	-
Stage 1	-	-	-	-	864	-
Stage 2	-	-	-	-	397	-

Approach	EB	WB	SB
HCM Control Delay, s	1.7	0	18
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1407	-	-	-	637
HCM Lane V/C Ratio	0.097	-	-	-	0.575
HCM Control Delay (s)	7.8	0	-	-	18
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.3	-	-	-	3.7

Intersection	
Int Delay, s/veh	155.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	199	198	558	363	135	261
Future Vol, veh/h	199	198	558	363	135	261
Conflicting Peds, #/hr	2	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	315	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	224	222	627	408	152	293

Major/Minor	Minor1		Major1		Minor2	
Conflicting Flow All	776	627	0	0	738	627
Stage 1	627	-	-	-	0	0
Stage 2	149	-	-	-	738	627
Critical Hdwy	7.13	6.23	-	-	7.13	6.53
Critical Hdwy Stg 1	6.13	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	6.13	5.53
Follow-up Hdwy	3.527	3.327	-	-	3.527	4.027
Pot Cap-1 Maneuver	313	482	-	-	332	399
Stage 1	470	-	-	-	-	-
Stage 2	-	-	-	-	408	475
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	~ 125	482	-	-	179	399
Mov Cap-2 Maneuver	~ 125	-	-	-	179	399
Stage 1	470	-	-	-	-	-
Stage 2	-	-	-	-	220	475

Approach	WB	NB	SB
HCM Control Delay, s	$ 618	0	52.2
HCM LOS	F		F

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBLn1	SBLn2
Capacity (veh/h)	-	-	198	179	399
HCM Lane V/C Ratio	-	-	2.253	0.847	0.735
HCM Control Delay (s)	-	-	$ 618	84.8	35.3
HCM Lane LOS	-	-	F	F	E
HCM 95th %tile Q(veh)	-	-	35.7	6	5.8

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

Intersection	
Int Delay, s/veh	118.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	9	332	589	3	20	424
Future Vol, veh/h	9	332	589	3	20	424
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Free	Free
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, %	3	3	3	3	3	3
Mvmt Flow	10	386	685	3	23	493

Major/Minor	Minor1		Minor2		Major2	
Conflicting Flow All	884	0	540	493	0	0
Stage 1	0	-	540	-	-	-
Stage 2	884	-	0	-	-	-
Critical Hdwy	7.13	6.23	6.53	6.23	4.13	-
Critical Hdwy Stg 1	-	-	5.53	-	-	-
Critical Hdwy Stg 2	6.13	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	4.027	3.327	2.227	-
Pot Cap-1 Maneuver	265	-	~ 447	574	-	-
Stage 1	-	-	~ 520	-	-	-
Stage 2	339	-	-	-	-	-
Platoon blocked, %						-
Mov Cap-1 Maneuver	-	-	~ 447	574	-	-
Mov Cap-2 Maneuver	-	-	~ 447	-	-	-
Stage 1	-	-	~ 520	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s		275.6	
HCM LOS	-	F	

Minor Lane/Major Mvmt	NBLn1	WBLn1	SBL	SBT
Capacity (veh/h)	448	-	-	-
HCM Lane V/C Ratio	1.537	-	-	-
HCM Control Delay (s)	275.6	-	-	-
HCM Lane LOS	F	-	-	-
HCM 95th %tile Q(veh)	37	-	-	-

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)	429	0	249	0	0	0	72	672	0	1	534	22
Future Volume (veh/h)	429	0	249	0	0	0	72	672	0	1	534	22
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	1845	1845	1845				1845	1845	0	1900	1845	1845
Adj Flow Rate, veh/h	596	0	0				100	933	0	1	742	31
Adj No. of Lanes	2	0	1				1	2	0	0	2	1
Peak Hour Factor	0.72	0.72	0.72				0.72	0.72	0.72	0.72	0.72	0.72
Percent Heavy Veh, %	3	3	3				3	3	0	3	3	3
Cap, veh/h	802	0	358				129	2214	0	0	1710	765
Arrive On Green	0.23	0.00	0.00				0.07	0.63	0.00	0.00	0.49	0.49
Sat Flow, veh/h	3514	0	1568				1757	3597	0	0	3505	1568
Grp Volume(v), veh/h	596	0	0				100	933	0	0	742	31
Grp Sat Flow(s),veh/h/ln	1757	0	1568				1757	1752	0	0	1752	1568
Q Serve(g_s), s	9.0	0.0	0.0				3.2	7.6	0.0	0.0	7.8	0.6
Cycle Q Clear(g_c), s	9.0	0.0	0.0				3.2	7.6	0.0	0.0	7.8	0.6
Prop In Lane	1.00		1.00				1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h	802	0	358				129	2214	0	0	1710	765
V/C Ratio(X)	0.74	0.00	0.00				0.77	0.42	0.00	0.00	0.43	0.04
Avail Cap(c_a), veh/h	1908	0	851				339	4482	0	0	4052	1813
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				1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	20.5	0.0	0.0				26.0	5.3	0.0	0.0	9.5	7.6
Incr Delay (d2), s/veh	1.4	0.0	0.0				9.4	0.1	0.0	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	4.5	0.0	0.0				1.9	3.7	0.0	0.0	3.8	0.3
LnGrp Delay(d),s/veh	21.9	0.0	0.0				35.4	5.4	0.0	0.0	9.7	7.7
LnGrp LOS	C						D	A			A	A
Approach Vol, veh/h		596						1033			773	
Approach Delay, s/veh		21.9						8.3			9.6	
Approach LOS		C						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		
Phs Duration (G+Y+Rc), s	0.0	40.1		17.0	8.2	31.9		
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		
Max Green Setting (Gmax), s	4.0	73.0		31.0	11.0	66.0		
Max Q Clear Time (g_c+I1), s	0.0	9.6		11.0	5.2	9.8		
Green Ext Time (p_c), s	0.0	18.5		2.0	0.1	18.0		

Intersection Summary	
HCM 2010 Ctrl Delay	12.1
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	388	0	278	0	0	0	89	519	0	0	609	40
Future Volume (veh/h)	388	0	278	0	0	0	89	519	0	0	609	40
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		0.98
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	1845	1845	1845				1845	1845	0	1845	1845	1845
Adj Flow Rate, veh/h	396	0	0				91	530	0	0	621	41
Adj No. of Lanes	2	0	1				1	2	0	1	2	1
Peak Hour Factor	0.98	0.98	0.98				0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	3	3	3				3	3	0	3	3	3
Cap, veh/h	663	0	296				117	2105	0	5	1502	658
Arrive On Green	0.19	0.00	0.00				0.07	0.60	0.00	0.00	0.43	0.43
Sat Flow, veh/h	3514	0	1568				1757	3597	0	1757	3505	1535
Grp Volume(v), veh/h	396	0	0				91	530	0	0	621	41
Grp Sat Flow(s),veh/h/ln	1757	0	1568				1757	1752	0	1757	1752	1535
Q Serve(g_s), s	3.9	0.0	0.0				1.9	2.7	0.0	0.0	4.7	0.6
Cycle Q Clear(g_c), s	3.9	0.0	0.0				1.9	2.7	0.0	0.0	4.7	0.6
Prop In Lane	1.00		1.00				1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	663	0	296				117	2105	0	5	1502	658
V/C Ratio(X)	0.60	0.00	0.00				0.78	0.25	0.00	0.00	0.41	0.06
Avail Cap(c_a), veh/h	3702	0	1652				925	5908	0	185	4431	1941
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				1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	14.1	0.0	0.0				17.4	3.6	0.0	0.0	7.5	6.4
Incr Delay (d2), s/veh	0.9	0.0	0.0				10.5	0.1	0.0	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	1.9	0.0	0.0				1.3	1.3	0.0	0.0	2.3	0.3
LnGrp Delay(d),s/veh	15.0	0.0	0.0				27.9	3.6	0.0	0.0	7.7	6.4
LnGrp LOS	B						C	A			A	A
Approach Vol, veh/h		396						621			662	
Approach Delay, s/veh		15.0						7.2			7.6	
Approach LOS		B						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		
Phs Duration (G+Y+Rc), s	0.0	26.8		11.2	6.5	20.3		
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		
Max Green Setting (Gmax), s	4.0	64.0		40.0	20.0	48.0		
Max Q Clear Time (g_c+I1), s	0.0	4.7		5.9	3.9	6.7		
Green Ext Time (p_c), s	0.0	10.0		1.4	0.2	9.6		

Intersection Summary	
HCM 2010 Ctrl Delay	9.2
HCM 2010 LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	251	400	170	223	42	111	130	80	21	240	110
Future Volume (veh/h)	30	251	400	170	223	42	111	130	80	21	240	110
Number	5	2	12	1	6	16	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		0.99	1.00		1.00	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	1845	1845	1845	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	35	295	98	200	262	28	131	153	30	25	282	89
Adj No. of Lanes	1	2	1	1	3	0	2	2	0	1	2	0
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	66	627	277	249	1312	137	307	755	145	50	485	150
Arrive On Green	0.04	0.18	0.18	0.14	0.28	0.28	0.09	0.26	0.26	0.03	0.18	0.18
Sat Flow, veh/h	1757	3505	1547	1757	4632	484	3408	2932	562	1757	2637	816
Grp Volume(v), veh/h	35	295	98	200	188	102	131	90	93	25	185	186
Grp Sat Flow(s),veh/h/ln	1757	1752	1547	1757	1679	1759	1704	1752	1742	1757	1752	1701
Q Serve(g_s), s	1.1	4.3	3.1	6.2	2.4	2.5	2.1	2.3	2.4	0.8	5.5	5.6
Cycle Q Clear(g_c), s	1.1	4.3	3.1	6.2	2.4	2.5	2.1	2.3	2.4	0.8	5.5	5.6
Prop In Lane	1.00		1.00	1.00		0.28	1.00		0.32	1.00		0.48
Lane Grp Cap(c), veh/h	66	627	277	249	951	498	307	451	449	50	322	313
V/C Ratio(X)	0.53	0.47	0.35	0.80	0.20	0.20	0.43	0.20	0.21	0.50	0.58	0.59
Avail Cap(c_a), veh/h	311	2668	1178	467	951	498	1509	1210	1202	311	621	602
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	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	26.7	20.8	20.3	23.5	15.4	15.4	24.3	16.4	16.4	27.0	21.0	21.1
Incr Delay (d2), s/veh	2.5	0.2	0.3	2.3	0.0	0.1	1.1	0.3	0.3	2.8	2.3	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	2.1	1.4	3.2	1.1	1.2	1.0	1.1	1.2	0.4	2.8	2.8
LnGrp Delay(d),s/veh	29.2	21.0	20.6	25.8	15.4	15.5	25.5	16.7	16.8	29.8	23.3	23.7
LnGrp LOS	C	C	C	C	B	B	C	B	B	C	C	C
Approach Vol, veh/h		428			490			314			396	
Approach Delay, s/veh		21.6			19.7			20.4			23.9	
Approach LOS		C			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.2	16.0	6.8	20.4	7.3	21.9	11.0	16.3
Change Period (Y+Rc), s	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9	5.9	* 5.9
Max Green Setting (Gmax), s	* 15	43.0	* 10	39.0	* 10	15.0	25.0	* 20
Max Q Clear Time (g_c+I1), s	8.2	6.3	2.8	4.4	3.1	4.5	4.1	7.6
Green Ext Time (p_c), s	0.1	1.7	0.0	2.0	0.0	1.9	1.8	2.1

Intersection Summary	
HCM 2010 Ctrl Delay	21.3
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	81	380	645	284	91	320	200	241	20	750	40
Future Volume (veh/h)	30	81	380	645	284	91	320	200	241	20	750	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	1845	1845	1845	1845	1845	1900	1845	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	33	90	386	733	293	95	356	222	118	22	833	43
Adj No. of Lanes	1	1	2	2	1	0	2	2	1	1	2	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	238	250	806	985	374	121	414	1390	620	37	1004	52
Arrive On Green	0.14	0.14	0.14	0.28	0.28	0.28	0.12	0.40	0.40	0.02	0.30	0.30
Sat Flow, veh/h	1757	1845	3136	3514	1335	433	3408	3505	1562	1757	3391	175
Grp Volume(v), veh/h	33	90	386	733	0	388	356	222	118	22	430	446
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	0	1768	1704	1752	1562	1757	1752	1814
Q Serve(g_s), s	2.2	5.9	14.0	25.4	0.0	27.1	13.7	5.5	6.6	1.7	30.7	30.7
Cycle Q Clear(g_c), s	2.2	5.9	14.0	25.4	0.0	27.1	13.7	5.5	6.6	1.7	30.7	30.7
Prop In Lane	1.00		1.00	1.00		0.24	1.00		1.00	1.00		0.10
Lane Grp Cap(c), veh/h	238	250	806	985	0	496	414	1390	620	37	519	537
V/C Ratio(X)	0.14	0.36	0.48	0.74	0.00	0.78	0.86	0.16	0.19	0.60	0.83	0.83
Avail Cap(c_a), veh/h	590	620	1435	1443	0	726	764	1390	620	328	589	610
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.0	52.6	42.1	43.8	0.0	44.4	57.7	26.0	26.4	65.0	44.0	44.0
Incr Delay (d2), s/veh	0.3	0.9	0.4	1.7	0.0	4.4	2.1	0.2	0.5	5.7	12.8	12.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	3.1	6.1	12.5	0.0	13.9	6.6	2.7	2.9	0.9	16.7	17.2
LnGrp Delay(d),s/veh	51.2	53.5	42.6	45.5	0.0	48.9	59.8	26.2	26.9	70.7	56.8	56.4
LnGrp LOS	D	D	D	D		D	E	C	C	E	E	E
Approach Vol, veh/h		509			1121			696			898	
Approach Delay, s/veh		45.1			46.7			43.5			57.0	
Approach LOS		D			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	8.0	59.0		43.1	21.5	45.5		23.8
Change Period (Y+Rc), s	* 5.2	5.9		5.6	* 5.2	5.9		5.6
Max Green Setting (Gmax), s	* 25	45.0		55.0	* 30	45.0		45.0
Max Q Clear Time (g_c+I1), s	3.7	8.6		29.1	15.7	32.7		16.0
Green Ext Time (p_c), s	0.0	21.2		8.5	0.6	6.9		2.2

Intersection Summary	
HCM 2010 Ctrl Delay	48.6
HCM 2010 LOS	D

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	332	0	0	510	510	120
Future Volume (veh/h)	332	0	0	510	510	120
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	0	0	1845	1845	1900
Adj Flow Rate, veh/h	395	0	0	607	703	0
Adj No. of Lanes	2	0	0	2	2	1
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	3	0	0	3	3	0
Cap, veh/h	1319	0	0	1319	1098	505
Arrive On Green	0.38	0.00	0.00	0.38	0.31	0.00
Sat Flow, veh/h	3689	0	0	3689	3514	1615
Grp Volume(v), veh/h	395	0	0	607	703	0
Grp Sat Flow(s),veh/h/ln	1752	0	0	1752	1757	1615
Q Serve(g_s), s	2.5	0.0	0.0	4.2	5.5	0.0
Cycle Q Clear(g_c), s	2.5	0.0	0.0	4.2	5.5	0.0
Prop In Lane		0.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	1319	0	0	1319	1098	505
V/C Ratio(X)	0.30	0.00	0.00	0.46	0.64	0.00
Avail Cap(c_a), veh/h	2508	0	0	2508	3498	1608
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	0.00
Uniform Delay (d), s/veh	7.0	0.0	0.0	7.6	9.5	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.3	0.6	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	1.2	0.0	0.0	2.1	2.7	0.0
LnGrp Delay(d),s/veh	7.2	0.0	0.0	7.8	10.1	0.0
LnGrp LOS	A			A	B	
Approach Vol, veh/h	395			607	703	
Approach Delay, s/veh	7.2			7.8	10.1	
Approach LOS	A			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		17.1				17.1		15.0
Change Period (Y+Rc), s		5.0				5.0		5.0
Max Green Setting (Gmax), s		23.0				23.0		32.0
Max Q Clear Time (g_c+I1), s		4.5				6.2		7.5
Green Ext Time (p_c), s		6.2				5.9		2.5

Intersection Summary	
HCM 2010 Ctrl Delay	8.6
HCM 2010 LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	130	761	1104	671
Future Volume (veh/h)	0	0	130	761	1104	671
Number			5	2	6	16
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)			1.00			1.00
Parking Bus, Adj			1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln			1845	1845	1845	1845
Adj Flow Rate, veh/h			141	827	1200	587
Adj No. of Lanes			2	1	1	1
Peak Hour Factor			0.92	0.92	0.92	0.92
Percent Heavy Veh, %			3	3	3	3
Cap, veh/h			347	1685	1350	1177
Arrive On Green			0.10	0.91	0.73	0.75
Sat Flow, veh/h			3408	1845	1845	1568
Grp Volume(v), veh/h			141	827	1200	587
Grp Sat Flow(s),veh/h/ln			1704	1845	1845	1568
Q Serve(g_s), s			2.3	4.1	29.4	8.8
Cycle Q Clear(g_c), s			2.3	4.1	29.4	8.8
Prop In Lane			1.00			1.00
Lane Grp Cap(c), veh/h			347	1685	1350	1177
V/C Ratio(X)			0.41	0.49	0.89	0.50
Avail Cap(c_a), veh/h			1445	1685	1564	1359
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh			24.8	0.4	6.1	2.9
Incr Delay (d2), s/veh			0.4	0.5	6.0	0.3
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			1.1	2.1	16.6	3.9
LnGrp Delay(d),s/veh			25.2	0.9	12.1	3.3
LnGrp LOS			C	A	B	A
Approach Vol, veh/h				968	1787	
Approach Delay, s/veh				4.4	9.2	
Approach LOS				A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		
Phs Duration (G+Y+Rc), s		59.0			10.7	48.3		
Change Period (Y+Rc), s		5.1			* 4.7	5.1		
Max Green Setting (Gmax), s		25.0			* 25	50.0		
Max Q Clear Time (g_c+I1), s		6.1			4.3	31.4		
Green Ext Time (p_c), s		16.9			0.2	11.8		

Intersection Summary	
HCM 2010 Ctrl Delay	7.5
HCM 2010 LOS	A

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	429	80	170	462	457	647
Future Volume (veh/h)	429	80	170	462	457	647
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	471	48	187	508	502	340
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	526	678	233	1003	624	530
Arrive On Green	0.30	0.30	0.13	0.54	0.34	0.34
Sat Flow, veh/h	1757	1568	1757	1845	1845	1568
Grp Volume(v), veh/h	471	48	187	508	502	340
Grp Sat Flow(s),veh/h/ln	1757	1568	1757	1845	1845	1568
Q Serve(g_s), s	16.5	1.2	6.7	11.2	16.0	11.8
Cycle Q Clear(g_c), s	16.5	1.2	6.7	11.2	16.0	11.8
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	526	678	233	1003	624	530
V/C Ratio(X)	0.89	0.07	0.80	0.51	0.80	0.64
Avail Cap(c_a), veh/h	899	1010	735	1287	887	754
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.6	10.7	27.1	9.3	19.4	18.0
Incr Delay (d2), s/veh	3.4	0.0	2.4	0.1	2.3	0.5
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	1.3	3.4	5.7	8.5	5.2
LnGrp Delay(d),s/veh	25.0	10.7	29.6	9.4	21.8	18.5
LnGrp LOS	C	B	C	A	C	B
Approach Vol, veh/h	519			695	842	
Approach Delay, s/veh	23.7			14.8	20.5	
Approach LOS	C			B	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		40.5		24.0	13.3	27.2		
Change Period (Y+Rc), s		5.4		* 4.7	* 4.7	5.4		
Max Green Setting (Gmax), s		45.0		* 33	* 27	31.0		
Max Q Clear Time (g_c+I1), s		13.2		18.5	8.7	18.0		
Green Ext Time (p_c), s		4.7		0.8	0.2	3.8		

Intersection Summary	
HCM 2010 Ctrl Delay	19.4
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	0	272	0	180	60	15	42	0	0	61	120
Future Volume (veh/h)	100	0	272	0	180	60	15	42	0	0	61	120
Number	1	6	16	5	2	12	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		1.00	1.00		1.00	1.00		0.99
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	0	1845	1900	1845	1845	0	0	1845	1900
Adj Flow Rate, veh/h	123	0	41	0	222	65	19	52	0	0	75	25
Adj No. of Lanes	2	1	2	0	1	0	1	2	0	0	2	0
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	3	3	3	0	3	3	3	3	0	0	3	3
Cap, veh/h	333	837	1446	0	315	92	124	260	0	0	252	80
Arrive On Green	0.10	0.00	0.45	0.00	0.23	0.23	0.07	0.07	0.00	0.00	0.10	0.10
Sat Flow, veh/h	3408	1845	2760	0	1372	402	1757	3689	0	0	2702	830
Grp Volume(v), veh/h	123	0	41	0	0	287	19	52	0	0	49	51
Grp Sat Flow(s),veh/h/ln	1704	1845	1380	0	0	1774	1757	1845	0	0	1752	1687
Q Serve(g_s), s	1.2	0.0	0.3	0.0	0.0	5.4	0.4	0.5	0.0	0.0	0.9	1.0
Cycle Q Clear(g_c), s	1.2	0.0	0.3	0.0	0.0	5.4	0.4	0.5	0.0	0.0	0.9	1.0
Prop In Lane	1.00		1.00	0.00		0.23	1.00		0.00	0.00		0.49
Lane Grp Cap(c), veh/h	333	837	1446	0	0	407	124	260	0	0	169	163
V/C Ratio(X)	0.37	0.00	0.03	0.00	0.00	0.70	0.15	0.20	0.00	0.00	0.29	0.31
Avail Cap(c_a), veh/h	2342	1267	2090	0	0	1219	1207	2535	0	0	1204	1159
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	15.4	0.0	4.2	0.0	0.0	12.9	15.9	15.9	0.0	0.0	15.3	15.3
Incr Delay (d2), s/veh	0.7	0.0	0.0	0.0	0.0	2.2	0.6	0.4	0.0	0.0	0.9	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.1	0.0	0.0	2.9	0.2	0.3	0.0	0.0	0.5	0.5
LnGrp Delay(d),s/veh	16.0	0.0	4.2	0.0	0.0	15.1	16.5	16.3	0.0	0.0	16.2	16.4
LnGrp LOS	B		A			B	B	B			B	B
Approach Vol, veh/h		164			287			71			100	
Approach Delay, s/veh		13.1			15.1			16.4			16.3	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	8.2	13.0		8.1		21.1		7.2
Change Period (Y+Rc), s	4.6	4.6		4.6		4.6		4.6
Max Green Setting (Gmax), s	25.0	25.0		25.0		25.0		25.0
Max Q Clear Time (g_c+I1), s	3.2	7.4		3.0		2.3		2.5
Green Ext Time (p_c), s	0.5	1.4		0.4		0.5		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	14.9
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	176	9	23	666	10	42	5	57	260	2	71
Future Volume (veh/h)	42	176	9	23	666	10	42	5	57	260	2	71
Number	3	8	18	7	4	14	1	6	16	5	2	12
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	1845	1845	1900	1845	1845	1900	1900	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	51	212	7	28	802	11	51	6	23	313	2	26
Adj No. of Lanes	2	2	0	1	2	0	0	1	1	1	1	0
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	173	1226	40	57	1187	16	85	10	84	394	25	330
Arrive On Green	0.05	0.35	0.35	0.03	0.34	0.34	0.05	0.05	0.05	0.22	0.22	0.22
Sat Flow, veh/h	3408	3463	114	1757	3540	49	1580	186	1568	1757	113	1472
Grp Volume(v), veh/h	51	107	112	28	397	416	57	0	23	313	0	28
Grp Sat Flow(s),veh/h/ln	1704	1752	1825	1757	1752	1836	1766	0	1568	1757	0	1585
Q Serve(g_s), s	0.7	2.1	2.1	0.8	9.7	9.7	1.6	0.0	0.7	8.4	0.0	0.7
Cycle Q Clear(g_c), s	0.7	2.1	2.1	0.8	9.7	9.7	1.6	0.0	0.7	8.4	0.0	0.7
Prop In Lane	1.00		0.06	1.00		0.03	0.89		1.00	1.00		0.93
Lane Grp Cap(c), veh/h	173	620	646	57	588	616	95	0	84	394	0	356
V/C Ratio(X)	0.29	0.17	0.17	0.49	0.68	0.68	0.60	0.00	0.27	0.79	0.00	0.08
Avail Cap(c_a), veh/h	395	890	926	204	890	932	318	0	282	808	0	729
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.9	11.1	11.1	23.8	14.3	14.3	23.1	0.0	22.7	18.3	0.0	15.3
Incr Delay (d2), s/veh	0.9	0.1	0.1	2.5	1.4	1.3	6.0	0.0	1.7	3.7	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.0	1.1	0.4	4.9	5.1	0.9	0.0	0.3	4.5	0.0	0.3
LnGrp Delay(d),s/veh	23.8	11.2	11.2	26.3	15.6	15.6	29.1	0.0	24.5	22.0	0.0	15.4
LnGrp LOS	C	B	B	C	B	B	C		C	C		B
Approach Vol, veh/h		270			841			80			341	
Approach Delay, s/veh		13.6			16.0			27.8			21.4	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		15.2	6.7	21.4		6.7	5.8	22.3
Change Period (Y+Rc), s		4.0	* 4.2	4.6		4.0	* 4.2	4.6
Max Green Setting (Gmax), s		23.0	* 5.8	25.4		9.0	* 5.8	25.4
Max Q Clear Time (g_c+I1), s		10.4	2.7	11.7		3.6	2.8	4.1
Green Ext Time (p_c), s		0.9	0.0	5.0		0.1	0.0	6.1

Intersection Summary	
HCM 2010 Ctrl Delay	17.4
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	179	13	27	572	10	62	0	38	10	0	0
Future Vol, veh/h	20	179	13	27	572	10	62	0	38	10	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	130	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	26	236	17	36	753	13	82	0	50	13	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	766	0	0	253	0	0	744	1134	126	1000	1135	383
Stage 1	-	-	-	-	-	-	297	297	-	830	830	-
Stage 2	-	-	-	-	-	-	447	837	-	170	305	-
Critical Hdwy	4.16	-	-	4.16	-	-	7.56	6.56	6.96	7.56	6.56	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Follow-up Hdwy	2.23	-	-	2.23	-	-	3.53	4.03	3.33	3.53	4.03	3.33
Pot Cap-1 Maneuver	837	-	-	1302	-	-	301	200	898	196	199	612
Stage 1	-	-	-	-	-	-	684	664	-	328	381	-
Stage 2	-	-	-	-	-	-	558	378	-	812	658	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	837	-	-	1302	-	-	288	188	898	177	187	612
Mov Cap-2 Maneuver	-	-	-	-	-	-	288	188	-	177	187	-
Stage 1	-	-	-	-	-	-	663	643	-	318	370	-
Stage 2	-	-	-	-	-	-	543	368	-	743	638	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	0.3	19	27
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	388	837	-	-	1302	-	-	177
HCM Lane V/C Ratio	0.339	0.031	-	-	0.027	-	-	0.074
HCM Control Delay (s)	19	9.4	-	-	7.8	-	-	27
HCM Lane LOS	C	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	1.5	0.1	-	-	0.1	-	-	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	20	60	31	40	120	70	704	32	50	361	70
Future Volume (veh/h)	100	20	60	31	40	120	70	704	32	50	361	70
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	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	145	29	23	45	58	28	101	1020	43	72	523	84
Adj No. of Lanes	1	1	0	1	2	0	1	3	0	1	3	0
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	190	128	101	79	168	76	133	2227	94	105	1903	300
Arrive On Green	0.11	0.13	0.13	0.04	0.07	0.07	0.08	0.45	0.45	0.06	0.43	0.43
Sat Flow, veh/h	1757	946	750	1757	2346	1060	1757	4956	209	1757	4385	692
Grp Volume(v), veh/h	145	0	52	45	42	44	101	691	372	72	398	209
Grp Sat Flow(s),veh/h/ln	1757	0	1697	1757	1752	1653	1757	1679	1807	1757	1679	1720
Q Serve(g_s), s	4.5	0.0	1.5	1.4	1.3	1.4	3.2	8.0	8.0	2.3	4.3	4.4
Cycle Q Clear(g_c), s	4.5	0.0	1.5	1.4	1.3	1.4	3.2	8.0	8.0	2.3	4.3	4.4
Prop In Lane	1.00		0.44	1.00		0.64	1.00		0.12	1.00		0.40
Lane Grp Cap(c), veh/h	190	0	229	79	125	118	133	1509	812	105	1457	746
V/C Ratio(X)	0.76	0.00	0.23	0.57	0.34	0.37	0.76	0.46	0.46	0.68	0.27	0.28
Avail Cap(c_a), veh/h	624	0	1356	780	1401	1321	624	2206	1188	624	2087	1069
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.4	0.0	21.7	26.4	24.9	24.9	25.5	10.7	10.8	25.9	10.2	10.3
Incr Delay (d2), s/veh	6.2	0.0	0.5	6.4	1.6	1.9	8.6	0.3	0.5	2.9	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	2.5	0.0	0.8	0.8	0.7	0.7	1.9	3.7	4.0	1.2	2.0	2.1
LnGrp Delay(d),s/veh	30.6	0.0	22.2	32.7	26.4	26.8	34.2	11.0	11.2	28.8	10.4	10.5
LnGrp LOS	C		C	C	C	C	C	B	B	C	B	B
Approach Vol, veh/h		197			131			1164			679	
Approach Delay, s/veh		28.4			28.7			13.1			12.4	
Approach LOS		C			C			B			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	7.6	29.9	6.7	12.1	8.5	29.0	10.3	8.5
Change Period (Y+Rc), s	* 4.2	4.6	* 4.2	4.5	* 4.2	4.6	* 4.2	4.5
Max Green Setting (Gmax), s	* 20	37.0	* 25	45.0	* 20	35.0	* 20	45.0
Max Q Clear Time (g_c+I1), s	4.3	10.0	3.4	3.5	5.2	6.4	6.5	3.4
Green Ext Time (p_c), s	0.1	14.6	0.1	0.8	0.2	15.1	0.3	0.8

Intersection Summary	
HCM 2010 Ctrl Delay	15.2
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	56	120	317	90	343	20	374	730	120	10	270	172
Future Volume (veh/h)	56	120	317	90	343	20	374	730	120	10	270	172
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		0.99	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	1845	1845	1900	1845	1845	1900	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	82	176	112	132	504	25	550	1074	117	15	397	60
Adj No. of Lanes	2	3	0	2	3	0	2	2	1	2	2	1
Peak Hour Factor	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	185	606	279	296	1047	52	679	1451	649	85	841	376
Arrive On Green	0.05	0.18	0.18	0.09	0.21	0.21	0.20	0.41	0.41	0.03	0.24	0.24
Sat Flow, veh/h	3408	3357	1547	3408	4916	242	3408	3505	1568	3408	3505	1568
Grp Volume(v), veh/h	82	176	112	132	343	186	550	1074	117	15	397	60
Grp Sat Flow(s),veh/h/ln	1704	1679	1547	1704	1679	1801	1704	1752	1568	1704	1752	1568
Q Serve(g_s), s	1.8	3.4	4.8	2.8	6.8	6.8	11.7	19.6	3.6	0.3	7.3	2.3
Cycle Q Clear(g_c), s	1.8	3.4	4.8	2.8	6.8	6.8	11.7	19.6	3.6	0.3	7.3	2.3
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	185	606	279	296	715	384	679	1451	649	85	841	376
V/C Ratio(X)	0.44	0.29	0.40	0.45	0.48	0.48	0.81	0.74	0.18	0.18	0.47	0.16
Avail Cap(c_a), veh/h	902	1110	512	902	1865	1000	902	1451	649	902	1391	622
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	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	34.6	26.8	27.4	32.8	26.1	26.1	28.9	18.7	14.0	36.1	24.6	22.7
Incr Delay (d2), s/veh	2.0	0.3	1.1	1.3	0.6	1.1	4.5	2.1	0.2	1.2	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	0.9	1.6	2.1	1.4	3.2	3.5	5.9	9.8	1.6	0.2	3.6	1.0
LnGrp Delay(d),s/veh	36.6	27.1	28.5	34.1	26.7	27.3	33.5	20.8	14.2	37.3	25.1	22.9
LnGrp LOS	D	C	C	C	C	C	C	C	B	D	C	C
Approach Vol, veh/h		370			661			1741			472	
Approach Delay, s/veh		29.6			28.3			24.4			25.2	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.3	22.0	7.1	37.2	11.8	19.5	20.3	24.0
Change Period (Y+Rc), s	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9
Max Green Setting (Gmax), s	* 20	42.0	* 20	30.0	* 20	25.0	* 20	30.0
Max Q Clear Time (g_c+I1), s	3.8	8.8	2.3	21.6	4.8	6.8	13.7	9.3
Green Ext Time (p_c), s	0.2	6.7	0.0	6.3	0.4	5.5	1.4	8.8

Intersection Summary	
HCM 2010 Ctrl Delay	25.9
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	202
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	459	0	270	0	0	0	80	765	0	10	627	40
Future Vol, veh/h	459	0	270	0	0	0	80	765	0	10	627	40
Peak Hour Factor	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	638	0	375	0	0	0	111	1063	0	14	871	56
Number of Lanes	1	1	1	0	0	0	1	2	0	0	2	1

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	3	3
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	3	3	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	3	0	3
HCM Control Delay	49.6	259.8	293.9
HCM LOS	E	F	F

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	100%	100%	0%	5%	0%	0%
Vol Thru, %	0%	100%	100%	0%	0%	0%	95%	100%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	80	383	383	230	230	270	219	418	40
LT Vol	80	0	0	230	230	0	10	0	0
Through Vol	0	383	383	0	0	0	209	418	0
RT Vol	0	0	0	0	0	270	0	0	40
Lane Flow Rate	111	531	531	319	319	375	304	581	56
Geometry Grp	8	8	8	7	7	7	8	8	8
Degree of Util (X)	0.362	1.659	1.401	0.835	0.835	0.857	0.975	1.857	0.167
Departure Headway (Hd)	13.48	12.962	11.15	10.767	10.767	9.549	13.325	13.302	12.58
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	269	287	329	338	338	383	274	279	287
Service Time	11.18	10.662	8.85	8.467	8.467	7.249	11.025	11.002	10.28
HCM Lane V/C Ratio	0.413	1.85	1.614	0.944	0.944	0.979	1.109	2.082	0.195
HCM Control Delay	23.6	341.9	227.2	50	50	48.8	87.1	428.6	17.8
HCM Lane LOS	C	F	F	E	E	E	F	F	C
HCM 95th-tile Q	1.6	28.9	23.4	7.3	7.3	8.1	9.5	34.5	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	569	10	210	0	0	0	0	276	290	402	495	0
Future Volume (veh/h)	569	10	210	0	0	0	0	276	290	402	495	0
Number	3	8	18				1	6	16	5	2	12
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	1900	1845	1845				0	1845	1845	1845	1845	0
Adj Flow Rate, veh/h	686	12	167				0	333	80	484	596	0
Adj No. of Lanes	0	1	1				0	1	1	2	1	0
Peak Hour Factor	0.83	0.83	0.83				0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	768	13	697				0	399	339	588	808	0
Arrive On Green	0.44	0.44	0.44				0.00	0.22	0.22	0.17	0.44	0.00
Sat Flow, veh/h	1728	30	1568				0	1845	1566	3408	1845	0
Grp Volume(v), veh/h	698	0	167				0	333	80	484	596	0
Grp Sat Flow(s),veh/h/ln	1758	0	1568				0	1845	1566	1704	1845	0
Q Serve(g_s), s	27.4	0.0	5.0				0.0	12.9	3.2	10.3	20.1	0.0
Cycle Q Clear(g_c), s	27.4	0.0	5.0				0.0	12.9	3.2	10.3	20.1	0.0
Prop In Lane	0.98		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	782	0	697				0	399	339	588	808	0
V/C Ratio(X)	0.89	0.00	0.24				0.00	0.83	0.24	0.82	0.74	0.00
Avail Cap(c_a), veh/h	1524	0	1359				0	639	543	909	808	0
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	1.00	1.00	0.00
Uniform Delay (d), s/veh	19.2	0.0	12.9				0.0	28.1	24.3	29.9	17.5	0.0
Incr Delay (d2), s/veh	1.5	0.0	0.1				0.0	2.6	0.1	2.0	3.2	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	13.5	0.0	2.1				0.0	6.9	1.4	5.0	10.8	0.0
LnGrp Delay(d),s/veh	20.7	0.0	13.0				0.0	30.7	24.4	31.9	20.6	0.0
LnGrp LOS	C		B					C	C	C	C	
Approach Vol, veh/h		865						413			1080	
Approach Delay, s/veh		19.2						29.5			25.7	
Approach LOS		B						C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		37.5			16.6	20.8		37.5
Change Period (Y+Rc), s		4.6			3.7	4.6		4.2
Max Green Setting (Gmax), s		24.0			20.0	26.0		65.0
Max Q Clear Time (g_c+I1), s		22.1			12.3	14.9		29.4
Green Ext Time (p_c), s		0.9			0.7	1.2		3.9

Intersection Summary	
HCM 2010 Ctrl Delay	24.0
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	223	30	10	20	40	110	20	183	20	90	188	327
Future Volume (veh/h)	223	30	10	20	40	110	20	183	20	90	188	327
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	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	251	34	3	22	45	45	22	206	16	101	211	141
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	327	311	27	150	72	72	47	768	59	142	590	377
Arrive On Green	0.19	0.19	0.19	0.09	0.09	0.09	0.03	0.23	0.23	0.08	0.29	0.29
Sat Flow, veh/h	1757	1671	147	1757	848	848	1757	3297	254	1757	2053	1312
Grp Volume(v), veh/h	251	0	37	22	0	90	22	109	113	101	179	173
Grp Sat Flow(s),veh/h/ln	1757	0	1819	1757	0	1695	1757	1752	1799	1757	1752	1613
Q Serve(g_s), s	5.9	0.0	0.7	0.5	0.0	2.2	0.5	2.2	2.2	2.4	3.5	3.7
Cycle Q Clear(g_c), s	5.9	0.0	0.7	0.5	0.0	2.2	0.5	2.2	2.2	2.4	3.5	3.7
Prop In Lane	1.00		0.08	1.00		0.50	1.00		0.14	1.00		0.81
Lane Grp Cap(c), veh/h	327	0	339	150	0	145	47	408	419	142	503	463
V/C Ratio(X)	0.77	0.00	0.11	0.15	0.00	0.62	0.47	0.27	0.27	0.71	0.35	0.37
Avail Cap(c_a), veh/h	1213	0	1256	1213	0	1170	1011	1210	1242	1213	1210	1114
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.8	0.0	14.7	18.4	0.0	19.2	20.8	13.6	13.6	19.5	12.3	12.4
Incr Delay (d2), s/veh	1.4	0.0	0.1	0.2	0.0	1.6	2.7	0.1	0.1	2.4	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	3.0	0.0	0.4	0.3	0.0	1.1	0.3	1.1	1.1	1.3	1.7	1.7
LnGrp Delay(d),s/veh	18.2	0.0	14.7	18.6	0.0	20.8	23.5	13.8	13.8	21.9	12.4	12.6
LnGrp LOS	B		B	B		C	C	B	B	C	B	B
Approach Vol, veh/h		288			112			244			453	
Approach Delay, s/veh		17.8			20.4			14.6			14.6	
Approach LOS		B			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.7	14.7		12.7	5.4	17.1		8.3
Change Period (Y+Rc), s	* 4.2	4.6		4.6	* 4.2	4.6		4.6
Max Green Setting (Gmax), s	* 3.5	30.0		30.0	* 25	30.0		30.0
Max Q Clear Time (g_c+I1), s	4.4	4.2		7.9	2.5	5.7		4.2
Green Ext Time (p_c), s	0.1	2.1		0.5	0.0	2.1		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	16.0
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	6.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	83	130	220	10	20	317
Future Vol, veh/h	83	130	220	10	20	317
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	86	135	229	10	21	330

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	240	0	-	0	542	234
Stage 1	-	-	-	-	234	-
Stage 2	-	-	-	-	308	-
Critical Hdwy	4.14	-	-	-	6.44	6.24
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	2.236	-	-	-	3.536	3.336
Pot Cap-1 Maneuver	1315	-	-	-	498	800
Stage 1	-	-	-	-	800	-
Stage 2	-	-	-	-	741	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1315	-	-	-	463	800
Mov Cap-2 Maneuver	-	-	-	-	463	-
Stage 1	-	-	-	-	800	-
Stage 2	-	-	-	-	688	-

Approach	EB	WB	SB
HCM Control Delay, s	3.1	0	13.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1315	-	-	-	767
HCM Lane V/C Ratio	0.066	-	-	-	0.458
HCM Control Delay (s)	7.9	0	-	-	13.6
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	2.4

Intersection	
Int Delay, s/veh	543.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	317	280	362	133	60	427
Future Vol, veh/h	317	280	362	133	60	427
Conflicting Peds, #/hr	5	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	315	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	348	308	398	146	66	469

Major/Minor	Minor1		Major1		Minor2	
Conflicting Flow All	638	398	0	0	552	398
Stage 1	398	-	-	-	0	0
Stage 2	240	-	-	-	552	398
Critical Hdwy	7.13	6.23	-	-	7.13	6.53
Critical Hdwy Stg 1	6.13	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	6.13	5.53
Follow-up Hdwy	3.527	3.327	-	-	3.527	4.027
Pot Cap-1 Maneuver	388	649	-	-	443	538
Stage 1	626	-	-	-	-	-
Stage 2	-	-	-	-	516	601
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	~ 99	649	-	-	233	538
Mov Cap-2 Maneuver	~ 99	-	-	-	233	538
Stage 1	626	-	-	-	-	-
Stage 2	-	-	-	-	271	601

Approach	WB	NB	SB
HCM Control Delay, s	$ 1405.7	0	39.8
HCM LOS	F		E

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBLn1	SBLn2
Capacity (veh/h)	-	-	164	233	538
HCM Lane V/C Ratio	-	-	4	0.283	0.872
HCM Control Delay (s)	-	-	$ 1405.7	26.4	41.7
HCM Lane LOS	-	-	F	D	E
HCM 95th %tile Q(veh)	-	-	65.3	1.1	9.6

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

Intersection	
Int Delay, s/veh	238.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	80	30	465	10	50	594
Future Vol, veh/h	80	30	465	10	50	594
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	76	76	76	76	76	76
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	105	39	612	13	66	782

Major/Minor	Minor1		Minor2		Major2	
Conflicting Flow All	1226	0	913	782	0	0
Stage 1	0	-	913	-	-	-
Stage 2	1226	-	0	-	-	-
Critical Hdwy	7.13	6.23	6.53	6.23	4.13	-
Critical Hdwy Stg 1	-	-	5.53	-	-	-
Critical Hdwy Stg 2	6.13	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	4.027	3.327	2.227	-
Pot Cap-1 Maneuver	155	-	~ 272	393	-	-
Stage 1	-	-	~ 351	-	-	-
Stage 2	217	-	-	-	-	-
Platoon blocked, %						-
Mov Cap-1 Maneuver	-	-	~ 272	393	-	-
Mov Cap-2 Maneuver	-	-	~ 272	-	-	-
Stage 1	-	-	~ 351	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s		$ 617.1	
HCM LOS	-	F	

Minor Lane/Major Mvmt	NBLn1	WBLn1	SBL	SBT
Capacity (veh/h)	274	-	-	-
HCM Lane V/C Ratio	2.281	-	-	-
HCM Control Delay (s)	$ 617.1	-	-	-
HCM Lane LOS	F	-	-	-
HCM 95th %tile Q(veh)	48.7	-	-	-

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 (veh/h)	20	82	150	190	161	51	50	250	150	21	170	40
Future Volume (veh/h)	20	82	150	190	161	51	50	250	150	21	170	40
Number	5	2	12	1	6	16	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		0.98	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	1845	1845	1845	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	23	94	38	218	185	25	57	287	96	24	195	30
Adj No. of Lanes	1	2	1	1	3	0	2	2	0	1	2	0
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	48	534	234	271	1259	165	219	627	206	49	587	89
Arrive On Green	0.03	0.15	0.15	0.15	0.28	0.28	0.06	0.24	0.24	0.03	0.19	0.19
Sat Flow, veh/h	1757	3505	1537	1757	4507	590	3408	2596	851	1757	3052	462
Grp Volume(v), veh/h	23	94	38	218	136	74	57	192	191	24	111	114
Grp Sat Flow(s),veh/h/ln	1757	1752	1537	1757	1679	1740	1704	1752	1695	1757	1752	1762
Q Serve(g_s), s	0.7	1.2	1.1	6.3	1.6	1.7	0.8	4.9	5.1	0.7	2.9	2.9
Cycle Q Clear(g_c), s	0.7	1.2	1.1	6.3	1.6	1.7	0.8	4.9	5.1	0.7	2.9	2.9
Prop In Lane	1.00		1.00	1.00		0.34	1.00		0.50	1.00		0.26
Lane Grp Cap(c), veh/h	48	534	234	271	938	486	219	423	409	49	337	339
V/C Ratio(X)	0.48	0.18	0.16	0.80	0.15	0.15	0.26	0.45	0.47	0.49	0.33	0.34
Avail Cap(c_a), veh/h	335	2876	1261	503	961	498	1626	1304	1261	335	669	673
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	25.1	19.3	19.3	21.4	14.2	14.2	23.3	16.9	17.0	25.1	18.2	18.3
Incr Delay (d2), s/veh	2.8	0.1	0.1	2.1	0.0	0.1	0.8	1.1	1.2	2.7	0.8	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.6	0.5	3.2	0.7	0.8	0.4	2.5	2.5	0.4	1.5	1.5
LnGrp Delay(d),s/veh	27.9	19.4	19.4	23.5	14.2	14.3	24.1	18.0	18.2	27.8	19.0	19.1
LnGrp LOS	C	B	B	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		155			428			440			249	
Approach Delay, s/veh		20.7			19.0			18.9			19.9	
Approach LOS		C			B			B			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	13.3	13.9	6.7	18.6	6.6	20.5	9.3	16.0
Change Period (Y+Rc), s	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9	5.9	* 5.9
Max Green Setting (Gmax), s	* 15	43.0	* 10	39.0	* 10	15.0	25.0	* 20
Max Q Clear Time (g_c+I1), s	8.3	3.2	2.7	7.1	2.7	3.7	2.8	4.9
Green Ext Time (p_c), s	0.2	1.2	0.0	3.4	0.0	0.9	3.1	1.3

Intersection Summary	
HCM 2010 Ctrl Delay	19.3
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	242	790	655	471	90	650	280	161	10	370	130
Future Volume (veh/h)	70	242	790	655	471	90	650	280	161	10	370	130
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	1845	1845	1845	1845	1845	1900	1845	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	77	266	795	444	904	95	714	308	66	11	407	125
Adj No. of Lanes	1	1	2	1	2	0	2	2	1	1	2	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	405	425	1235	518	968	102	557	1197	535	21	503	153
Arrive On Green	0.23	0.23	0.23	0.29	0.29	0.29	0.16	0.34	0.34	0.01	0.19	0.19
Sat Flow, veh/h	1757	1845	3136	1757	3283	345	3408	3505	1565	1757	2650	805
Grp Volume(v), veh/h	77	266	795	444	508	491	714	308	66	11	268	264
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	1845	1784	1704	1752	1565	1757	1752	1703
Q Serve(g_s), s	6.5	23.8	37.8	43.8	49.2	49.2	30.0	11.6	5.3	1.1	26.8	27.3
Cycle Q Clear(g_c), s	6.5	23.8	37.8	43.8	49.2	49.2	30.0	11.6	5.3	1.1	26.8	27.3
Prop In Lane	1.00		1.00	1.00		0.19	1.00		1.00	1.00		0.47
Lane Grp Cap(c), veh/h	405	425	1235	518	544	526	557	1197	535	21	332	323
V/C Ratio(X)	0.19	0.63	0.64	0.86	0.93	0.93	1.28	0.26	0.12	0.54	0.81	0.82
Avail Cap(c_a), veh/h	431	452	1282	527	553	535	557	1197	535	239	430	418
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	56.8	63.5	45.1	61.0	62.9	62.9	76.7	43.6	41.5	90.2	71.1	71.3
Incr Delay (d2), s/veh	0.2	2.5	1.1	13.5	23.2	23.8	139.9	0.4	0.4	7.8	15.9	17.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	12.4	16.5	23.2	28.6	27.8	24.9	5.7	2.4	0.6	14.5	14.4
LnGrp Delay(d),s/veh	57.1	66.0	46.2	74.5	86.2	86.7	216.6	44.0	41.9	98.0	87.0	88.8
LnGrp LOS	E	E	D	E	F	F	F	D	D	F	F	F
Approach Vol, veh/h		1138			1443			1088			543	
Approach Delay, s/veh		51.6			82.8			157.2			88.1	
Approach LOS		D			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	7.3	68.6		59.7	35.2	40.7		47.9
Change Period (Y+Rc), s	* 5.2	5.9		5.6	* 5.2	5.9		5.6
Max Green Setting (Gmax), s	* 25	45.0		55.0	* 30	45.0		45.0
Max Q Clear Time (g_c+I1), s	13.1	13.6		51.2	32.0	29.3		39.8
Green Ext Time (p_c), s	0.0	14.2		2.9	0.0	5.5		2.5

Intersection Summary	
HCM 2010 Ctrl Delay	94.2
HCM 2010 LOS	F

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	413	0	0	626	590	20
Future Volume (veh/h)	413	0	0	626	590	20
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	0	0	1845	1845	1900
Adj Flow Rate, veh/h	417	0	0	632	610	0
Adj No. of Lanes	2	0	0	2	2	1
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	3	0	0	3	3	0
Cap, veh/h	1389	0	0	1389	993	457
Arrive On Green	0.40	0.00	0.00	0.40	0.28	0.00
Sat Flow, veh/h	3689	0	0	3689	3514	1615
Grp Volume(v), veh/h	417	0	0	632	610	0
Grp Sat Flow(s),veh/h/ln	1752	0	0	1752	1757	1615
Q Serve(g_s), s	2.5	0.0	0.0	4.1	4.7	0.0
Cycle Q Clear(g_c), s	2.5	0.0	0.0	4.1	4.7	0.0
Prop In Lane		0.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	1389	0	0	1389	993	457
V/C Ratio(X)	0.30	0.00	0.00	0.46	0.61	0.00
Avail Cap(c_a), veh/h	2588	0	0	2588	3609	1659
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	0.00
Uniform Delay (d), s/veh	6.4	0.0	0.0	6.9	9.7	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.2	0.6	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	1.2	0.0	0.0	2.0	2.3	0.0
LnGrp Delay(d),s/veh	6.6	0.0	0.0	7.2	10.3	0.0
LnGrp LOS	A			A	B	
Approach Vol, veh/h	417			632	610	
Approach Delay, s/veh	6.6			7.2	10.3	
Approach LOS	A			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		17.3				17.3		13.8
Change Period (Y+Rc), s		5.0				5.0		5.0
Max Green Setting (Gmax), s		23.0				23.0		32.0
Max Q Clear Time (g_c+I1), s		4.5				6.1		6.7
Green Ext Time (p_c), s		6.5				6.2		2.2

Intersection Summary	
HCM 2010 Ctrl Delay	8.2
HCM 2010 LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	130	1091	1022	793
Future Volume (veh/h)	0	0	130	1091	1022	793
Number			5	2	6	16
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)			1.00			1.00
Parking Bus, Adj			1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln			1845	1845	1845	1845
Adj Flow Rate, veh/h			143	1199	1123	720
Adj No. of Lanes			2	1	1	1
Peak Hour Factor			0.91	0.91	0.91	0.91
Percent Heavy Veh, %			3	3	3	3
Cap, veh/h			369	1675	1318	1120
Arrive On Green			0.11	0.91	0.71	0.71
Sat Flow, veh/h			3408	1845	1845	1568
Grp Volume(v), veh/h			143	1199	1123	720
Grp Sat Flow(s),veh/h/ln			1704	1845	1845	1568
Q Serve(g_s), s			2.2	9.5	24.6	13.4
Cycle Q Clear(g_c), s			2.2	9.5	24.6	13.4
Prop In Lane			1.00			1.00
Lane Grp Cap(c), veh/h			369	1675	1318	1120
V/C Ratio(X)			0.39	0.72	0.85	0.64
Avail Cap(c_a), veh/h			1539	1675	1666	1416
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh			23.0	0.7	5.8	4.2
Incr Delay (d2), s/veh			0.4	1.9	3.6	0.7
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			1.0	4.9	13.2	5.8
LnGrp Delay(d),s/veh			23.3	2.5	9.4	4.8
LnGrp LOS			C	A	A	A
Approach Vol, veh/h				1342	1843	
Approach Delay, s/veh				4.7	7.6	
Approach LOS				A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		
Phs Duration (G+Y+Rc), s		55.4			10.7	44.7		
Change Period (Y+Rc), s		5.1			* 4.7	5.1		
Max Green Setting (Gmax), s		25.0			* 25	50.0		
Max Q Clear Time (g_c+I1), s		11.5			4.2	26.6		
Green Ext Time (p_c), s		13.1			0.2	13.0		

Intersection Summary	
HCM 2010 Ctrl Delay	6.4
HCM 2010 LOS	A

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	577	130	230	644	413	609
Future Volume (veh/h)	577	130	230	644	413	609
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	601	82	240	671	430	214
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	640	823	282	939	534	454
Arrive On Green	0.36	0.36	0.16	0.51	0.29	0.29
Sat Flow, veh/h	1757	1568	1757	1845	1845	1568
Grp Volume(v), veh/h	601	82	240	671	430	214
Grp Sat Flow(s),veh/h/ln	1757	1568	1757	1845	1845	1568
Q Serve(g_s), s	26.4	2.1	10.6	22.4	17.2	9.0
Cycle Q Clear(g_c), s	26.4	2.1	10.6	22.4	17.2	9.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	640	823	282	939	534	454
V/C Ratio(X)	0.94	0.10	0.85	0.71	0.80	0.47
Avail Cap(c_a), veh/h	727	901	595	1041	717	610
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.5	9.5	32.5	15.1	26.2	23.3
Incr Delay (d2), s/veh	17.9	0.0	2.8	1.6	3.5	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	15.9	2.7	5.4	11.8	9.2	3.9
LnGrp Delay(d),s/veh	42.4	9.5	35.3	16.7	29.8	23.6
LnGrp LOS	D	A	D	B	C	C
Approach Vol, veh/h	683			911	644	
Approach Delay, s/veh	38.4			21.6	27.7	
Approach LOS	D			C	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		46.0		33.7	17.5	28.5		
Change Period (Y+Rc), s		5.4		* 4.7	* 4.7	5.4		
Max Green Setting (Gmax), s		45.0		* 33	* 27	31.0		
Max Q Clear Time (g_c+I1), s		24.4		28.4	12.6	19.2		
Green Ext Time (p_c), s		4.7		0.7	0.3	3.9		

Intersection Summary	
HCM 2010 Ctrl Delay	28.5
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	0	193	0	290	20	22	31	0	0	81	130
Future Volume (veh/h)	70	0	193	0	290	20	22	31	0	0	81	130
Number	1	6	16	5	2	12	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		0.96
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	0	1845	1900	1845	1845	0	0	1845	1900
Adj Flow Rate, veh/h	85	0	137	0	354	22	22	45	0	0	99	25
Adj No. of Lanes	2	1	2	0	1	0	1	2	0	0	2	0
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	3	3	3	0	3	3	3	3	0	0	3	3
Cap, veh/h	264	882	1472	0	484	30	117	245	0	0	273	66
Arrive On Green	0.08	0.00	0.48	0.00	0.28	0.28	0.07	0.07	0.00	0.00	0.10	0.10
Sat Flow, veh/h	3408	1845	2697	0	1719	107	1757	3689	0	0	2868	674
Grp Volume(v), veh/h	85	0	137	0	0	376	22	45	0	0	61	63
Grp Sat Flow(s),veh/h/ln	1704	1845	1349	0	0	1826	1757	1845	0	0	1752	1697
Q Serve(g_s), s	0.9	0.0	0.9	0.0	0.0	7.2	0.5	0.4	0.0	0.0	1.3	1.3
Cycle Q Clear(g_c), s	0.9	0.0	0.9	0.0	0.0	7.2	0.5	0.4	0.0	0.0	1.3	1.3
Prop In Lane	1.00		1.00	0.00		0.06	1.00		0.00	0.00		0.40
Lane Grp Cap(c), veh/h	264	882	1472	0	0	514	117	245	0	0	172	167
V/C Ratio(X)	0.32	0.00	0.09	0.00	0.00	0.73	0.19	0.18	0.00	0.00	0.35	0.38
Avail Cap(c_a), veh/h	2207	1194	1930	0	0	1182	1137	2389	0	0	1135	1099
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	16.9	0.0	4.2	0.0	0.0	12.6	17.0	17.0	0.0	0.0	16.3	16.3
Incr Delay (d2), s/veh	0.7	0.0	0.0	0.0	0.0	2.0	0.8	0.4	0.0	0.0	1.2	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.4	0.0	0.0	3.8	0.2	0.2	0.0	0.0	0.7	0.7
LnGrp Delay(d),s/veh	17.5	0.0	4.2	0.0	0.0	14.6	17.8	17.4	0.0	0.0	17.5	17.7
LnGrp LOS	B		A			B	B	B			B	B
Approach Vol, veh/h		222			376			67			124	
Approach Delay, s/veh		9.3			14.6			17.5			17.6	
Approach LOS		A			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	7.6	15.5		8.4		23.1		7.2
Change Period (Y+Rc), s	4.6	4.6		4.6		4.6		4.6
Max Green Setting (Gmax), s	25.0	25.0		25.0		25.0		25.0
Max Q Clear Time (g_c+I1), s	2.9	9.2		3.3		2.9		2.5
Green Ext Time (p_c), s	0.7	1.9		0.6		0.7		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	13.8
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	553	18	44	329	10	15	2	21	230	2	42
Future Volume (veh/h)	41	553	18	44	329	10	15	2	21	230	2	42
Number	3	8	18	7	4	14	1	6	16	5	2	12
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	1845	1845	1900	1845	1845	1900	1900	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	56	758	21	60	451	11	21	3	29	315	3	17
Adj No. of Lanes	2	2	0	1	2	0	0	1	1	1	1	0
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	184	1199	33	99	1212	30	64	9	65	394	54	306
Arrive On Green	0.05	0.34	0.34	0.06	0.35	0.35	0.04	0.04	0.04	0.22	0.22	0.22
Sat Flow, veh/h	3408	3484	96	1757	3497	85	1546	221	1568	1757	241	1363
Grp Volume(v), veh/h	56	381	398	60	226	236	24	0	29	315	0	20
Grp Sat Flow(s),veh/h/ln	1704	1752	1828	1757	1752	1830	1767	0	1568	1757	0	1604
Q Serve(g_s), s	0.8	9.2	9.2	1.7	4.9	4.9	0.7	0.0	0.9	8.5	0.0	0.5
Cycle Q Clear(g_c), s	0.8	9.2	9.2	1.7	4.9	4.9	0.7	0.0	0.9	8.5	0.0	0.5
Prop In Lane	1.00		0.05	1.00		0.05	0.87		1.00	1.00		0.85
Lane Grp Cap(c), veh/h	184	603	629	99	607	634	73	0	65	394	0	360
V/C Ratio(X)	0.30	0.63	0.63	0.61	0.37	0.37	0.33	0.00	0.44	0.80	0.00	0.06
Avail Cap(c_a), veh/h	392	884	922	202	884	923	316	0	280	802	0	732
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.9	13.8	13.8	23.2	12.3	12.3	23.5	0.0	23.6	18.5	0.0	15.3
Incr Delay (d2), s/veh	0.9	1.1	1.1	2.2	0.4	0.4	2.5	0.0	4.7	3.8	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	4.6	4.8	0.9	2.4	2.5	0.4	0.0	0.5	4.5	0.0	0.2
LnGrp Delay(d),s/veh	23.8	14.9	14.9	25.4	12.7	12.7	26.0	0.0	28.3	22.2	0.0	15.4
LnGrp LOS	C	B	B	C	B	B	C		C	C		B
Approach Vol, veh/h		835			522			53			335	
Approach Delay, s/veh		15.5			14.2			27.2			21.8	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		15.3	6.9	22.1		6.1	7.0	21.9
Change Period (Y+Rc), s		4.0	* 4.2	4.6		4.0	* 4.2	4.6
Max Green Setting (Gmax), s		23.0	* 5.8	25.4		9.0	* 5.8	25.4
Max Q Clear Time (g_c+I1), s		10.5	2.8	6.9		2.9	3.7	11.2
Green Ext Time (p_c), s		0.9	0.0	7.0		0.1	0.0	6.1

Intersection Summary	
HCM 2010 Ctrl Delay	16.7
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	578	28	51	405	10	22	0	14	20	0	20
Future Vol, veh/h	10	578	28	51	405	10	22	0	14	20	0	20
Conflicting Peds, #/hr	2	0	0	0	0	2	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	-	-	130	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	12	714	35	63	500	12	27	0	17	25	0	25

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	514	0	0	748	0	0	1132	1396	374	1015	1407	258
Stage 1	-	-	-	-	-	-	756	756	-	634	634	-
Stage 2	-	-	-	-	-	-	376	640	-	381	773	-
Critical Hdwy	4.16	-	-	4.16	-	-	7.56	6.56	6.96	7.56	6.56	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Follow-up Hdwy	2.23	-	-	2.23	-	-	3.53	4.03	3.33	3.53	4.03	3.33
Pot Cap-1 Maneuver	1041	-	-	850	-	-	157	139	621	191	137	738
Stage 1	-	-	-	-	-	-	364	412	-	431	469	-
Stage 2	-	-	-	-	-	-	615	466	-	610	405	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1041	-	-	850	-	-	142	127	621	173	125	737
Mov Cap-2 Maneuver	-	-	-	-	-	-	142	127	-	173	125	-
Stage 1	-	-	-	-	-	-	360	407	-	425	434	-
Stage 2	-	-	-	-	-	-	550	431	-	586	400	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	1	27.6	20.6
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	203	1041	-	-	850	-	-	280
HCM Lane V/C Ratio	0.219	0.012	-	-	0.074	-	-	0.176
HCM Control Delay (s)	27.6	8.5	-	-	9.6	-	-	20.6
HCM Lane LOS	D	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.8	0	-	-	0.2	-	-	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	40	70	31	40	50	70	651	51	30	472	70
Future Volume (veh/h)	70	40	70	31	40	50	70	651	51	30	472	70
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		0.99
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	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	80	46	31	36	46	9	80	748	56	34	543	69
Adj No. of Lanes	1	1	0	1	2	0	1	3	0	1	3	0
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	124	88	59	71	163	31	124	2126	158	68	1868	234
Arrive On Green	0.07	0.09	0.09	0.04	0.06	0.06	0.07	0.44	0.44	0.04	0.41	0.41
Sat Flow, veh/h	1757	1029	693	1757	2940	559	1757	4781	356	1757	4527	567
Grp Volume(v), veh/h	80	0	77	36	27	28	80	524	280	34	401	211
Grp Sat Flow(s),veh/h/ln	1757	0	1722	1757	1752	1746	1757	1679	1780	1757	1679	1736
Q Serve(g_s), s	2.0	0.0	1.9	0.9	0.7	0.7	2.0	4.6	4.6	0.8	3.6	3.6
Cycle Q Clear(g_c), s	2.0	0.0	1.9	0.9	0.7	0.7	2.0	4.6	4.6	0.8	3.6	3.6
Prop In Lane	1.00		0.40	1.00		0.32	1.00		0.20	1.00		0.33
Lane Grp Cap(c), veh/h	124	0	147	71	97	97	124	1493	792	68	1386	716
V/C Ratio(X)	0.65	0.00	0.52	0.51	0.28	0.29	0.65	0.35	0.35	0.50	0.29	0.30
Avail Cap(c_a), veh/h	785	0	1732	982	1763	1756	785	2777	1472	785	2626	1358
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.3	0.0	19.6	21.0	20.3	20.3	20.3	8.2	8.2	21.1	8.8	8.8
Incr Delay (d2), s/veh	5.6	0.0	2.9	5.5	1.5	1.6	5.6	0.2	0.3	2.1	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	1.1	0.0	1.0	0.5	0.4	0.4	1.1	2.1	2.3	0.4	1.6	1.8
LnGrp Delay(d),s/veh	25.8	0.0	22.4	26.6	21.8	21.9	25.8	8.3	8.5	23.2	8.9	9.1
LnGrp LOS	C		C	C	C	C	C	A	A	C	A	A
Approach Vol, veh/h		157			91			884			646	
Approach Delay, s/veh		24.2			23.7			10.0			9.7	
Approach LOS		C			C			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.9	24.5	6.0	8.3	7.3	23.1	7.3	7.0
Change Period (Y+Rc), s	* 4.2	4.6	* 4.2	4.5	* 4.2	4.6	* 4.2	4.5
Max Green Setting (Gmax), s	* 20	37.0	* 25	45.0	* 20	35.0	* 20	45.0
Max Q Clear Time (g_c+I1), s	2.8	6.6	2.9	3.9	4.0	5.6	4.0	2.7
Green Ext Time (p_c), s	0.0	12.7	0.1	0.8	0.1	12.5	0.1	0.8

Intersection Summary	
HCM 2010 Ctrl Delay	11.8
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	132	344	328	80	206	20	294	620	130	20	370	183
Future Volume (veh/h)	132	344	328	80	206	20	294	620	130	20	370	183
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		0.98	1.00		1.00	1.00		1.00	1.00		0.98
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	1900	1845	1845	1900	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	145	378	219	88	226	13	323	681	76	22	407	44
Adj No. of Lanes	2	3	0	2	3	0	2	2	1	2	2	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	241	769	354	272	1160	66	451	1238	553	118	895	394
Arrive On Green	0.07	0.23	0.23	0.08	0.24	0.24	0.13	0.35	0.35	0.03	0.26	0.26
Sat Flow, veh/h	3408	3357	1544	3408	4875	277	3408	3505	1565	3408	3505	1542
Grp Volume(v), veh/h	145	378	219	88	155	84	323	681	76	22	407	44
Grp Sat Flow(s),veh/h/ln	1704	1679	1544	1704	1679	1795	1704	1752	1565	1704	1752	1542
Q Serve(g_s), s	3.0	7.2	9.3	1.8	2.7	2.7	6.6	11.4	2.4	0.5	7.2	1.6
Cycle Q Clear(g_c), s	3.0	7.2	9.3	1.8	2.7	2.7	6.6	11.4	2.4	0.5	7.2	1.6
Prop In Lane	1.00		1.00	1.00		0.15	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	241	769	354	272	799	427	451	1238	553	118	895	394
V/C Ratio(X)	0.60	0.49	0.62	0.32	0.19	0.20	0.72	0.55	0.14	0.19	0.45	0.11
Avail Cap(c_a), veh/h	932	1147	528	932	1928	1030	932	1437	642	932	1437	633
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.0	24.5	25.3	31.8	22.3	22.3	30.4	19.0	16.1	34.3	23.0	20.9
Incr Delay (d2), s/veh	2.9	0.6	2.1	0.8	0.1	0.3	2.6	0.5	0.1	0.9	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	1.5	3.4	4.2	0.9	1.3	1.4	3.3	5.6	1.1	0.2	3.5	0.7
LnGrp Delay(d),s/veh	35.9	25.1	27.5	32.6	22.4	22.6	33.0	19.5	16.2	35.2	23.4	21.0
LnGrp LOS	D	C	C	C	C	C	C	B	B	D	C	C
Approach Vol, veh/h		742			327			1080			473	
Approach Delay, s/veh		27.9			25.2			23.3			23.7	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.4	23.3	7.7	31.7	11.0	22.7	14.9	24.6
Change Period (Y+Rc), s	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9
Max Green Setting (Gmax), s	* 6	42.0	* 20	30.0	* 20	25.0	* 20	30.0
Max Q Clear Time (g_c+I1), s	5.0	4.7	2.5	13.4	3.8	11.3	8.6	9.2
Green Ext Time (p_c), s	0.4	7.2	0.0	7.9	0.2	5.0	1.1	8.9

Intersection Summary	
HCM 2010 Ctrl Delay	24.9
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	46.1
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	447	0	300	0	0	0	100	597	0	0	728	50
Future Vol, veh/h	447	0	300	0	0	0	100	597	0	0	728	50
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
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	456	0	306	0	0	0	102	609	0	0	743	51
Number of Lanes	1	1	1	0	0	0	1	2	0	0	2	1

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	3	3
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	3	3	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	3	0	3
HCM Control Delay	24.9	35.9	75.6
HCM LOS	C	E	F

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	100%	100%	0%	0%	0%	0%
Vol Thru, %	0%	100%	100%	0%	0%	0%	100%	100%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	100	299	299	224	224	300	364	364	50
LT Vol	100	0	0	224	224	0	0	0	0
Through Vol	0	299	299	0	0	0	364	364	0
RT Vol	0	0	0	0	0	300	0	0	50
Lane Flow Rate	102	305	305	228	228	306	371	371	51
Geometry Grp	8	8	8	7	7	7	8	8	8
Degree of Util (X)	0.299	0.849	0.696	0.583	0.583	0.678	1.004	1.004	0.102
Departure Headway (Hd)	10.557	10.04	8.232	9.2	9.2	7.977	9.731	9.731	7.201
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	340	359	436	392	392	453	371	371	495
Service Time	8.353	7.837	6.028	6.952	6.952	5.73	7.517	7.517	4.986
HCM Lane V/C Ratio	0.3	0.85	0.7	0.582	0.582	0.675	1	1	0.103
HCM Control Delay	17.8	49.8	28	24.1	24.1	26	80	80	10.8
HCM Lane LOS	C	E	D	C	C	D	F	F	B
HCM 95th-tile Q	1.2	7.8	5.2	3.6	3.6	5	11.8	11.8	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	336	10	290	0	0	0	0	361	430	522	506	0
Future Volume (veh/h)	336	10	290	0	0	0	0	361	430	522	506	0
Number	3	8	18				1	6	16	5	2	12
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	1900	1845	1845				0	1845	1845	1845	1845	0
Adj Flow Rate, veh/h	373	11	200				0	401	152	580	562	0
Adj No. of Lanes	0	1	1				0	1	1	2	1	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, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	473	14	434				0	505	428	734	1030	0
Arrive On Green	0.28	0.28	0.28				0.00	0.27	0.27	0.22	0.56	0.00
Sat Flow, veh/h	1709	50	1568				0	1845	1565	3408	1845	0
Grp Volume(v), veh/h	384	0	200				0	401	152	580	562	0
Grp Sat Flow(s),veh/h/ln	1759	0	1568				0	1845	1565	1704	1845	0
Q Serve(g_s), s	10.8	0.0	5.6				0.0	10.8	4.2	8.6	10.3	0.0
Cycle Q Clear(g_c), s	10.8	0.0	5.6				0.0	10.8	4.2	8.6	10.3	0.0
Prop In Lane	0.97		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	487	0	434				0	505	428	734	1030	0
V/C Ratio(X)	0.79	0.00	0.46				0.00	0.79	0.35	0.79	0.55	0.00
Avail Cap(c_a), veh/h	2142	0	1909				0	898	762	1277	1030	0
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	1.00	1.00	0.00
Uniform Delay (d), s/veh	17.9	0.0	16.0				0.0	18.0	15.6	19.8	7.5	0.0
Incr Delay (d2), s/veh	1.1	0.0	0.3				0.0	1.1	0.2	0.7	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	0.0	2.5				0.0	5.6	1.8	4.1	5.3	0.0
LnGrp Delay(d),s/veh	19.0	0.0	16.3				0.0	19.1	15.8	20.5	7.8	0.0
LnGrp LOS	B		B					B	B	C	A	
Approach Vol, veh/h		584						553			1142	
Approach Delay, s/veh		18.0						18.2			14.3	
Approach LOS		B						B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		34.4			15.2	19.2		19.0
Change Period (Y+Rc), s		4.6			3.7	4.6		4.2
Max Green Setting (Gmax), s		24.0			20.0	26.0		65.0
Max Q Clear Time (g_c+I1), s		12.3			10.6	12.8		12.8
Green Ext Time (p_c), s		3.4			0.9	1.7		2.0

Intersection Summary	
HCM 2010 Ctrl Delay	16.2
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	334	40	20	40	30	140	10	227	40	170	303	233
Future Volume (veh/h)	334	40	20	40	30	140	10	227	40	170	303	233
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	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	348	42	9	42	31	14	10	236	31	177	316	153
Adj No. of Lanes	1	1	0	1	1	0	1	2	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	0.96	0.96	0.96
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	430	360	77	122	84	38	23	625	81	228	732	347
Arrive On Green	0.24	0.24	0.24	0.07	0.07	0.07	0.01	0.20	0.20	0.13	0.32	0.32
Sat Flow, veh/h	1757	1472	315	1757	1205	544	1757	3119	405	1757	2308	1094
Grp Volume(v), veh/h	348	0	51	42	0	45	10	131	136	177	238	231
Grp Sat Flow(s),veh/h/ln	1757	0	1788	1757	0	1749	1757	1752	1772	1757	1752	1650
Q Serve(g_s), s	9.4	0.0	1.1	1.2	0.0	1.2	0.3	3.3	3.4	4.9	5.4	5.6
Cycle Q Clear(g_c), s	9.4	0.0	1.1	1.2	0.0	1.2	0.3	3.3	3.4	4.9	5.4	5.6
Prop In Lane	1.00		0.18	1.00		0.31	1.00		0.23	1.00		0.66
Lane Grp Cap(c), veh/h	430	0	438	122	0	122	23	351	355	228	556	523
V/C Ratio(X)	0.81	0.00	0.12	0.34	0.00	0.37	0.44	0.37	0.38	0.78	0.43	0.44
Avail Cap(c_a), veh/h	1041	0	1059	1041	0	1036	867	1038	1050	1041	1038	977
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.0	0.0	14.9	22.4	0.0	22.5	24.8	17.5	17.5	21.3	13.7	13.7
Incr Delay (d2), s/veh	1.4	0.0	0.0	0.6	0.0	0.7	4.9	0.2	0.3	2.2	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	4.7	0.0	0.6	0.6	0.0	0.6	0.2	1.6	1.6	2.5	2.6	2.6
LnGrp Delay(d),s/veh	19.4	0.0	14.9	23.1	0.0	23.2	29.7	17.7	17.8	23.5	13.9	13.9
LnGrp LOS	B		B	C		C	C	B	B	C	B	B
Approach Vol, veh/h		399			87			277			646	
Approach Delay, s/veh		18.8			23.1			18.2			16.5	
Approach LOS		B			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.8	14.7		17.0	4.9	20.7		8.1
Change Period (Y+Rc), s	* 4.2	4.6		4.6	* 4.2	4.6		4.6
Max Green Setting (Gmax), s	* 6	30.0		30.0	* 25	30.0		30.0
Max Q Clear Time (g_c+I1), s	11.4	5.4		11.4	2.3	7.6		3.2
Green Ext Time (p_c), s	0.2	2.8		0.7	0.0	2.8		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	17.9
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	9.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	134	420	140	10	50	303
Future Vol, veh/h	134	420	140	10	50	303
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	168	525	175	13	63	379

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	188	0	-	0	1041	181
Stage 1	-	-	-	-	181	-
Stage 2	-	-	-	-	860	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1380	-	-	-	254	859
Stage 1	-	-	-	-	848	-
Stage 2	-	-	-	-	413	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1380	-	-	-	210	859
Mov Cap-2 Maneuver	-	-	-	-	210	-
Stage 1	-	-	-	-	848	-
Stage 2	-	-	-	-	342	-

Approach	EB	WB	SB
HCM Control Delay, s	1.9	0	26.2
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1380	-	-	-	597
HCM Lane V/C Ratio	0.121	-	-	-	0.739
HCM Control Delay (s)	8	0	-	-	26.2
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	0.4	-	-	-	6.4

Intersection	
Int Delay, s/veh	43.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	233	240	634	394	150	323
Future Vol, veh/h	233	240	634	394	150	323
Conflicting Peds, #/hr	2	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	315	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	262	270	712	443	169	363

Major/Minor	Minor1		Major1		Minor2	
Conflicting Flow All	895	712	0	0	847	712
Stage 1	712	-	-	-	0	0
Stage 2	183	-	-	-	847	712
Critical Hdwy	7.13	6.23	-	-	7.13	6.53
Critical Hdwy Stg 1	6.13	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	6.13	5.53
Follow-up Hdwy	3.527	3.327	-	-	3.527	4.027
Pot Cap-1 Maneuver	~ 260	431	-	-	281	~ 356
Stage 1	422	-	-	-	-	-
Stage 2	-	-	-	-	355	434
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	-	431	-	-	~ 105	~ 356
Mov Cap-2 Maneuver	-	-	-	-	~ 105	~ 356
Stage 1	422	-	-	-	-	-
Stage 2	-	-	-	-	~ 133	434

Approach	WB	NB	SB
HCM Control Delay, s		0	181.5
HCM LOS	-		F

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBLn1	SBLn2
Capacity (veh/h)	-	-	-	105	356
HCM Lane V/C Ratio	-	-	-	1.605	1.019
HCM Control Delay (s)	-	-	-$	383.5	87.7
HCM Lane LOS	-	-	-	F	F
HCM 95th %tile Q(veh)	-	-	-	12.9	12.1

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

Intersection	
Int Delay, s/veh	221.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	350	678	10	30	496
Future Vol, veh/h	10	350	678	10	30	496
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Free	Free
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, %	3	3	3	3	3	3
Mvmt Flow	12	407	788	12	35	577

Major/Minor	Minor1		Minor2		Major2	
Conflicting Flow All	1047	0	647	577	0	0
Stage 1	0	-	647	-	-	-
Stage 2	1047	-	0	-	-	-
Critical Hdwy	7.13	6.23	6.53	6.23	4.13	-
Critical Hdwy Stg 1	-	-	5.53	-	-	-
Critical Hdwy Stg 2	6.13	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	4.027	3.327	2.227	-
Pot Cap-1 Maneuver	205	-	~ 388	514	-	-
Stage 1	-	-	~ 465	-	-	-
Stage 2	274	-	-	-	-	-
Platoon blocked, %						-
Mov Cap-1 Maneuver	-	-	~ 388	514	-	-
Mov Cap-2 Maneuver	-	-	~ 388	-	-	-
Stage 1	-	-	~ 465	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s		$ 507.1	
HCM LOS	-	F	

Minor Lane/Major Mvmt	NBLn1	WBLn1	SBL	SBT
Capacity (veh/h)	389	-	-	-
HCM Lane V/C Ratio	2.057	-	-	-
HCM Control Delay (s)	$ 507.1	-	-	-
HCM Lane LOS	F	-	-	-
HCM 95th %tile Q(veh)	56.7	-	-	-

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 (veh/h)	459	0	270	0	0	0	80	765	0	10	627	40
Future Volume (veh/h)	459	0	270	0	0	0	80	765	0	10	627	40
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	1845	1845	1845				1845	1845	0	1845	1845	1845
Adj Flow Rate, veh/h	638	0	0				111	1062	0	14	871	56
Adj No. of Lanes	2	0	1				1	2	0	1	2	1
Peak Hour Factor	0.72	0.72	0.72				0.72	0.72	0.72	0.72	0.72	0.72
Percent Heavy Veh, %	3	3	3				3	3	0	3	3	3
Cap, veh/h	893	0	398				139	1493	0	25	1266	566
Arrive On Green	0.25	0.00	0.00				0.08	0.43	0.00	0.01	0.36	0.36
Sat Flow, veh/h	3514	0	1568				1757	3597	0	1757	3505	1568
Grp Volume(v), veh/h	638	0	0				111	1062	0	14	871	56
Grp Sat Flow(s),veh/h/ln	1757	0	1568				1757	1752	0	1757	1752	1568
Q Serve(g_s), s	6.5	0.0	0.0				2.4	9.8	0.0	0.3	8.3	0.9
Cycle Q Clear(g_c), s	6.5	0.0	0.0				2.4	9.8	0.0	0.3	8.3	0.9
Prop In Lane	1.00		1.00				1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	893	0	398				139	1493	0	25	1266	566
V/C Ratio(X)	0.71	0.00	0.00				0.80	0.71	0.00	0.55	0.69	0.10
Avail Cap(c_a), veh/h	1431	0	639				179	1493	0	179	1428	639
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				1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.4	0.0	0.0				17.8	9.3	0.0	19.2	10.7	8.3
Incr Delay (d2), s/veh	1.1	0.0	0.0				17.2	1.6	0.0	17.4	1.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	0.0	0.0				1.8	4.9	0.0	0.3	4.2	0.4
LnGrp Delay(d),s/veh	14.4	0.0	0.0				35.0	10.9	0.0	36.7	11.9	8.4
LnGrp LOS	B						C	B		D	B	A
Approach Vol, veh/h		638						1173			941	
Approach Delay, s/veh		14.4						13.2			12.0	
Approach LOS		B						B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		
Phs Duration (G+Y+Rc), s	4.6	20.7		14.0	7.1	18.2		
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		
Max Green Setting (Gmax), s	4.0	16.0		16.0	4.0	16.0		
Max Q Clear Time (g_c+I1), s	2.3	11.8		8.5	4.4	10.3		
Green Ext Time (p_c), s	0.0	3.6		1.5	0.0	3.9		

Intersection Summary	
HCM 2010 Ctrl Delay	13.1
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	447	0	300	0	0	0	100	597	0	0	728	50
Future Volume (veh/h)	447	0	300	0	0	0	100	597	0	0	728	50
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		0.98
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	1845	1845	1845				1845	1845	0	1845	1845	1845
Adj Flow Rate, veh/h	456	0	0				102	609	0	0	743	51
Adj No. of Lanes	2	0	1				1	2	0	1	2	1
Peak Hour Factor	0.98	0.98	0.98				0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	3	3	3				3	3	0	3	3	3
Cap, veh/h	697	0	311				134	2186	0	4	1608	705
Arrive On Green	0.20	0.00	0.00				0.08	0.62	0.00	0.00	0.46	0.46
Sat Flow, veh/h	3514	0	1568				1757	3597	0	1757	3505	1535
Grp Volume(v), veh/h	456	0	0				102	609	0	0	743	51
Grp Sat Flow(s),veh/h/ln	1757	0	1568				1757	1752	0	1757	1752	1535
Q Serve(g_s), s	5.4	0.0	0.0				2.6	3.6	0.0	0.0	6.6	0.8
Cycle Q Clear(g_c), s	5.4	0.0	0.0				2.6	3.6	0.0	0.0	6.6	0.8
Prop In Lane	1.00		1.00				1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	697	0	311				134	2186	0	4	1608	705
V/C Ratio(X)	0.65	0.00	0.00				0.76	0.28	0.00	0.00	0.46	0.07
Avail Cap(c_a), veh/h	3045	0	1359				742	5062	0	156	3894	1706
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				1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	16.6	0.0	0.0				20.4	3.9	0.0	0.0	8.4	6.8
Incr Delay (d2), s/veh	1.0	0.0	0.0				8.7	0.1	0.0	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	0.0				1.6	1.7	0.0	0.0	3.1	0.4
LnGrp Delay(d),s/veh	17.7	0.0	0.0				29.1	3.9	0.0	0.0	8.6	6.9
LnGrp LOS	B						C	A			A	A
Approach Vol, veh/h		456						711			794	
Approach Delay, s/veh		17.7						7.5			8.5	
Approach LOS		B						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		
Phs Duration (G+Y+Rc), s	0.0	32.1		12.9	7.4	24.7		
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		
Max Green Setting (Gmax), s	4.0	65.0		39.0	19.0	50.0		
Max Q Clear Time (g_c+I1), s	0.0	5.6		7.4	4.6	8.6		
Green Ext Time (p_c), s	0.0	12.8		1.6	0.2	12.1		

Intersection Summary	
HCM 2010 Ctrl Delay	10.3
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	271	420	190	243	72	121	310	160	111	580	120
Future Volume (veh/h)	40	271	420	190	243	72	121	310	160	111	580	120
Number	5	2	12	1	6	16	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		0.99	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	1845	1845	1845	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	43	295	258	207	264	31	132	337	122	121	630	116
Adj No. of Lanes	1	2	1	1	3	0	2	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	66	825	365	243	1542	177	262	776	276	103	829	152
Arrive On Green	0.04	0.24	0.24	0.14	0.34	0.34	0.08	0.31	0.31	0.06	0.28	0.28
Sat Flow, veh/h	1757	3505	1552	1757	4584	526	3408	2532	901	1757	2958	544
Grp Volume(v), veh/h	43	295	258	207	192	103	132	231	228	121	373	373
Grp Sat Flow(s),veh/h/ln	1757	1752	1552	1757	1679	1752	1704	1752	1680	1757	1752	1749
Q Serve(g_s), s	2.1	6.0	13.0	9.8	3.4	3.5	3.2	9.0	9.2	5.0	16.6	16.6
Cycle Q Clear(g_c), s	2.1	6.0	13.0	9.8	3.4	3.5	3.2	9.0	9.2	5.0	16.6	16.6
Prop In Lane	1.00		1.00	1.00		0.30	1.00		0.54	1.00		0.31
Lane Grp Cap(c), veh/h	66	825	365	243	1129	589	262	537	515	103	491	490
V/C Ratio(X)	0.65	0.36	0.71	0.85	0.17	0.18	0.50	0.43	0.44	1.17	0.76	0.76
Avail Cap(c_a), veh/h	186	1812	803	306	1965	1025	397	803	770	103	702	701
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	40.4	27.2	29.8	35.8	19.9	19.9	37.7	23.6	23.7	40.0	28.0	28.0
Incr Delay (d2), s/veh	4.0	0.1	0.9	14.2	0.0	0.1	1.8	0.8	0.8	142.1	3.9	4.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	2.9	5.6	5.7	1.6	1.7	1.6	4.4	4.4	6.5	8.5	8.5
LnGrp Delay(d),s/veh	44.4	27.3	30.8	50.0	19.9	20.0	39.5	24.4	24.5	182.2	31.9	32.0
LnGrp LOS	D	C	C	D	B	B	D	C	C	F	C	C
Approach Vol, veh/h		596			502			591			867	
Approach Delay, s/veh		30.0			32.3			27.8			52.9	
Approach LOS		C			C			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.0	25.9	10.2	32.0	8.4	34.5	12.4	29.7
Change Period (Y+Rc), s	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9	5.9	* 5.9
Max Green Setting (Gmax), s	* 15	44.0	* 5	39.0	* 9	49.8	9.9	* 34
Max Q Clear Time (g_c+I1), s	11.8	15.0	7.0	11.2	4.1	5.5	5.2	18.6
Green Ext Time (p_c), s	0.1	2.7	0.0	4.4	0.0	2.8	1.7	5.2

Intersection Summary	
HCM 2010 Ctrl Delay	37.7
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	91	440	185	84	61	750	480	490	60	1060	70
Future Volume (veh/h)	50	91	440	185	84	61	750	480	490	60	1060	70
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	1845	1845	1845	1845	1845	1900	1845	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	53	96	166	207	72	35	789	505	203	63	1116	72
Adj No. of Lanes	1	1	2	2	1	0	2	2	1	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	214	225	643	429	143	70	283	1532	683	82	1339	86
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.08	0.44	0.44	0.05	0.40	0.40
Sat Flow, veh/h	1757	1845	3136	3514	1174	570	3408	3505	1563	1757	3343	216
Grp Volume(v), veh/h	53	96	166	207	0	107	789	505	203	63	585	603
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	0	1744	1704	1752	1563	1757	1752	1807
Q Serve(g_s), s	2.2	3.9	3.6	4.5	0.0	4.7	6.8	7.8	6.9	2.9	24.6	24.6
Cycle Q Clear(g_c), s	2.2	3.9	3.6	4.5	0.0	4.7	6.8	7.8	6.9	2.9	24.6	24.6
Prop In Lane	1.00		1.00	1.00		0.33	1.00		1.00	1.00		0.12
Lane Grp Cap(c), veh/h	214	225	643	429	0	213	283	1532	683	82	702	724
V/C Ratio(X)	0.25	0.43	0.26	0.48	0.00	0.50	2.79	0.33	0.30	0.77	0.83	0.83
Avail Cap(c_a), veh/h	966	1014	1984	1588	0	788	283	1532	683	135	726	748
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.5	33.3	27.3	33.5	0.0	33.6	37.5	15.2	14.9	38.6	22.1	22.1
Incr Delay (d2), s/veh	0.6	1.3	0.2	1.2	0.0	2.6	814.1	0.5	0.9	5.7	10.3	10.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	2.1	1.6	2.3	0.0	2.4	35.2	3.8	3.1	1.5	13.9	14.3
LnGrp Delay(d),s/veh	33.1	34.6	27.5	34.7	0.0	36.2	851.6	15.6	15.8	44.3	32.4	32.2
LnGrp LOS	C	C	C	C		D	F	B	B	D	C	C
Approach Vol, veh/h		315			314			1497			1251	
Approach Delay, s/veh		30.6			35.2			456.3			32.9	
Approach LOS		C			D			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.0	41.7		15.6	12.0	38.7		15.6
Change Period (Y+Rc), s	* 5.2	5.9		5.6	* 5.2	5.9		5.6
Max Green Setting (Gmax), s	* 6.3	34.4		37.0	* 6.8	33.9		45.0
Max Q Clear Time (g_c+I1), s	4.9	9.8		6.7	8.8	26.6		5.9
Green Ext Time (p_c), s	0.0	21.9		2.0	0.0	6.2		1.3

Intersection Summary	
HCM 2010 Ctrl Delay	220.6
HCM 2010 LOS	F

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	960	0	730	140	990	0	0	1047	638
Future Volume (veh/h)	0	0	0	960	0	730	140	990	0	0	1047	638
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		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				1845	1845	1845	1845	1845	0	0	1845	1900
Adj Flow Rate, veh/h				1230	0	469	147	1042	0	0	1102	581
Adj No. of Lanes				2	0	1	1	3	0	0	3	0
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				1450	0	647	174	2517	0	0	1193	557
Arrive On Green				0.41	0.00	0.41	0.10	0.50	0.00	0.00	0.36	0.37
Sat Flow, veh/h				3514	0	1568	1757	5202	0	0	3523	1568
Grp Volume(v), veh/h				1230	0	469	147	1042	0	0	1102	581
Grp Sat Flow(s),veh/h/ln				1757	0	1568	1757	1679	0	0	1679	1568
Q Serve(g_s), s				32.9	0.0	26.0	8.5	13.6	0.0	0.0	32.7	36.9
Cycle Q Clear(g_c), s				32.9	0.0	26.0	8.5	13.6	0.0	0.0	32.7	36.9
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				1450	0	647	174	2517	0	0	1193	557
V/C Ratio(X)				0.85	0.00	0.73	0.84	0.41	0.00	0.00	0.92	1.04
Avail Cap(c_a), veh/h				1996	0	891	174	2517	0	0	1193	557
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	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				27.6	0.0	25.6	46.0	16.4	0.0	0.0	32.1	32.9
Incr Delay (d2), s/veh				2.7	0.0	1.9	28.6	0.2	0.0	0.0	11.9	49.7
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				16.4	0.0	11.5	5.6	6.3	0.0	0.0	17.1	23.5
LnGrp Delay(d),s/veh				30.2	0.0	27.4	74.6	16.6	0.0	0.0	44.1	82.6
LnGrp LOS				C		C	E	B			D	F
Approach Vol, veh/h					1699			1189			1683	
Approach Delay, s/veh					29.5			23.8			57.4	
Approach LOS					C			C			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		57.0			15.0	42.0		46.8
Change Period (Y+Rc), s		5.1			* 4.7	5.1		4.0
Max Green Setting (Gmax), s		51.9			* 10	36.9		59.0
Max Q Clear Time (g_c+I1), s		15.6			10.5	38.9		34.9
Green Ext Time (p_c), s		30.4			0.0	0.0		8.0

Intersection Summary	
HCM 2010 Ctrl Delay	38.3
HCM 2010 LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	498	110	310	632	1217	790
Future Volume (veh/h)	498	110	310	632	1217	790
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	541	107	337	687	1323	531
Adj No. of Lanes	2	1	2	3	3	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	658	507	443	3367	2389	744
Arrive On Green	0.19	0.19	0.13	0.67	0.47	0.47
Sat Flow, veh/h	3408	1568	3408	5202	5202	1568
Grp Volume(v), veh/h	541	107	337	687	1323	531
Grp Sat Flow(s),veh/h/ln	1704	1568	1704	1679	1679	1568
Q Serve(g_s), s	11.1	3.6	7.0	3.8	13.7	19.7
Cycle Q Clear(g_c), s	11.1	3.6	7.0	3.8	13.7	19.7
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	658	507	443	3367	2389	744
V/C Ratio(X)	0.82	0.21	0.76	0.20	0.55	0.71
Avail Cap(c_a), veh/h	993	661	1086	5414	3485	1085
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.3	18.0	30.7	4.6	13.7	15.3
Incr Delay (d2), s/veh	2.0	0.1	1.0	0.0	0.1	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	3.7	3.3	1.7	6.3	8.5
LnGrp Delay(d),s/veh	30.3	18.1	31.7	4.7	13.8	15.8
LnGrp LOS	C	B	C	A	B	B
Approach Vol, veh/h	648			1024	1854	
Approach Delay, s/veh	28.3			13.6	14.3	
Approach LOS	C			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		54.3		18.8	14.2	40.1		
Change Period (Y+Rc), s		5.4		* 4.7	* 4.7	5.4		
Max Green Setting (Gmax), s		78.6		* 21	* 23	50.6		
Max Q Clear Time (g_c+I1), s		5.8		13.1	9.0	21.7		
Green Ext Time (p_c), s		16.1		1.0	0.5	13.0		

Intersection Summary	
HCM 2010 Ctrl Delay	16.7
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	0	402	0	360	110	175	92	0	0	71	130
Future Volume (veh/h)	110	0	402	0	360	110	175	92	0	0	71	130
Number	1	6	16	5	2	12	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		1.00	1.00		1.00	1.00		0.99
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	0	1845	1900	1845	1845	0	0	1845	1900
Adj Flow Rate, veh/h	120	0	65	0	391	112	190	100	0	0	77	17
Adj No. of Lanes	2	1	2	0	1	0	2	1	0	0	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, %	3	3	3	0	3	3	3	3	0	0	3	3
Cap, veh/h	278	977	1762	0	489	140	383	201	0	0	236	50
Arrive On Green	0.08	0.00	0.53	0.00	0.35	0.35	0.11	0.11	0.00	0.00	0.08	0.08
Sat Flow, veh/h	3408	1845	2760	0	1380	395	3514	1845	0	0	2958	612
Grp Volume(v), veh/h	120	0	65	0	0	503	190	100	0	0	46	48
Grp Sat Flow(s),veh/h/ln	1704	1845	1380	0	0	1775	1757	1845	0	0	1752	1726
Q Serve(g_s), s	1.7	0.0	0.4	0.0	0.0	12.6	2.5	2.5	0.0	0.0	1.2	1.3
Cycle Q Clear(g_c), s	1.7	0.0	0.4	0.0	0.0	12.6	2.5	2.5	0.0	0.0	1.2	1.3
Prop In Lane	1.00		1.00	0.00		0.22	1.00		0.00	0.00		0.35
Lane Grp Cap(c), veh/h	278	977	1762	0	0	630	383	201	0	0	144	142
V/C Ratio(X)	0.43	0.00	0.04	0.00	0.00	0.80	0.50	0.50	0.00	0.00	0.32	0.34
Avail Cap(c_a), veh/h	1723	2358	3829	0	0	1206	1279	672	0	0	886	873
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	21.6	0.0	3.3	0.0	0.0	14.4	20.7	20.7	0.0	0.0	21.4	21.4
Incr Delay (d2), s/veh	1.1	0.0	0.0	0.0	0.0	2.4	1.0	1.9	0.0	0.0	1.3	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.2	0.0	0.0	6.6	1.3	1.4	0.0	0.0	0.6	0.7
LnGrp Delay(d),s/veh	22.7	0.0	3.3	0.0	0.0	16.8	21.7	22.6	0.0	0.0	22.6	22.8
LnGrp LOS	C		A			B	C	C			C	C
Approach Vol, veh/h		185			503			290			94	
Approach Delay, s/veh		15.9			16.8			22.0			22.7	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	8.6	22.1		8.7		30.8		10.0
Change Period (Y+Rc), s	4.6	4.6		4.6		4.6		4.6
Max Green Setting (Gmax), s	25.0	33.6		25.0		63.2		18.0
Max Q Clear Time (g_c+I1), s	3.7	14.6		3.3		2.4		4.5
Green Ext Time (p_c), s	0.6	2.9		0.4		0.7		1.0

Intersection Summary	
HCM 2010 Ctrl Delay	18.6
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	62	377	5	30	710	20	5	5	96	390	2	81
Future Volume (veh/h)	62	377	5	30	710	20	5	5	96	390	2	81
Number	3	8	18	7	4	14	1	6	16	5	2	12
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	1845	1845	1900	1845	1845	1900	1900	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	67	410	4	33	772	20	5	5	6	424	2	28
Adj No. of Lanes	2	2	0	1	2	0	0	1	1	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	197	1279	12	63	1179	31	14	14	25	505	30	425
Arrive On Green	0.06	0.36	0.36	0.04	0.34	0.34	0.02	0.02	0.02	0.29	0.29	0.29
Sat Flow, veh/h	3408	3556	35	1757	3491	90	900	900	1568	1757	106	1478
Grp Volume(v), veh/h	67	202	212	33	388	404	10	0	6	424	0	30
Grp Sat Flow(s),veh/h/ln	1704	1752	1839	1757	1752	1829	1800	0	1568	1757	0	1584
Q Serve(g_s), s	1.1	4.7	4.7	1.0	10.5	10.5	0.3	0.0	0.2	12.6	0.0	0.8
Cycle Q Clear(g_c), s	1.1	4.7	4.7	1.0	10.5	10.5	0.3	0.0	0.2	12.6	0.0	0.8
Prop In Lane	1.00		0.02	1.00		0.05	0.50		1.00	1.00		0.93
Lane Grp Cap(c), veh/h	197	630	661	63	592	617	28	0	25	505	0	455
V/C Ratio(X)	0.34	0.32	0.32	0.52	0.65	0.66	0.35	0.00	0.24	0.84	0.00	0.07
Avail Cap(c_a), veh/h	318	874	916	183	892	931	278	0	242	977	0	880
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.2	12.9	12.9	26.4	15.7	15.7	27.2	0.0	27.1	18.7	0.0	14.4
Incr Delay (d2), s/veh	1.0	0.3	0.3	2.5	1.2	1.2	7.3	0.0	5.0	3.8	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	2.3	2.4	0.5	5.3	5.5	0.2	0.0	0.1	6.7	0.0	0.3
LnGrp Delay(d),s/veh	26.3	13.2	13.2	28.9	16.9	16.9	34.5	0.0	32.1	22.5	0.0	14.5
LnGrp LOS	C	B	B	C	B	B	C		C	C		B
Approach Vol, veh/h		481			825			16			454	
Approach Delay, s/veh		15.0			17.4			33.6			22.0	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		20.0	7.4	23.4		4.9	6.2	24.7
Change Period (Y+Rc), s		4.0	* 4.2	4.6		4.0	* 4.2	4.6
Max Green Setting (Gmax), s		31.0	* 5.2	28.4		8.6	* 5.8	27.8
Max Q Clear Time (g_c+I1), s		14.6	3.1	12.5		2.3	3.0	6.7
Green Ext Time (p_c), s		1.4	0.0	6.3		0.0	0.0	7.2

Intersection Summary	
HCM 2010 Ctrl Delay	18.1
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	355	6	41	735	20	29	0	69	20	0	0
Future Vol, veh/h	30	355	6	41	735	20	29	0	69	20	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	130	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	33	386	7	45	799	22	32	0	75	22	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	821	0	0	392	0	0	943	1364	196	1157	1357	410
Stage 1	-	-	-	-	-	-	454	454	-	899	899	-
Stage 2	-	-	-	-	-	-	489	910	-	258	458	-
Critical Hdwy	4.16	-	-	4.16	-	-	7.56	6.56	6.96	7.56	6.56	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Follow-up Hdwy	2.23	-	-	2.23	-	-	3.53	4.03	3.33	3.53	4.03	3.33
Pot Cap-1 Maneuver	798	-	-	1156	-	-	216	145	809	150	147	588
Stage 1	-	-	-	-	-	-	552	565	-	298	353	-
Stage 2	-	-	-	-	-	-	527	349	-	721	563	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	798	-	-	1156	-	-	203	134	809	128	135	588
Mov Cap-2 Maneuver	-	-	-	-	-	-	203	134	-	128	135	-
Stage 1	-	-	-	-	-	-	529	542	-	286	339	-
Stage 2	-	-	-	-	-	-	506	335	-	627	540	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	0.4	16.1	38.8
HCM LOS			C	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	430	798	-	-	1156	-	-	128
HCM Lane V/C Ratio	0.248	0.041	-	-	0.039	-	-	0.17
HCM Control Delay (s)	16.1	9.7	-	-	8.2	-	-	38.8
HCM Lane LOS	C	A	-	-	A	-	-	E
HCM 95th %tile Q(veh)	1	0.1	-	-	0.1	-	-	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	60	70	51	60	130	80	784	162	150	401	80
Future Volume (veh/h)	110	60	70	51	60	130	80	784	162	150	401	80
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	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	120	65	40	55	65	23	87	852	155	163	436	69
Adj No. of Lanes	1	1	0	1	2	0	1	3	0	1	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	157	116	71	88	181	61	113	1826	330	207	2108	326
Arrive On Green	0.09	0.11	0.11	0.05	0.07	0.07	0.06	0.43	0.43	0.12	0.48	0.48
Sat Flow, veh/h	1757	1061	653	1757	2573	867	1757	4287	776	1757	4398	681
Grp Volume(v), veh/h	120	0	105	55	43	45	87	666	341	163	331	174
Grp Sat Flow(s),veh/h/ln	1757	0	1715	1757	1752	1688	1757	1679	1706	1757	1679	1722
Q Serve(g_s), s	3.9	0.0	3.4	1.8	1.4	1.5	2.9	8.4	8.5	5.3	3.4	3.5
Cycle Q Clear(g_c), s	3.9	0.0	3.4	1.8	1.4	1.5	2.9	8.4	8.5	5.3	3.4	3.5
Prop In Lane	1.00		0.38	1.00		0.51	1.00		0.45	1.00		0.40
Lane Grp Cap(c), veh/h	157	0	188	88	124	119	113	1430	726	207	1609	825
V/C Ratio(X)	0.77	0.00	0.56	0.62	0.35	0.38	0.77	0.47	0.47	0.79	0.21	0.21
Avail Cap(c_a), veh/h	470	0	1408	366	1336	1286	521	2326	1181	619	2513	1289
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.3	0.0	24.9	27.5	26.2	26.2	27.2	12.1	12.2	25.3	8.9	8.9
Incr Delay (d2), s/veh	7.6	0.0	2.6	7.0	1.7	2.0	10.3	0.3	0.6	2.5	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	2.2	0.0	1.7	1.0	0.7	0.8	1.7	3.9	4.1	2.7	1.6	1.7
LnGrp Delay(d),s/veh	33.8	0.0	27.5	34.4	27.8	28.2	37.5	12.4	12.7	27.8	9.0	9.1
LnGrp LOS	C		C	C	C	C	D	B	B	C	A	A
Approach Vol, veh/h		225			143			1094			668	
Approach Delay, s/veh		30.9			30.5			14.5			13.6	
Approach LOS		C			C			B			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	11.2	29.7	7.2	11.0	8.0	32.9	9.5	8.7
Change Period (Y+Rc), s	* 4.2	4.6	* 4.2	4.5	* 4.2	4.6	* 4.2	4.5
Max Green Setting (Gmax), s	* 21	40.9	* 12	48.5	* 18	44.2	* 16	45.0
Max Q Clear Time (g_c+I1), s	7.3	10.5	3.8	5.4	4.9	5.5	5.9	3.5
Green Ext Time (p_c), s	0.2	14.0	0.1	1.2	0.1	15.4	0.2	1.2

Intersection Summary	
HCM 2010 Ctrl Delay	17.0
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	86	130	647	440	393	30	605	910	550	20	320	182
Future Volume (veh/h)	86	130	647	440	393	30	605	910	550	20	320	182
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		0.99	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	1845	1845	1900	1845	1845	1900	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	91	137	296	463	414	26	637	958	496	21	337	41
Adj No. of Lanes	2	3	0	2	3	0	2	2	1	2	2	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	141	719	331	544	1611	100	739	1437	643	100	781	349
Arrive On Green	0.04	0.21	0.21	0.16	0.33	0.33	0.22	0.41	0.41	0.03	0.22	0.22
Sat Flow, veh/h	3408	3357	1548	3408	4847	301	3408	3505	1568	3408	3505	1568
Grp Volume(v), veh/h	91	137	296	463	286	154	637	958	496	21	337	41
Grp Sat Flow(s),veh/h/ln	1704	1679	1548	1704	1679	1791	1704	1752	1568	1704	1752	1568
Q Serve(g_s), s	3.1	4.0	22.1	15.7	7.4	7.5	21.4	26.4	32.5	0.7	9.8	2.5
Cycle Q Clear(g_c), s	3.1	4.0	22.1	15.7	7.4	7.5	21.4	26.4	32.5	0.7	9.8	2.5
Prop In Lane	1.00		1.00	1.00		0.17	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	141	719	331	544	1116	595	739	1437	643	100	781	349
V/C Ratio(X)	0.64	0.19	0.89	0.85	0.26	0.26	0.86	0.67	0.77	0.21	0.43	0.12
Avail Cap(c_a), veh/h	215	748	345	722	1248	666	1000	1742	779	201	920	411
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	56.1	38.3	45.4	48.6	29.0	29.0	44.9	28.5	30.3	56.4	39.7	36.9
Incr Delay (d2), s/veh	5.8	0.2	24.0	7.9	0.1	0.3	6.4	0.8	4.2	1.2	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	1.6	1.9	11.7	8.0	3.4	3.7	10.7	12.9	14.7	0.4	4.8	1.1
LnGrp Delay(d),s/veh	62.0	38.4	69.4	56.5	29.1	29.3	51.3	29.3	34.5	57.6	40.2	37.1
LnGrp LOS	E	D	E	E	C	C	D	C	C	E	D	D
Approach Vol, veh/h		524			903			2091			399	
Approach Delay, s/veh		60.0			43.2			37.2			40.8	
Approach LOS		E			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.1	45.4	8.7	54.7	24.2	31.4	31.0	32.4
Change Period (Y+Rc), s	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9
Max Green Setting (Gmax), s	* 7.5	44.2	* 7	59.1	* 25	26.5	* 35	31.2
Max Q Clear Time (g_c+I1), s	15.1	9.5	2.7	34.5	17.7	24.1	23.4	11.8
Green Ext Time (p_c), s	0.1	7.5	0.0	14.3	1.3	1.4	2.4	12.3

Intersection Summary	
HCM 2010 Ctrl Delay	42.0
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	310.1
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1099	0	290	0	0	0	370	966	0	20	707	680
Future Vol, veh/h	1099	0	290	0	0	0	370	966	0	20	707	680
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
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	1157	0	305	0	0	0	389	1017	0	21	744	716
Number of Lanes	1	1	1	0	0	0	1	2	0	0	2	1

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	3	3
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	3	3	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	3	0	3
HCM Control Delay	244.3	270.2	412.8
HCM LOS	F	F	F

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	100%	100%	0%	8%	0%	0%
Vol Thru, %	0%	100%	100%	0%	0%	0%	92%	100%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	370	483	483	550	550	290	256	471	680
LT Vol	370	0	0	550	550	0	20	0	0
Through Vol	0	483	483	0	0	0	236	471	0
RT Vol	0	0	0	0	0	290	0	0	680
Lane Flow Rate	389	508	508	578	578	305	269	496	716
Geometry Grp	8	8	8	7	7	7	8	8	8
Degree of Util (X)	1.381	1.732	1.485	1.529	1.529	0.706	0.925	1.701	2.315
Departure Headway (Hd)	6.902	6.387	4.582	16.036	16.036	14.81	5.183	5.142	4.418
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	526	569	793	231	231	247	700	709	823
Service Time	4.602	4.087	2.282	13.736	13.736	12.51	2.883	2.842	2.118
HCM Lane V/C Ratio	0.74	0.893	0.641	2.502	2.502	1.235	0.384	0.7	0.87
HCM Control Delay	203.2	353	238.8	296.5	296.5	46.7	40.4	335.3	606.5
HCM Lane LOS	F	F	F	F	F	E	E	F	F
HCM 95th-tile Q	33	57.9	55.5	21	21	4.7	12.6	67.9	139

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	890	20	250	0	0	0	0	446	370	422	575	0
Future Volume (veh/h)	890	20	250	0	0	0	0	446	370	422	575	0
Number	3	8	18				1	6	16	5	2	12
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	1900	1845	1845				0	1845	1845	1845	1845	0
Adj Flow Rate, veh/h	937	21	187				0	469	113	444	605	0
Adj No. of Lanes	0	1	1				0	1	1	2	1	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	888	20	809				0	495	421	378	757	0
Arrive On Green	0.52	0.52	0.52				0.00	0.27	0.27	0.11	0.41	0.00
Sat Flow, veh/h	1720	39	1568				0	1845	1566	3408	1845	0
Grp Volume(v), veh/h	958	0	187				0	469	113	444	605	0
Grp Sat Flow(s),veh/h/ln	1759	0	1568				0	1845	1566	1704	1845	0
Q Serve(g_s), s	61.8	0.0	7.9				0.0	29.9	6.8	13.3	34.5	0.0
Cycle Q Clear(g_c), s	61.8	0.0	7.9				0.0	29.9	6.8	13.3	34.5	0.0
Prop In Lane	0.98		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	907	0	809				0	495	421	378	757	0
V/C Ratio(X)	1.06	0.00	0.23				0.00	0.95	0.27	1.17	0.80	0.00
Avail Cap(c_a), veh/h	907	0	809				0	499	424	378	761	0
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	1.00	1.00	0.00
Uniform Delay (d), s/veh	29.0	0.0	15.9				0.0	43.0	34.5	53.2	31.0	0.0
Incr Delay (d2), s/veh	45.7	0.0	0.1				0.0	27.0	0.1	102.4	5.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	41.3	0.0	3.4				0.0	19.0	3.0	11.6	18.6	0.0
LnGrp Delay(d),s/veh	74.7	0.0	16.0				0.0	69.9	34.7	155.7	36.5	0.0
LnGrp LOS	F		B					E	C	F	D	
Approach Vol, veh/h		1145						582			1049	
Approach Delay, s/veh		65.1						63.1			86.9	
Approach LOS		E						E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		53.8			17.0	36.8		66.0
Change Period (Y+Rc), s		4.6			3.7	4.6		4.2
Max Green Setting (Gmax), s		49.4			13.3	32.4		61.8
Max Q Clear Time (g_c+I1), s		36.5			15.3	31.9		63.8
Green Ext Time (p_c), s		4.0			0.0	0.3		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	72.9
HCM 2010 LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	333	40	20	30	50	190	30	233	30	100	198	427
Future Volume (veh/h)	333	40	20	30	50	190	30	233	30	100	198	427
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	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	362	43	6	33	54	73	33	253	24	109	215	132
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	436	393	55	191	77	104	65	657	62	140	523	308
Arrive On Green	0.25	0.25	0.25	0.11	0.11	0.11	0.04	0.20	0.20	0.08	0.25	0.25
Sat Flow, veh/h	1757	1585	221	1757	712	963	1757	3237	305	1757	2125	1251
Grp Volume(v), veh/h	362	0	49	33	0	127	33	136	141	109	176	171
Grp Sat Flow(s),veh/h/ln	1757	0	1806	1757	0	1675	1757	1752	1789	1757	1752	1624
Q Serve(g_s), s	9.7	0.0	1.0	0.9	0.0	3.7	0.9	3.3	3.4	3.0	4.2	4.4
Cycle Q Clear(g_c), s	9.7	0.0	1.0	0.9	0.0	3.7	0.9	3.3	3.4	3.0	4.2	4.4
Prop In Lane	1.00		0.12	1.00		0.57	1.00		0.17	1.00		0.77
Lane Grp Cap(c), veh/h	436	0	448	191	0	182	65	356	363	140	431	400
V/C Ratio(X)	0.83	0.00	0.11	0.17	0.00	0.70	0.51	0.38	0.39	0.78	0.41	0.43
Avail Cap(c_a), veh/h	1245	0	1280	781	0	745	225	730	745	478	983	910
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.8	0.0	14.5	20.2	0.0	21.5	23.6	17.2	17.2	22.5	15.8	15.9
Incr Delay (d2), s/veh	1.6	0.0	0.0	0.2	0.0	1.8	2.3	0.3	0.3	3.5	0.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	0.0	0.5	0.4	0.0	1.8	0.5	1.6	1.7	1.6	2.0	2.0
LnGrp Delay(d),s/veh	19.4	0.0	14.5	20.4	0.0	23.3	25.9	17.4	17.5	26.0	16.0	16.1
LnGrp LOS	B		B	C		C	C	B	B	C	B	B
Approach Vol, veh/h		411			160			310			456	
Approach Delay, s/veh		18.8			22.7			18.4			18.4	
Approach LOS		B			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.2	14.7		17.0	6.0	16.9		10.0
Change Period (Y+Rc), s	* 4.2	4.6		4.6	* 4.2	4.6		4.6
Max Green Setting (Gmax), s	* 4	20.8		35.4	* 6.4	28.0		22.2
Max Q Clear Time (g_c+I1), s	5.0	5.4		11.7	2.9	6.4		5.7
Green Ext Time (p_c), s	0.1	2.1		0.7	0.0	2.3		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	19.0
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	11.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	343	140	300	20	30	337
Future Vol, veh/h	343	140	300	20	30	337
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	361	147	316	21	32	355

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	337	0	-	0	1195	326
Stage 1	-	-	-	-	326	-
Stage 2	-	-	-	-	869	-
Critical Hdwy	4.14	-	-	-	6.44	6.24
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	2.236	-	-	-	3.536	3.336
Pot Cap-1 Maneuver	1211	-	-	-	204	711
Stage 1	-	-	-	-	727	-
Stage 2	-	-	-	-	407	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1211	-	-	-	138	711
Mov Cap-2 Maneuver	-	-	-	-	138	-
Stage 1	-	-	-	-	727	-
Stage 2	-	-	-	-	275	-

Approach	EB	WB	SB
HCM Control Delay, s	6.6	0	27.8
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1211	-	-	-	531
HCM Lane V/C Ratio	0.298	-	-	-	0.728
HCM Control Delay (s)	9.2	0	-	-	27.8
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	1.3	-	-	-	6

Intersection	
Int Delay, s/veh	406.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	367	360	602	333	120	1157
Future Vol, veh/h	367	360	602	333	120	1157
Conflicting Peds, #/hr	5	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	315	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	386	379	634	351	126	1218

Major/Minor	Minor1		Major1		Minor2	
Conflicting Flow All	1248	634	0	0	823	634
Stage 1	634	-	-	-	0	0
Stage 2	614	-	-	-	823	634
Critical Hdwy	7.13	6.23	-	-	7.13	6.53
Critical Hdwy Stg 1	6.13	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	6.13	5.53
Follow-up Hdwy	3.527	3.327	-	-	3.527	4.027
Pot Cap-1 Maneuver	~ 149	477	-	-	291	~ 395
Stage 1	466	-	-	-	-	-
Stage 2	-	-	-	-	366	~ 471
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	-	477	-	-	~ 60	~ 395
Mov Cap-2 Maneuver	-	-	-	-	~ 60	~ 395
Stage 1	466	-	-	-	-	-
Stage 2	-	-	-	-	~ 75	~ 471

Approach	WB	NB	SB
HCM Control Delay, s		0	$ 936.1
HCM LOS	-		F

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBLn1	SBLn2
Capacity (veh/h)	-	-	-	60	395
HCM Lane V/C Ratio	-	-	-	2.105	3.083
HCM Control Delay (s)	-	-	-$	658.2	$ 964.9
HCM Lane LOS	-	-	-	F	F
HCM 95th %tile Q(veh)	-	-	-	12.2	107.1

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

Intersection	
Int Delay, s/veh	1247.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	90	40	895	20	60	1334
Future Vol, veh/h	90	40	895	20	60	1334
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	95	42	942	21	63	1404

Major/Minor	Minor1		Minor2		Major2	
Conflicting Flow All	2012	0	1531	1404	0	0
Stage 1	0	-	1531	-	-	-
Stage 2	2012	-	0	-	-	-
Critical Hdwy	7.13	6.23	6.53	6.23	4.13	-
Critical Hdwy Stg 1	-	-	5.53	-	-	-
Critical Hdwy Stg 2	6.13	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	4.027	3.327	2.227	-
Pot Cap-1 Maneuver	~ 43	-	~ 116	170	-	-
Stage 1	-	-	~ 178	-	-	-
Stage 2	~ 76	-	-	-	-	-
Platoon blocked, %						-
Mov Cap-1 Maneuver	-	-	~ 116	170	-	-
Mov Cap-2 Maneuver	-	-	~ 116	-	-	-
Stage 1	-	-	~ 178	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s		$ 3324.9	
HCM LOS	-	F	

Minor Lane/Major Mvmt	NBLn1	WBLn1	SBL	SBT
Capacity (veh/h)	117	-	-	-
HCM Lane V/C Ratio	8.232	-	-	-
HCM Control Delay (s)	$ 3324.9	-	-	-
HCM Lane LOS	F	-	-	-
HCM 95th %tile Q(veh)	109.1	-	-	-

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)	30	92	160	210	171	111	180	520	180	61	300	50
Future Volume (veh/h)	30	92	160	210	171	111	180	520	180	61	300	50
Number	5	2	12	1	6	16	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		0.98	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	1845	1845	1845	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	33	100	29	228	186	39	196	565	168	66	326	43
Adj No. of Lanes	1	2	1	1	3	0	2	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	60	461	202	274	1066	213	672	867	257	93	531	69
Arrive On Green	0.03	0.13	0.13	0.16	0.25	0.25	0.20	0.32	0.32	0.05	0.17	0.17
Sat Flow, veh/h	1757	3505	1532	1757	4210	842	3408	2667	791	1757	3117	408
Grp Volume(v), veh/h	33	100	29	228	146	79	196	371	362	66	182	187
Grp Sat Flow(s),veh/h/ln	1757	1752	1532	1757	1679	1695	1704	1752	1705	1757	1752	1772
Q Serve(g_s), s	1.2	1.7	1.1	8.4	2.3	2.4	3.3	12.0	12.1	2.5	6.4	6.5
Cycle Q Clear(g_c), s	1.2	1.7	1.1	8.4	2.3	2.4	3.3	12.0	12.1	2.5	6.4	6.5
Prop In Lane	1.00		1.00	1.00		0.50	1.00		0.46	1.00		0.23
Lane Grp Cap(c), veh/h	60	461	202	274	850	429	672	569	554	93	298	302
V/C Ratio(X)	0.55	0.22	0.14	0.83	0.17	0.18	0.29	0.65	0.65	0.71	0.61	0.62
Avail Cap(c_a), veh/h	177	2271	993	418	2636	1331	672	1030	1002	132	819	828
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.5	25.8	25.5	27.2	19.3	19.4	22.7	19.2	19.2	30.9	25.5	25.5
Incr Delay (d2), s/veh	2.9	0.1	0.1	5.0	0.0	0.1	0.3	1.8	1.9	3.7	2.9	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.8	0.5	4.4	1.0	1.1	1.6	6.0	5.9	1.3	3.3	3.4
LnGrp Delay(d),s/veh	34.4	25.8	25.6	32.2	19.4	19.5	23.0	21.0	21.1	34.6	28.3	28.5
LnGrp LOS	C	C	C	C	B	B	C	C	C	C	C	C
Approach Vol, veh/h		162			453			929			435	
Approach Delay, s/veh		27.5			25.8			21.4			29.3	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.5	14.6	8.7	27.5	7.5	22.7	19.0	17.2
Change Period (Y+Rc), s	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9	5.9	* 5.9
Max Green Setting (Gmax), s	* 16	43.0	* 5	39.0	* 6.7	52.1	13.0	* 31
Max Q Clear Time (g_c+I1), s	10.4	3.7	4.5	14.1	3.2	4.4	5.3	8.5
Green Ext Time (p_c), s	0.1	1.3	0.0	7.3	0.0	1.3	3.8	2.7

Intersection Summary	
HCM 2010 Ctrl Delay	24.7
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	392	880	351	201	70	1090	680	290	30	460	180
Future Volume (veh/h)	130	392	880	351	201	70	1090	680	290	30	460	180
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	1845	1845	1845	1845	1845	1900	1845	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	137	413	793	432	123	62	1147	716	119	32	484	161
Adj No. of Lanes	1	1	2	2	1	0	2	2	1	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	512	537	1131	594	196	99	237	1098	490	49	704	233
Arrive On Green	0.29	0.29	0.29	0.17	0.17	0.17	0.07	0.31	0.31	0.03	0.27	0.27
Sat Flow, veh/h	1757	1845	3136	3514	1158	584	3408	3505	1565	1757	2590	856
Grp Volume(v), veh/h	137	413	793	432	0	185	1147	716	119	32	326	319
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	0	1742	1704	1752	1565	1757	1752	1694
Q Serve(g_s), s	6.7	23.0	24.3	13.1	0.0	11.1	7.8	19.8	6.3	2.0	18.7	18.9
Cycle Q Clear(g_c), s	6.7	23.0	24.3	13.1	0.0	11.1	7.8	19.8	6.3	2.0	18.7	18.9
Prop In Lane	1.00		1.00	1.00		0.34	1.00		1.00	1.00		0.51
Lane Grp Cap(c), veh/h	512	537	1131	594	0	294	237	1098	490	49	476	460
V/C Ratio(X)	0.27	0.77	0.70	0.73	0.00	0.63	4.85	0.65	0.24	0.65	0.69	0.69
Avail Cap(c_a), veh/h	704	739	1474	1157	0	574	237	1098	490	94	513	496
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.6	36.4	30.7	44.2	0.0	43.4	52.3	33.3	28.7	54.0	36.6	36.7
Incr Delay (d2), s/veh	0.3	3.3	1.0	2.4	0.0	3.1	1740.5	2.6	0.9	5.2	6.6	7.1
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	3.3	12.2	10.6	6.6	0.0	5.6	60.9	9.9	2.9	1.1	9.9	9.8
LnGrp Delay(d),s/veh	30.9	39.7	31.8	46.7	0.0	46.5	1792.8	35.9	29.6	59.2	43.2	43.7
LnGrp LOS	C	D	C	D		D	F	D	C	E	D	D
Approach Vol, veh/h		1343			617			1982			677	
Approach Delay, s/veh		34.1			46.6			1052.2			44.2	
Approach LOS		C			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	8.4	41.1		24.6	13.0	36.4		38.3
Change Period (Y+Rc), s	* 5.2	5.9		5.6	* 5.2	5.9		5.6
Max Green Setting (Gmax), s	* 6	34.7		37.0	* 7.8	32.9		45.0
Max Q Clear Time (g_c+I1), s	4.0	21.8		15.1	9.8	20.9		26.3
Green Ext Time (p_c), s	0.0	10.9		3.9	0.0	9.6		6.4

Intersection Summary	
HCM 2010 Ctrl Delay	474.1
HCM 2010 LOS	F

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	1040	0	650	140	1410	0	0	1143	548
Future Volume (veh/h)	0	0	0	1040	0	650	140	1410	0	0	1143	548
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		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				1845	1845	1845	1845	1845	0	0	1845	1900
Adj Flow Rate, veh/h				1289	0	416	147	1484	0	0	1203	505
Adj No. of Lanes				2	0	1	1	3	0	0	3	0
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				1514	0	676	103	2416	0	0	1307	546
Arrive On Green				0.43	0.00	0.43	0.06	0.48	0.00	0.00	0.37	0.37
Sat Flow, veh/h				3514	0	1568	1757	5202	0	0	3653	1458
Grp Volume(v), veh/h				1289	0	416	147	1484	0	0	1158	550
Grp Sat Flow(s),veh/h/ln				1757	0	1568	1757	1679	0	0	1679	1587
Q Serve(g_s), s				33.6	0.0	20.9	6.0	22.1	0.0	0.0	33.5	33.7
Cycle Q Clear(g_c), s				33.6	0.0	20.9	6.0	22.1	0.0	0.0	33.5	33.7
Prop In Lane				1.00		1.00	1.00		0.00	0.00		0.92
Lane Grp Cap(c), veh/h				1514	0	676	103	2416	0	0	1258	595
V/C Ratio(X)				0.85	0.00	0.62	1.42	0.61	0.00	0.00	0.92	0.92
Avail Cap(c_a), veh/h				2139	0	954	103	2418	0	0	1259	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	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				26.1	0.0	22.5	47.9	19.5	0.0	0.0	30.4	30.5
Incr Delay (d2), s/veh				2.5	0.0	0.9	236.2	0.7	0.0	0.0	11.1	20.3
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				16.8	0.0	9.2	9.7	10.3	0.0	0.0	17.4	18.0
LnGrp Delay(d),s/veh				28.5	0.0	23.4	284.2	20.2	0.0	0.0	41.4	50.8
LnGrp LOS				C		C	F	C			D	D
Approach Vol, veh/h					1705			1631			1708	
Approach Delay, s/veh					27.3			44.0			44.5	
Approach LOS					C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		54.0			10.7	43.3		47.9
Change Period (Y+Rc), s		5.1			* 4.7	5.1		4.0
Max Green Setting (Gmax), s		48.9			* 6	38.2		62.0
Max Q Clear Time (g_c+I1), s		24.1			8.0	35.7		35.6
Green Ext Time (p_c), s		23.4			0.0	2.4		8.3

Intersection Summary		
HCM 2010 Ctrl Delay		38.5
HCM 2010 LOS		D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	716	140	450	834	1113	1070
Future Volume (veh/h)	716	140	450	834	1113	1070
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	754	129	474	878	1172	875
Adj No. of Lanes	2	1	2	3	3	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	789	596	506	3479	2549	794
Arrive On Green	0.23	0.23	0.15	0.69	0.51	0.51
Sat Flow, veh/h	3408	1568	3408	5202	5202	1568
Grp Volume(v), veh/h	754	129	474	878	1172	875
Grp Sat Flow(s),veh/h/ln	1704	1568	1704	1679	1679	1568
Q Serve(g_s), s	28.4	7.2	17.9	8.5	19.5	65.8
Cycle Q Clear(g_c), s	28.4	7.2	17.9	8.5	19.5	65.8
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	789	596	506	3479	2549	794
V/C Ratio(X)	0.96	0.22	0.94	0.25	0.46	1.10
Avail Cap(c_a), veh/h	789	596	506	3479	2549	794
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.3	27.2	54.7	7.5	20.7	32.1
Incr Delay (d2), s/veh	21.6	0.1	24.9	0.0	0.0	63.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.7	7.5	10.2	3.9	9.0	42.3
LnGrp Delay(d),s/veh	70.9	27.3	79.6	7.5	20.7	95.9
LnGrp LOS	E	C	E	A	C	F
Approach Vol, veh/h	883			1352	2047	
Approach Delay, s/veh	64.5			32.8	52.8	
Approach LOS	E			C	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		95.2		34.8	24.0	71.2		
Change Period (Y+Rc), s		5.4		* 4.7	* 4.7	5.4		
Max Green Setting (Gmax), s		89.8		* 30	* 19	65.8		
Max Q Clear Time (g_c+I1), s		10.5		30.4	19.9	67.8		
Green Ext Time (p_c), s		20.2		0.0	0.0	0.0		

Intersection Summary	
HCM 2010 Ctrl Delay	48.9
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	0	503	0	350	30	52	41	0	0	91	140
Future Volume (veh/h)	80	0	503	0	350	30	52	41	0	0	91	140
Number	1	6	16	5	2	12	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		0.96
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	0	1845	1900	1845	1845	0	0	1845	1900
Adj Flow Rate, veh/h	87	0	344	0	380	30	57	45	0	0	99	24
Adj No. of Lanes	2	1	2	0	1	0	2	1	0	0	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, %	3	3	3	0	3	3	3	3	0	0	3	3
Cap, veh/h	260	906	1554	0	514	41	292	153	0	0	264	62
Arrive On Green	0.08	0.00	0.49	0.00	0.30	0.30	0.08	0.08	0.00	0.00	0.09	0.09
Sat Flow, veh/h	3408	1845	2698	0	1688	133	3514	1845	0	0	2892	653
Grp Volume(v), veh/h	87	0	344	0	0	410	57	45	0	0	61	62
Grp Sat Flow(s),veh/h/ln	1704	1845	1349	0	0	1821	1757	1845	0	0	1752	1700
Q Serve(g_s), s	1.0	0.0	2.6	0.0	0.0	8.4	0.6	1.0	0.0	0.0	1.3	1.4
Cycle Q Clear(g_c), s	1.0	0.0	2.6	0.0	0.0	8.4	0.6	1.0	0.0	0.0	1.3	1.4
Prop In Lane	1.00		1.00	0.00		0.07	1.00		0.00	0.00		0.38
Lane Grp Cap(c), veh/h	260	906	1554	0	0	554	292	153	0	0	165	160
V/C Ratio(X)	0.33	0.00	0.22	0.00	0.00	0.74	0.19	0.29	0.00	0.00	0.37	0.39
Avail Cap(c_a), veh/h	2048	2793	4314	0	0	1462	1537	807	0	0	1053	1022
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	18.2	0.0	4.3	0.0	0.0	13.0	17.8	17.9	0.0	0.0	17.7	17.7
Incr Delay (d2), s/veh	0.8	0.0	0.1	0.0	0.0	2.0	0.3	1.0	0.0	0.0	1.4	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	1.2	0.0	0.0	4.5	0.3	0.5	0.0	0.0	0.7	0.7
LnGrp Delay(d),s/veh	19.0	0.0	4.4	0.0	0.0	15.0	18.1	19.0	0.0	0.0	19.0	19.3
LnGrp LOS	B		A			B	B	B			B	B
Approach Vol, veh/h		431			410			102			123	
Approach Delay, s/veh		7.3			15.0			18.5			19.2	
Approach LOS		A			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	7.8	17.3		8.5		25.0		8.1
Change Period (Y+Rc), s	4.6	4.6		4.6		4.6		4.6
Max Green Setting (Gmax), s	25.0	33.4		25.0		63.0		18.2
Max Q Clear Time (g_c+I1), s	3.0	10.4		3.4		4.6		3.0
Green Ext Time (p_c), s	1.6	2.4		0.6		1.8		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	12.7
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	864	9	57	447	20	2	2	34	540	2	52
Future Volume (veh/h)	71	864	9	57	447	20	2	2	34	540	2	52
Number	3	8	18	7	4	14	1	6	16	5	2	12
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	1845	1845	1900	1845	1845	1900	1900	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	77	939	9	62	486	19	2	2	1	587	2	22
Adj No. of Lanes	2	2	0	1	2	0	0	1	1	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	189	1191	11	88	1133	44	5	5	8	650	49	539
Arrive On Green	0.06	0.33	0.33	0.05	0.33	0.33	0.01	0.01	0.01	0.37	0.37	0.37
Sat Flow, veh/h	3408	3557	34	1757	3439	134	900	900	1568	1757	132	1455
Grp Volume(v), veh/h	77	463	485	62	247	258	4	0	1	587	0	24
Grp Sat Flow(s),veh/h/ln	1704	1752	1839	1757	1752	1821	1800	0	1568	1757	0	1588
Q Serve(g_s), s	1.5	16.7	16.7	2.4	7.7	7.7	0.2	0.0	0.0	22.1	0.0	0.7
Cycle Q Clear(g_c), s	1.5	16.7	16.7	2.4	7.7	7.7	0.2	0.0	0.0	22.1	0.0	0.7
Prop In Lane	1.00		0.02	1.00		0.07	0.50		1.00	1.00		0.92
Lane Grp Cap(c), veh/h	189	587	616	88	577	600	10	0	8	650	0	588
V/C Ratio(X)	0.41	0.79	0.79	0.71	0.43	0.43	0.42	0.00	0.12	0.90	0.00	0.04
Avail Cap(c_a), veh/h	263	660	693	170	695	722	103	0	89	902	0	816
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	32.0	21.1	21.1	32.8	18.3	18.4	34.7	0.0	34.7	20.9	0.0	14.1
Incr Delay (d2), s/veh	1.4	5.7	5.5	3.8	0.5	0.5	26.8	0.0	6.3	9.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	9.0	9.4	1.3	3.8	3.9	0.1	0.0	0.0	12.3	0.0	0.3
LnGrp Delay(d),s/veh	33.4	26.8	26.5	36.6	18.9	18.8	61.5	0.0	41.0	30.4	0.0	14.1
LnGrp LOS	C	C	C	D	B	B	E		D	C		B
Approach Vol, veh/h		1025			567			5			611	
Approach Delay, s/veh		27.2			20.8			57.4			29.8	
Approach LOS		C			C			E			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		29.9	8.1	27.7		4.4	7.7	28.1
Change Period (Y+Rc), s		4.0	* 4.2	4.6		4.0	* 4.2	4.6
Max Green Setting (Gmax), s		36.0	* 5.4	27.8		4.0	* 6.8	26.4
Max Q Clear Time (g_c+I1), s		24.1	3.5	9.7		2.2	4.4	18.7
Green Ext Time (p_c), s		1.8	0.0	8.3		0.0	0.0	4.7

Intersection Summary	
HCM 2010 Ctrl Delay	26.3
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

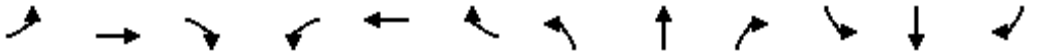
Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	889	16	69	412	20	11	0	25	30	0	30
Future Vol, veh/h	20	889	16	69	412	20	11	0	25	30	0	30
Conflicting Peds, #/hr	2	0	0	0	0	2	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	-	-	130	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	22	966	17	75	448	22	12	0	27	33	0	33

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	472	0	0	984	0	0	1392	1640	492	1138	1638	237
Stage 1	-	-	-	-	-	-	1018	1018	-	611	611	-
Stage 2	-	-	-	-	-	-	374	622	-	527	1027	-
Critical Hdwy	4.16	-	-	4.16	-	-	7.56	6.56	6.96	7.56	6.56	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Follow-up Hdwy	2.23	-	-	2.23	-	-	3.53	4.03	3.33	3.53	4.03	3.33
Pot Cap-1 Maneuver	1079	-	-	692	-	-	101	98	520	155	99	761
Stage 1	-	-	-	-	-	-	252	311	-	445	480	-
Stage 2	-	-	-	-	-	-	616	475	-	500	308	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1079	-	-	692	-	-	87	85	520	132	86	760
Mov Cap-2 Maneuver	-	-	-	-	-	-	87	85	-	132	86	-
Stage 1	-	-	-	-	-	-	247	305	-	435	427	-
Stage 2	-	-	-	-	-	-	526	423	-	464	302	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	1.5	26.5	27.4
HCM LOS			D	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	206	1079	-	-	692	-	-	225
HCM Lane V/C Ratio	0.19	0.02	-	-	0.108	-	-	0.29
HCM Control Delay (s)	26.5	8.4	-	-	10.8	-	-	27.4
HCM Lane LOS	D	A	-	-	B	-	-	D
HCM 95th %tile Q(veh)	0.7	0.1	-	-	0.4	-	-	1.2



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	70	170	181	80	70	80	751	171	40	572	80
Future Volume (veh/h)	80	70	170	181	80	70	80	751	171	40	572	80
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		0.99
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	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	87	76	113	197	87	25	87	816	161	43	622	74
Adj No. of Lanes	1	1	0	1	2	0	1	3	0	1	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	113	107	159	248	642	178	113	1705	334	72	1734	204
Arrive On Green	0.06	0.16	0.16	0.14	0.24	0.24	0.06	0.40	0.40	0.04	0.38	0.38
Sat Flow, veh/h	1757	671	998	1757	2713	751	1757	4225	828	1757	4562	537
Grp Volume(v), veh/h	87	0	189	197	55	57	87	647	330	43	456	240
Grp Sat Flow(s),veh/h/ln	1757	0	1669	1757	1752	1712	1757	1679	1695	1757	1679	1742
Q Serve(g_s), s	3.3	0.0	7.4	7.4	1.7	1.8	3.3	9.8	9.9	1.7	6.7	6.8
Cycle Q Clear(g_c), s	3.3	0.0	7.4	7.4	1.7	1.8	3.3	9.8	9.9	1.7	6.7	6.8
Prop In Lane	1.00		0.60	1.00		0.44	1.00		0.49	1.00		0.31
Lane Grp Cap(c), veh/h	113	0	266	248	415	405	113	1355	684	72	1276	662
V/C Ratio(X)	0.77	0.00	0.71	0.79	0.13	0.14	0.77	0.48	0.48	0.60	0.36	0.36
Avail Cap(c_a), veh/h	353	0	1105	665	1472	1438	353	2048	1034	233	1818	943
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.6	0.0	27.4	28.5	20.7	20.7	31.6	15.1	15.2	32.4	15.3	15.3
Incr Delay (d2), s/veh	10.5	0.0	3.5	5.7	0.1	0.2	10.5	0.3	0.6	3.0	0.2	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	3.7	4.0	0.8	0.9	1.9	4.6	4.7	0.9	3.1	3.3
LnGrp Delay(d),s/veh	42.1	0.0	30.8	34.2	20.8	20.9	42.2	15.4	15.8	35.4	15.5	15.7
LnGrp LOS	D		C	C	C	C	D	B	B	D	B	B
Approach Vol, veh/h		276			309			1064			739	
Approach Delay, s/veh		34.4			29.4			17.7			16.7	
Approach LOS		C			C			B			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	7.0	32.3	13.9	15.5	8.6	30.7	8.6	20.7
Change Period (Y+Rc), s	* 4.2	4.6	* 4.2	4.5	* 4.2	4.6	* 4.2	4.5
Max Green Setting (Gmax), s	* 9.1	41.9	* 26	45.5	* 14	37.2	* 14	57.7
Max Q Clear Time (g_c+I1), s	3.7	11.9	9.4	9.4	5.3	8.8	5.3	3.8
Green Ext Time (p_c), s	0.0	15.6	0.5	1.9	0.1	15.1	0.1	2.0

Intersection Summary	
HCM 2010 Ctrl Delay	20.8
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	152	684	602	560	216	30	475	820	550	40	670	213
Future Volume (veh/h)	152	684	602	560	216	30	475	820	550	40	670	213
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		0.99	1.00		1.00	1.00		1.00	1.00		0.98
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	1900	1845	1845	1900	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	160	720	521	589	227	19	500	863	484	42	705	53
Adj No. of Lanes	2	3	0	2	3	0	2	2	1	2	2	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	210	939	432	631	1912	157	481	1174	524	138	820	361
Arrive On Green	0.06	0.28	0.28	0.19	0.40	0.40	0.14	0.33	0.33	0.04	0.23	0.23
Sat Flow, veh/h	3408	3357	1545	3408	4743	390	3408	3505	1565	3408	3505	1542
Grp Volume(v), veh/h	160	720	521	589	159	87	500	863	484	42	705	53
Grp Sat Flow(s),veh/h/ln	1704	1679	1545	1704	1679	1775	1704	1752	1565	1704	1752	1542
Q Serve(g_s), s	6.4	27.3	38.8	23.6	4.1	4.2	19.6	30.2	41.3	1.7	26.8	3.8
Cycle Q Clear(g_c), s	6.4	27.3	38.8	23.6	4.1	4.2	19.6	30.2	41.3	1.7	26.8	3.8
Prop In Lane	1.00		1.00	1.00		0.22	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	210	939	432	631	1354	716	481	1174	524	138	820	361
V/C Ratio(X)	0.76	0.77	1.21	0.93	0.12	0.12	1.04	0.74	0.92	0.30	0.86	0.15
Avail Cap(c_a), veh/h	273	939	432	634	1354	716	481	1174	524	172	849	373
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	64.1	45.8	50.0	55.7	25.9	26.0	59.6	40.7	44.4	64.7	51.0	42.2
Incr Delay (d2), s/veh	9.9	4.0	112.9	21.1	0.0	0.1	51.4	2.5	22.3	1.5	8.8	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	3.3	13.2	30.0	13.0	1.9	2.1	12.6	15.0	21.0	0.8	13.9	1.6
LnGrp Delay(d),s/veh	74.0	49.8	162.9	76.8	26.0	26.1	111.0	43.3	66.7	66.2	59.8	42.4
LnGrp LOS	E	D	F	E	C	C	F	D	E	E	E	D
Approach Vol, veh/h		1401			835			1847			800	
Approach Delay, s/veh		94.6			61.8			67.7			59.0	
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	13.7	61.8	10.8	52.4	30.9	44.7	24.8	38.4
Change Period (Y+Rc), s	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9
Max Green Setting (Gmax), s	* 11	53.5	* 7	46.2	* 26	38.8	* 20	33.6
Max Q Clear Time (g_c+I1), s	8.4	6.2	3.7	43.3	25.6	40.8	21.6	28.8
Green Ext Time (p_c), s	0.1	17.1	0.0	2.6	0.1	0.0	0.0	3.7

Intersection Summary	
HCM 2010 Ctrl Delay	73.0
HCM 2010 LOS	E

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	352.5
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	778	0	320	0	0	0	150	1067	0	0	898	934
Future Vol, veh/h	778	0	320	0	0	0	150	1067	0	0	898	934
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
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	819	0	337	0	0	0	158	1123	0	0	945	983
Number of Lanes	1	1	1	0	0	0	1	2	0	0	2	1

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	3	3
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	3	3	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	3	0	3
HCM Control Delay	62.8	326.3	543.5
HCM LOS	F	F	F

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	100%	100%	0%	0%	0%	0%
Vol Thru, %	0%	100%	100%	0%	0%	0%	100%	100%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	150	534	534	389	389	320	449	449	934
LT Vol	150	0	0	389	389	0	0	0	0
Through Vol	0	534	534	0	0	0	449	449	0
RT Vol	0	0	0	0	0	320	0	0	934
Lane Flow Rate	158	562	562	409	409	337	473	473	983
Geometry Grp	8	8	8	7	7	7	8	8	8
Degree of Util (X)	0.56	1.912	1.639	1.085	1.085	0.781	1.585	1.585	2.629
Departure Headway (Hd)	7.02	6.497	4.665	5.176	5.176	3.948	13.863	13.863	11.339
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	515	562	781	700	700	916	265	265	334
Service Time	4.72	4.197	2.365	2.876	2.876	1.648	11.563	11.563	9.039
HCM Lane V/C Ratio	0.307	1	0.72	0.584	0.584	0.368	1.785	1.785	2.943
HCM Control Delay	18.3	432.8	306.4	80.8	80.8	19.1	313.2	313.2	765
HCM Lane LOS	C	F	F	F	F	C	F	F	F
HCM 95th-tile Q	3.4	68.9	68.6	20.9	20.9	8.1	25.1	25.1	69.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	728	20	460	0	0	0	0	489	570	682	536	0
Future Volume (veh/h)	728	20	460	0	0	0	0	489	570	682	536	0
Number	3	8	18				1	6	16	5	2	12
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	1900	1845	1845				0	1845	1845	1845	1845	0
Adj Flow Rate, veh/h	766	21	332				0	515	214	718	564	0
Adj No. of Lanes	0	1	1				0	1	1	2	1	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	711	19	651				0	513	435	690	944	0
Arrive On Green	0.41	0.41	0.41				0.00	0.28	0.28	0.20	0.51	0.00
Sat Flow, veh/h	1712	47	1568				0	1845	1565	3408	1845	0
Grp Volume(v), veh/h	787	0	332				0	515	214	718	564	0
Grp Sat Flow(s),veh/h/ln	1759	0	1568				0	1845	1565	1704	1845	0
Q Serve(g_s), s	49.8	0.0	18.9				0.0	33.4	13.7	24.3	25.8	0.0
Cycle Q Clear(g_c), s	49.8	0.0	18.9				0.0	33.4	13.7	24.3	25.8	0.0
Prop In Lane	0.97		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	730	0	651				0	513	435	690	944	0
V/C Ratio(X)	1.08	0.00	0.51				0.00	1.00	0.49	1.04	0.60	0.00
Avail Cap(c_a), veh/h	730	0	651				0	513	435	690	944	0
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	1.00	1.00	0.00
Uniform Delay (d), s/veh	35.1	0.0	26.0				0.0	43.3	36.2	47.8	20.6	0.0
Incr Delay (d2), s/veh	56.4	0.0	0.3				0.0	40.5	0.3	45.2	0.7	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	35.6	0.0	8.2				0.0	22.7	6.0	15.7	13.2	0.0
LnGrp Delay(d),s/veh	91.5	0.0	26.3				0.0	83.8	36.5	93.0	21.3	0.0
LnGrp LOS	F		C					F	D	F	C	
Approach Vol, veh/h		1119						729			1282	
Approach Delay, s/veh		72.1						69.9			61.5	
Approach LOS		E						E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		66.0			28.0	38.0		54.0
Change Period (Y+Rc), s		4.6			3.7	4.6		4.2
Max Green Setting (Gmax), s		61.4			24.3	33.4		49.8
Max Q Clear Time (g_c+I1), s		27.8			26.3	35.4		51.8
Green Ext Time (p_c), s		5.3			0.0	0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	67.3
HCM 2010 LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	554	50	30	50	40	150	20	255	50	180	443	273
Future Volume (veh/h)	554	50	30	50	40	150	20	255	50	180	443	273
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	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	583	53	12	53	42	34	21	268	38	189	466	204
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	640	531	120	120	65	52	42	509	71	233	650	283
Arrive On Green	0.36	0.36	0.36	0.07	0.07	0.07	0.02	0.17	0.17	0.13	0.27	0.27
Sat Flow, veh/h	1757	1456	330	1757	945	765	1757	3086	433	1757	2379	1034
Grp Volume(v), veh/h	583	0	65	53	0	76	21	151	155	189	342	328
Grp Sat Flow(s),veh/h/ln	1757	0	1786	1757	0	1710	1757	1752	1767	1757	1752	1660
Q Serve(g_s), s	21.1	0.0	1.6	1.9	0.0	2.9	0.8	5.2	5.4	7.0	11.8	11.9
Cycle Q Clear(g_c), s	21.1	0.0	1.6	1.9	0.0	2.9	0.8	5.2	5.4	7.0	11.8	11.9
Prop In Lane	1.00		0.18	1.00		0.45	1.00		0.24	1.00		0.62
Lane Grp Cap(c), veh/h	640	0	651	120	0	117	42	289	292	233	479	454
V/C Ratio(X)	0.91	0.00	0.10	0.44	0.00	0.65	0.49	0.52	0.53	0.81	0.71	0.72
Avail Cap(c_a), veh/h	1142	0	1161	279	0	271	132	583	588	416	866	821
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.2	0.0	14.0	29.9	0.0	30.3	32.2	25.5	25.5	28.1	21.9	22.0
Incr Delay (d2), s/veh	2.7	0.0	0.0	0.9	0.0	2.3	3.3	0.5	0.6	2.6	0.8	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	10.7	0.0	0.8	1.0	0.0	1.4	0.4	2.6	2.7	3.5	5.8	5.6
LnGrp Delay(d),s/veh	22.9	0.0	14.0	30.8	0.0	32.6	35.5	26.0	26.1	30.7	22.7	22.8
LnGrp LOS	C		B	C		C	D	C	C	C	C	C
Approach Vol, veh/h		648			129			327			859	
Approach Delay, s/veh		22.0			31.9			26.6			24.5	
Approach LOS		C			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	13.0	15.6		28.9	5.8	22.9		9.2
Change Period (Y+Rc), s	* 4.2	4.6		4.6	* 4.2	4.6		4.6
Max Green Setting (Gmax), s	* 16	22.2		43.4	* 5	33.0		10.6
Max Q Clear Time (g_c+I1), s	12.9	7.4		23.1	2.8	13.9		4.9
Green Ext Time (p_c), s	0.1	3.5		1.1	0.0	3.8		0.1

Intersection Summary		
HCM 2010 Ctrl Delay	24.5	
HCM 2010 LOS	C	

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	188.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	464	480	300	20	60	453
Future Vol, veh/h	464	480	300	20	60	453
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	488	505	316	21	63	477

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	337	0	-	0	1808	326
Stage 1	-	-	-	-	326	-
Stage 2	-	-	-	-	1482	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1217	-	-	-	86	713
Stage 1	-	-	-	-	729	-
Stage 2	-	-	-	-	207	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1217	-	-	-	~ 38	713
Mov Cap-2 Maneuver	-	-	-	-	~ 38	-
Stage 1	-	-	-	-	729	-
Stage 2	-	-	-	-	92	-

Approach	EB	WB	SB
HCM Control Delay, s	4.9	0	$ 644
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1217	-	-	-	232
HCM Lane V/C Ratio	0.401	-	-	-	2.328
HCM Control Delay (s)	9.9	0	-	-	$ 644
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	2	-	-	-	43.2

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

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	293	520	774	524	400	783
Future Vol, veh/h	293	520	774	524	400	783
Conflicting Peds, #/hr	2	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	315	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	308	547	815	552	421	824

Major/Minor	Minor1		Major1		Minor2	
Conflicting Flow All	1229	815	0	0	1088	815
Stage 1	815	-	-	-	0	0
Stage 2	414	-	-	-	1088	815
Critical Hdwy	7.13	6.23	-	-	7.13	6.53
Critical Hdwy Stg 1	6.13	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	6.13	5.53
Follow-up Hdwy	3.527	3.327	-	-	3.527	4.027
Pot Cap-1 Maneuver	~ 154	~ 376	-	-	~ 192	~ 311
Stage 1	370	-	-	-	-	-
Stage 2	-	-	-	-	~ 260	~ 390
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	-	~ 376	-	-	-	~ 311
Mov Cap-2 Maneuver	-	-	-	-	-	~ 311
Stage 1	370	-	-	-	-	-
Stage 2	-	-	-	-	-	~ 390

Approach	WB	NB	SB
HCM Control Delay, s		0	
HCM LOS	-		-

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBLn1	SBLn2
Capacity (veh/h)	-	-	-	-	311
HCM Lane V/C Ratio	-	-	-	-	2.65
HCM Control Delay (s)	-	-	-	-	$ 777.3
HCM Lane LOS	-	-	-	-	F
HCM 95th %tile Q(veh)	-	-	-	-	68.7

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

Intersection	
Int Delay, s/veh	701.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	370	928	20	40	976
Future Vol, veh/h	20	370	928	20	40	976
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	21	389	977	21	42	1027

Major/Minor	Minor1		Minor2		Major2	
Conflicting Flow All	1611	0	1112	1027	0	0
Stage 1	0	-	1112	-	-	-
Stage 2	1611	-	0	-	-	-
Critical Hdwy	7.13	6.23	6.53	6.23	4.13	-
Critical Hdwy Stg 1	-	-	5.53	-	-	-
Critical Hdwy Stg 2	6.13	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	4.027	3.327	2.227	-
Pot Cap-1 Maneuver	84	-	~ 208	283	-	-
Stage 1	-	-	~ 283	-	-	-
Stage 2	131	-	-	-	-	-
Platoon blocked, %						-
Mov Cap-1 Maneuver	-	-	~ 208	283	-	-
Mov Cap-2 Maneuver	-	-	~ 208	-	-	-
Stage 1	-	-	~ 283	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s		$ 1742.3	
HCM LOS	-	F	

Minor Lane/Major Mvmt	NBLn1	WBLn1	SBL	SBT
Capacity (veh/h)	209	-	-	-
HCM Lane V/C Ratio	4.775	-	-	-
HCM Control Delay (s)	$ 1742.3	-	-	-
HCM Lane LOS	F	-	-	-
HCM 95th %tile Q(veh)	102.3	-	-	-

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 (veh/h)	40	271	420	190	243	72	121	310	160	111	580	120
Future Volume (veh/h)	40	271	420	190	243	72	121	310	160	111	580	120
Number	5	2	12	1	6	16	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		0.99	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	1845	1845	1845	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	43	295	258	207	264	31	132	337	122	121	630	116
Adj No. of Lanes	1	2	1	1	3	0	2	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	66	825	365	243	1542	177	262	776	276	103	829	152
Arrive On Green	0.04	0.24	0.24	0.14	0.34	0.34	0.08	0.31	0.31	0.06	0.28	0.28
Sat Flow, veh/h	1757	3505	1552	1757	4584	526	3408	2532	901	1757	2958	544
Grp Volume(v), veh/h	43	295	258	207	192	103	132	231	228	121	373	373
Grp Sat Flow(s),veh/h/ln	1757	1752	1552	1757	1679	1752	1704	1752	1680	1757	1752	1749
Q Serve(g_s), s	2.1	6.0	13.0	9.8	3.4	3.5	3.2	9.0	9.2	5.0	16.6	16.6
Cycle Q Clear(g_c), s	2.1	6.0	13.0	9.8	3.4	3.5	3.2	9.0	9.2	5.0	16.6	16.6
Prop In Lane	1.00		1.00	1.00		0.30	1.00		0.54	1.00		0.31
Lane Grp Cap(c), veh/h	66	825	365	243	1129	589	262	537	515	103	491	490
V/C Ratio(X)	0.65	0.36	0.71	0.85	0.17	0.18	0.50	0.43	0.44	1.17	0.76	0.76
Avail Cap(c_a), veh/h	186	1812	803	306	1965	1025	397	803	770	103	702	701
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	40.4	27.2	29.8	35.8	19.9	19.9	37.7	23.6	23.7	40.0	28.0	28.0
Incr Delay (d2), s/veh	4.0	0.1	0.9	14.2	0.0	0.1	1.8	0.8	0.8	142.1	3.9	4.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	2.9	5.6	5.7	1.6	1.7	1.6	4.4	4.4	6.5	8.5	8.5
LnGrp Delay(d),s/veh	44.4	27.3	30.8	50.0	19.9	20.0	39.5	24.4	24.5	182.2	31.9	32.0
LnGrp LOS	D	C	C	D	B	B	D	C	C	F	C	C
Approach Vol, veh/h		596			502			591			867	
Approach Delay, s/veh		30.0			32.3			27.8			52.9	
Approach LOS		C			C			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.0	25.9	10.2	32.0	8.4	34.5	12.4	29.7
Change Period (Y+Rc), s	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9	5.9	* 5.9
Max Green Setting (Gmax), s	* 15	44.0	* 5	39.0	* 9	49.8	9.9	* 34
Max Q Clear Time (g_c+I1), s	11.8	15.0	7.0	11.2	4.1	5.5	5.2	18.6
Green Ext Time (p_c), s	0.1	2.7	0.0	4.4	0.0	2.8	1.7	5.2

Intersection Summary	
HCM 2010 Ctrl Delay	37.7
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	91	370	185	84	61	620	480	490	60	1060	70
Future Volume (veh/h)	50	91	370	185	84	61	620	480	490	60	1060	70
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	1845	1845	1845	1845	1845	1900	1845	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	53	96	92	207	72	35	653	505	203	63	1116	72
Adj No. of Lanes	1	1	2	2	1	0	2	2	1	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	214	224	642	429	143	70	283	1532	683	82	1340	86
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.08	0.44	0.44	0.05	0.40	0.40
Sat Flow, veh/h	1757	1845	3136	3514	1174	570	3408	3505	1563	1757	3343	216
Grp Volume(v), veh/h	53	96	92	207	0	107	653	505	203	63	585	603
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	0	1744	1704	1752	1563	1757	1752	1807
Q Serve(g_s), s	2.2	3.9	2.0	4.5	0.0	4.7	6.8	7.8	6.9	2.9	24.6	24.6
Cycle Q Clear(g_c), s	2.2	3.9	2.0	4.5	0.0	4.7	6.8	7.8	6.9	2.9	24.6	24.6
Prop In Lane	1.00		1.00	1.00		0.33	1.00		1.00	1.00		0.12
Lane Grp Cap(c), veh/h	214	224	642	429	0	213	283	1532	683	82	702	724
V/C Ratio(X)	0.25	0.43	0.14	0.48	0.00	0.50	2.31	0.33	0.30	0.77	0.83	0.83
Avail Cap(c_a), veh/h	966	1014	1985	1589	0	788	283	1532	683	135	726	748
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.5	33.3	26.7	33.5	0.0	33.6	37.5	15.1	14.9	38.6	22.1	22.1
Incr Delay (d2), s/veh	0.6	1.3	0.1	1.2	0.0	2.6	598.7	0.5	0.9	5.6	10.3	10.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	2.1	0.9	2.3	0.0	2.4	26.7	3.8	3.1	1.5	13.9	14.3
LnGrp Delay(d),s/veh	33.1	34.6	26.8	34.7	0.0	36.2	636.2	15.6	15.8	44.2	32.4	32.1
LnGrp LOS	C	C	C	C		D	F	B	B	D	C	C
Approach Vol, veh/h		241			314			1361			1251	
Approach Delay, s/veh		31.3			35.2			313.4			32.8	
Approach LOS		C			D			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.0	41.7		15.6	12.0	38.7		15.6
Change Period (Y+Rc), s	* 5.2	5.9		5.6	* 5.2	5.9		5.6
Max Green Setting (Gmax), s	* 6.3	34.4		37.0	* 6.8	33.9		45.0
Max Q Clear Time (g_c+I1), s	4.9	9.8		6.7	8.8	26.6		5.9
Green Ext Time (p_c), s	0.0	21.9		2.0	0.0	6.2		1.0

Intersection Summary	
HCM 2010 Ctrl Delay	153.5
HCM 2010 LOS	F

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	960	0	730	140	860	0	0	1047	568
Future Volume (veh/h)	0	0	0	960	0	730	140	860	0	0	1047	568
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		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				1845	1845	1845	1845	1845	0	0	1845	1900
Adj Flow Rate, veh/h				1229	0	468	147	905	0	0	1102	516
Adj No. of Lanes				2	0	1	1	3	0	0	3	0
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				1449	0	647	175	2517	0	0	1192	557
Arrive On Green				0.41	0.00	0.41	0.10	0.50	0.00	0.00	0.36	0.37
Sat Flow, veh/h				3514	0	1568	1757	5202	0	0	3523	1568
Grp Volume(v), veh/h				1229	0	468	147	905	0	0	1102	516
Grp Sat Flow(s),veh/h/ln				1757	0	1568	1757	1679	0	0	1679	1568
Q Serve(g_s), s				32.8	0.0	25.9	8.5	11.4	0.0	0.0	32.7	32.7
Cycle Q Clear(g_c), s				32.8	0.0	25.9	8.5	11.4	0.0	0.0	32.7	32.7
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				1449	0	647	175	2517	0	0	1192	557
V/C Ratio(X)				0.85	0.00	0.72	0.84	0.36	0.00	0.00	0.92	0.93
Avail Cap(c_a), veh/h				2000	0	892	175	2521	0	0	1195	558
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	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				27.5	0.0	25.5	45.9	15.8	0.0	0.0	32.1	31.6
Incr Delay (d2), s/veh				2.6	0.0	1.8	28.3	0.2	0.0	0.0	12.0	21.7
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				16.4	0.0	11.5	5.5	5.3	0.0	0.0	17.1	17.5
LnGrp Delay(d),s/veh				30.2	0.0	27.3	74.2	16.0	0.0	0.0	44.1	53.3
LnGrp LOS				C		C	E	B			D	D
Approach Vol, veh/h					1697			1052			1618	
Approach Delay, s/veh					29.4			24.1			47.0	
Approach LOS					C			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		56.9			15.0	41.9		46.7
Change Period (Y+Rc), s		5.1			* 4.7	5.1		4.0
Max Green Setting (Gmax), s		51.9			* 10	36.9		59.0
Max Q Clear Time (g_c+I1), s		13.4			10.5	34.7		34.8
Green Ext Time (p_c), s		29.9			0.0	2.1		8.0

Intersection Summary	
HCM 2010 Ctrl Delay	34.6
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	368	110	310	632	1217	790
Future Volume (veh/h)	368	110	310	632	1217	790
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	400	107	337	687	1323	538
Adj No. of Lanes	2	1	2	3	3	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	527	451	452	3502	2482	773
Arrive On Green	0.15	0.15	0.13	0.70	0.49	0.49
Sat Flow, veh/h	3408	1568	3408	5202	5202	1568
Grp Volume(v), veh/h	400	107	337	687	1323	538
Grp Sat Flow(s),veh/h/ln	1704	1568	1704	1679	1679	1568
Q Serve(g_s), s	7.6	3.5	6.4	3.2	12.2	17.8
Cycle Q Clear(g_c), s	7.6	3.5	6.4	3.2	12.2	17.8
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	527	451	452	3502	2482	773
V/C Ratio(X)	0.76	0.24	0.75	0.20	0.53	0.70
Avail Cap(c_a), veh/h	1078	704	1179	5876	3783	1178
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.3	18.4	28.1	3.6	11.7	13.2
Incr Delay (d2), s/veh	0.9	0.1	0.9	0.0	0.1	0.4
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	3.4	3.1	1.5	5.7	7.7
LnGrp Delay(d),s/veh	28.1	18.5	29.1	3.6	11.8	13.6
LnGrp LOS	C	B	C	A	B	B
Approach Vol, veh/h	507			1024	1861	
Approach Delay, s/veh	26.1			12.0	12.3	
Approach LOS	C			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		52.2		15.1	13.6	38.6		
Change Period (Y+Rc), s		5.4		* 4.7	* 4.7	5.4		
Max Green Setting (Gmax), s		78.6		* 21	* 23	50.6		
Max Q Clear Time (g_c+I1), s		5.2		9.6	8.4	19.8		
Green Ext Time (p_c), s		16.2		0.9	0.5	13.4		

Intersection Summary	
HCM 2010 Ctrl Delay	14.3
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	0	402	0	360	110	175	92	0	0	71	130
Future Volume (veh/h)	110	0	402	0	360	110	175	92	0	0	71	130
Number	1	6	16	5	2	12	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		1.00	1.00		1.00	1.00		0.99
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	0	1845	1900	1845	1845	0	0	1845	1900
Adj Flow Rate, veh/h	120	0	65	0	391	112	190	100	0	0	77	17
Adj No. of Lanes	2	1	2	0	1	0	2	1	0	0	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, %	3	3	3	0	3	3	3	3	0	0	3	3
Cap, veh/h	278	977	1762	0	489	140	383	201	0	0	236	50
Arrive On Green	0.08	0.00	0.53	0.00	0.35	0.35	0.11	0.11	0.00	0.00	0.08	0.08
Sat Flow, veh/h	3408	1845	2760	0	1380	395	3514	1845	0	0	2958	612
Grp Volume(v), veh/h	120	0	65	0	0	503	190	100	0	0	46	48
Grp Sat Flow(s),veh/h/ln	1704	1845	1380	0	0	1775	1757	1845	0	0	1752	1726
Q Serve(g_s), s	1.7	0.0	0.4	0.0	0.0	12.6	2.5	2.5	0.0	0.0	1.2	1.3
Cycle Q Clear(g_c), s	1.7	0.0	0.4	0.0	0.0	12.6	2.5	2.5	0.0	0.0	1.2	1.3
Prop In Lane	1.00		1.00	0.00		0.22	1.00		0.00	0.00		0.35
Lane Grp Cap(c), veh/h	278	977	1762	0	0	630	383	201	0	0	144	142
V/C Ratio(X)	0.43	0.00	0.04	0.00	0.00	0.80	0.50	0.50	0.00	0.00	0.32	0.34
Avail Cap(c_a), veh/h	1723	2358	3829	0	0	1206	1279	672	0	0	886	873
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	21.6	0.0	3.3	0.0	0.0	14.4	20.7	20.7	0.0	0.0	21.4	21.4
Incr Delay (d2), s/veh	1.1	0.0	0.0	0.0	0.0	2.4	1.0	1.9	0.0	0.0	1.3	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.2	0.0	0.0	6.6	1.3	1.4	0.0	0.0	0.6	0.7
LnGrp Delay(d),s/veh	22.7	0.0	3.3	0.0	0.0	16.8	21.7	22.6	0.0	0.0	22.6	22.8
LnGrp LOS	C		A			B	C	C			C	C
Approach Vol, veh/h		185			503			290			94	
Approach Delay, s/veh		15.9			16.8			22.0			22.7	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	8.6	22.1		8.7		30.8		10.0
Change Period (Y+Rc), s	4.6	4.6		4.6		4.6		4.6
Max Green Setting (Gmax), s	25.0	33.6		25.0		63.2		18.0
Max Q Clear Time (g_c+I1), s	3.7	14.6		3.3		2.4		4.5
Green Ext Time (p_c), s	0.6	2.9		0.4		0.7		1.0

Intersection Summary	
HCM 2010 Ctrl Delay	18.6
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	62	377	5	30	710	20	5	5	96	390	2	81
Future Volume (veh/h)	62	377	5	30	710	20	5	5	96	390	2	81
Number	3	8	18	7	4	14	1	6	16	5	2	12
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	1845	1845	1900	1845	1845	1900	1900	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	67	410	4	33	772	20	5	5	7	424	2	28
Adj No. of Lanes	2	2	0	1	2	0	0	1	1	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	197	1278	12	63	1178	31	15	15	26	505	30	425
Arrive On Green	0.06	0.36	0.36	0.04	0.34	0.34	0.02	0.02	0.02	0.29	0.29	0.29
Sat Flow, veh/h	3408	3556	35	1757	3491	90	900	900	1568	1757	106	1478
Grp Volume(v), veh/h	67	202	212	33	388	404	10	0	7	424	0	30
Grp Sat Flow(s),veh/h/ln	1704	1752	1839	1757	1752	1829	1800	0	1568	1757	0	1584
Q Serve(g_s), s	1.1	4.7	4.7	1.0	10.5	10.5	0.3	0.0	0.2	12.7	0.0	0.8
Cycle Q Clear(g_c), s	1.1	4.7	4.7	1.0	10.5	10.5	0.3	0.0	0.2	12.7	0.0	0.8
Prop In Lane	1.00		0.02	1.00		0.05	0.50		1.00	1.00		0.93
Lane Grp Cap(c), veh/h	197	630	661	63	591	617	30	0	26	505	0	455
V/C Ratio(X)	0.34	0.32	0.32	0.52	0.66	0.66	0.33	0.00	0.27	0.84	0.00	0.07
Avail Cap(c_a), veh/h	317	872	915	182	891	930	277	0	241	975	0	879
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.3	13.0	13.0	26.5	15.7	15.7	27.2	0.0	27.1	18.7	0.0	14.5
Incr Delay (d2), s/veh	1.0	0.3	0.3	2.5	1.2	1.2	6.4	0.0	5.4	3.8	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	2.3	2.4	0.5	5.3	5.5	0.2	0.0	0.1	6.7	0.0	0.3
LnGrp Delay(d),s/veh	26.3	13.2	13.2	29.0	17.0	16.9	33.6	0.0	32.5	22.5	0.0	14.5
LnGrp LOS	C	B	B	C	B	B	C		C	C		B
Approach Vol, veh/h		481			825			17			454	
Approach Delay, s/veh		15.1			17.4			33.1			22.0	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		20.1	7.4	23.4		4.9	6.2	24.7
Change Period (Y+Rc), s		4.0	* 4.2	4.6		4.0	* 4.2	4.6
Max Green Setting (Gmax), s		31.0	* 5.2	28.4		8.6	* 5.8	27.8
Max Q Clear Time (g_c+I1), s		14.7	3.1	12.5		2.3	3.0	6.7
Green Ext Time (p_c), s		1.4	0.0	6.3		0.0	0.0	7.2

Intersection Summary	
HCM 2010 Ctrl Delay	18.1
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	355	6	41	735	20	29	0	69	20	0	0
Future Vol, veh/h	30	355	6	41	735	20	29	0	69	20	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	130	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	33	386	7	45	799	22	32	0	75	22	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	821	0	0	392	0	0	943	1364	196	1157	1357	410
Stage 1	-	-	-	-	-	-	454	454	-	899	899	-
Stage 2	-	-	-	-	-	-	489	910	-	258	458	-
Critical Hdwy	4.16	-	-	4.16	-	-	7.56	6.56	6.96	7.56	6.56	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Follow-up Hdwy	2.23	-	-	2.23	-	-	3.53	4.03	3.33	3.53	4.03	3.33
Pot Cap-1 Maneuver	798	-	-	1156	-	-	216	145	809	150	147	588
Stage 1	-	-	-	-	-	-	552	565	-	298	353	-
Stage 2	-	-	-	-	-	-	527	349	-	721	563	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	798	-	-	1156	-	-	203	134	809	128	135	588
Mov Cap-2 Maneuver	-	-	-	-	-	-	203	134	-	128	135	-
Stage 1	-	-	-	-	-	-	529	542	-	286	339	-
Stage 2	-	-	-	-	-	-	506	335	-	627	540	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	0.4	16.1	38.8
HCM LOS			C	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	430	798	-	-	1156	-	-	128
HCM Lane V/C Ratio	0.248	0.041	-	-	0.039	-	-	0.17
HCM Control Delay (s)	16.1	9.7	-	-	8.2	-	-	38.8
HCM Lane LOS	C	A	-	-	A	-	-	E
HCM 95th %tile Q(veh)	1	0.1	-	-	0.1	-	-	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	60	70	51	60	130	80	784	162	150	401	80
Future Volume (veh/h)	110	60	70	51	60	130	80	784	162	150	401	80
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	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	120	65	40	55	65	23	87	852	155	163	436	69
Adj No. of Lanes	1	1	0	1	2	0	1	3	0	1	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	157	116	71	88	181	61	113	1826	330	207	2108	326
Arrive On Green	0.09	0.11	0.11	0.05	0.07	0.07	0.06	0.43	0.43	0.12	0.48	0.48
Sat Flow, veh/h	1757	1061	653	1757	2573	867	1757	4287	776	1757	4398	681
Grp Volume(v), veh/h	120	0	105	55	43	45	87	666	341	163	331	174
Grp Sat Flow(s),veh/h/ln	1757	0	1715	1757	1752	1688	1757	1679	1706	1757	1679	1722
Q Serve(g_s), s	3.9	0.0	3.4	1.8	1.4	1.5	2.9	8.4	8.5	5.3	3.4	3.5
Cycle Q Clear(g_c), s	3.9	0.0	3.4	1.8	1.4	1.5	2.9	8.4	8.5	5.3	3.4	3.5
Prop In Lane	1.00		0.38	1.00		0.51	1.00		0.45	1.00		0.40
Lane Grp Cap(c), veh/h	157	0	188	88	124	119	113	1430	726	207	1609	825
V/C Ratio(X)	0.77	0.00	0.56	0.62	0.35	0.38	0.77	0.47	0.47	0.79	0.21	0.21
Avail Cap(c_a), veh/h	470	0	1408	366	1336	1286	521	2326	1181	619	2513	1289
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.3	0.0	24.9	27.5	26.2	26.2	27.2	12.1	12.2	25.3	8.9	8.9
Incr Delay (d2), s/veh	7.6	0.0	2.6	7.0	1.7	2.0	10.3	0.3	0.6	2.5	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	2.2	0.0	1.7	1.0	0.7	0.8	1.7	3.9	4.1	2.7	1.6	1.7
LnGrp Delay(d),s/veh	33.8	0.0	27.5	34.4	27.8	28.2	37.5	12.4	12.7	27.8	9.0	9.1
LnGrp LOS	C		C	C	C	C	D	B	B	C	A	A
Approach Vol, veh/h		225			143			1094			668	
Approach Delay, s/veh		30.9			30.5			14.5			13.6	
Approach LOS		C			C			B			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	11.2	29.7	7.2	11.0	8.0	32.9	9.5	8.7
Change Period (Y+Rc), s	* 4.2	4.6	* 4.2	4.5	* 4.2	4.6	* 4.2	4.5
Max Green Setting (Gmax), s	* 21	40.9	* 12	48.5	* 18	44.2	* 16	45.0
Max Q Clear Time (g_c+I1), s	7.3	10.5	3.8	5.4	4.9	5.5	5.9	3.5
Green Ext Time (p_c), s	0.2	14.0	0.1	1.2	0.1	15.4	0.2	1.2

Intersection Summary	
HCM 2010 Ctrl Delay	17.0
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	86	130	647	440	393	30	605	910	550	20	320	182
Future Volume (veh/h)	86	130	647	440	393	30	605	910	550	20	320	182
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		0.99	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	1845	1845	1900	1845	1845	1900	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	91	137	296	463	414	26	637	958	496	21	337	41
Adj No. of Lanes	2	3	0	2	3	0	2	2	1	2	2	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	141	719	331	544	1611	100	739	1437	643	100	781	349
Arrive On Green	0.04	0.21	0.21	0.16	0.33	0.33	0.22	0.41	0.41	0.03	0.22	0.22
Sat Flow, veh/h	3408	3357	1548	3408	4847	301	3408	3505	1568	3408	3505	1568
Grp Volume(v), veh/h	91	137	296	463	286	154	637	958	496	21	337	41
Grp Sat Flow(s),veh/h/ln	1704	1679	1548	1704	1679	1791	1704	1752	1568	1704	1752	1568
Q Serve(g_s), s	3.1	4.0	22.1	15.7	7.4	7.5	21.4	26.4	32.5	0.7	9.8	2.5
Cycle Q Clear(g_c), s	3.1	4.0	22.1	15.7	7.4	7.5	21.4	26.4	32.5	0.7	9.8	2.5
Prop In Lane	1.00		1.00	1.00		0.17	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	141	719	331	544	1116	595	739	1437	643	100	781	349
V/C Ratio(X)	0.64	0.19	0.89	0.85	0.26	0.26	0.86	0.67	0.77	0.21	0.43	0.12
Avail Cap(c_a), veh/h	215	748	345	722	1248	666	1000	1742	779	201	920	411
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	56.1	38.3	45.4	48.6	29.0	29.0	44.9	28.5	30.3	56.4	39.7	36.9
Incr Delay (d2), s/veh	5.8	0.2	24.0	7.9	0.1	0.3	6.4	0.8	4.2	1.2	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	1.6	1.9	11.7	8.0	3.4	3.7	10.7	12.9	14.7	0.4	4.8	1.1
LnGrp Delay(d),s/veh	62.0	38.4	69.4	56.5	29.1	29.3	51.3	29.3	34.5	57.6	40.2	37.1
LnGrp LOS	E	D	E	E	C	C	D	C	C	E	D	D
Approach Vol, veh/h		524			903			2091			399	
Approach Delay, s/veh		60.0			43.2			37.2			40.8	
Approach LOS		E			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.1	45.4	8.7	54.7	24.2	31.4	31.0	32.4
Change Period (Y+Rc), s	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9
Max Green Setting (Gmax), s	* 7.5	44.2	* 7	59.1	* 25	26.5	* 35	31.2
Max Q Clear Time (g_c+I1), s	15.1	9.5	2.7	34.5	17.7	24.1	23.4	11.8
Green Ext Time (p_c), s	0.1	7.5	0.0	14.3	1.3	1.4	2.4	12.3

Intersection Summary	
HCM 2010 Ctrl Delay	42.0
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	310.1
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1099	0	290	0	0	0	370	966	0	20	707	680
Future Vol, veh/h	1099	0	290	0	0	0	370	966	0	20	707	680
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
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	1157	0	305	0	0	0	389	1017	0	21	744	716
Number of Lanes	1	1	1	0	0	0	1	2	0	0	2	1

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	3	3
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	3	3	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	3	0	3
HCM Control Delay	244.3	270.2	412.8
HCM LOS	F	F	F

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	100%	100%	0%	8%	0%	0%
Vol Thru, %	0%	100%	100%	0%	0%	0%	92%	100%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	370	483	483	550	550	290	256	471	680
LT Vol	370	0	0	550	550	0	20	0	0
Through Vol	0	483	483	0	0	0	236	471	0
RT Vol	0	0	0	0	0	290	0	0	680
Lane Flow Rate	389	508	508	578	578	305	269	496	716
Geometry Grp	8	8	8	7	7	7	8	8	8
Degree of Util (X)	1.381	1.732	1.485	1.529	1.529	0.706	0.925	1.701	2.315
Departure Headway (Hd)	6.902	6.387	4.582	16.036	16.036	14.81	5.183	5.142	4.418
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	526	569	793	231	231	247	700	709	823
Service Time	4.602	4.087	2.282	13.736	13.736	12.51	2.883	2.842	2.118
HCM Lane V/C Ratio	0.74	0.893	0.641	2.502	2.502	1.235	0.384	0.7	0.87
HCM Control Delay	203.2	353	238.8	296.5	296.5	46.7	40.4	335.3	606.5
HCM Lane LOS	F	F	F	F	F	E	E	F	F
HCM 95th-tile Q	33	57.9	55.5	21	21	4.7	12.6	67.9	139

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	890	20	250	0	0	0	0	446	370	422	575	0
Future Volume (veh/h)	890	20	250	0	0	0	0	446	370	422	575	0
Number	3	8	18				1	6	16	5	2	12
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	1900	1845	1845				0	1845	1845	1845	1845	0
Adj Flow Rate, veh/h	937	21	187				0	469	113	444	605	0
Adj No. of Lanes	0	1	1				0	1	1	2	1	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	888	20	809				0	495	421	378	757	0
Arrive On Green	0.52	0.52	0.52				0.00	0.27	0.27	0.11	0.41	0.00
Sat Flow, veh/h	1720	39	1568				0	1845	1566	3408	1845	0
Grp Volume(v), veh/h	958	0	187				0	469	113	444	605	0
Grp Sat Flow(s),veh/h/ln	1759	0	1568				0	1845	1566	1704	1845	0
Q Serve(g_s), s	61.8	0.0	7.9				0.0	29.9	6.8	13.3	34.5	0.0
Cycle Q Clear(g_c), s	61.8	0.0	7.9				0.0	29.9	6.8	13.3	34.5	0.0
Prop In Lane	0.98		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	907	0	809				0	495	421	378	757	0
V/C Ratio(X)	1.06	0.00	0.23				0.00	0.95	0.27	1.17	0.80	0.00
Avail Cap(c_a), veh/h	907	0	809				0	499	424	378	761	0
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	1.00	1.00	0.00
Uniform Delay (d), s/veh	29.0	0.0	15.9				0.0	43.0	34.5	53.2	31.0	0.0
Incr Delay (d2), s/veh	45.7	0.0	0.1				0.0	27.0	0.1	102.4	5.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	41.3	0.0	3.4				0.0	19.0	3.0	11.6	18.6	0.0
LnGrp Delay(d),s/veh	74.7	0.0	16.0				0.0	69.9	34.7	155.7	36.5	0.0
LnGrp LOS	F		B					E	C	F	D	
Approach Vol, veh/h		1145						582			1049	
Approach Delay, s/veh		65.1						63.1			86.9	
Approach LOS		E						E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		53.8			17.0	36.8		66.0
Change Period (Y+Rc), s		4.6			3.7	4.6		4.2
Max Green Setting (Gmax), s		49.4			13.3	32.4		61.8
Max Q Clear Time (g_c+I1), s		36.5			15.3	31.9		63.8
Green Ext Time (p_c), s		4.0			0.0	0.3		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	72.9
HCM 2010 LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	333	40	20	30	50	190	30	233	30	100	198	427
Future Volume (veh/h)	333	40	20	30	50	190	30	233	30	100	198	427
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	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	362	43	6	33	54	73	33	253	24	109	215	132
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	436	393	55	191	77	104	65	657	62	140	523	308
Arrive On Green	0.25	0.25	0.25	0.11	0.11	0.11	0.04	0.20	0.20	0.08	0.25	0.25
Sat Flow, veh/h	1757	1585	221	1757	712	963	1757	3237	305	1757	2125	1251
Grp Volume(v), veh/h	362	0	49	33	0	127	33	136	141	109	176	171
Grp Sat Flow(s),veh/h/ln	1757	0	1806	1757	0	1675	1757	1752	1789	1757	1752	1624
Q Serve(g_s), s	9.7	0.0	1.0	0.9	0.0	3.7	0.9	3.3	3.4	3.0	4.2	4.4
Cycle Q Clear(g_c), s	9.7	0.0	1.0	0.9	0.0	3.7	0.9	3.3	3.4	3.0	4.2	4.4
Prop In Lane	1.00		0.12	1.00		0.57	1.00		0.17	1.00		0.77
Lane Grp Cap(c), veh/h	436	0	448	191	0	182	65	356	363	140	431	400
V/C Ratio(X)	0.83	0.00	0.11	0.17	0.00	0.70	0.51	0.38	0.39	0.78	0.41	0.43
Avail Cap(c_a), veh/h	1245	0	1280	781	0	745	225	730	745	478	983	910
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.8	0.0	14.5	20.2	0.0	21.5	23.6	17.2	17.2	22.5	15.8	15.9
Incr Delay (d2), s/veh	1.6	0.0	0.0	0.2	0.0	1.8	2.3	0.3	0.3	3.5	0.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	0.0	0.5	0.4	0.0	1.8	0.5	1.6	1.7	1.6	2.0	2.0
LnGrp Delay(d),s/veh	19.4	0.0	14.5	20.4	0.0	23.3	25.9	17.4	17.5	26.0	16.0	16.1
LnGrp LOS	B		B	C		C	C	B	B	C	B	B
Approach Vol, veh/h		411			160			310			456	
Approach Delay, s/veh		18.8			22.7			18.4			18.4	
Approach LOS		B			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.2	14.7		17.0	6.0	16.9		10.0
Change Period (Y+Rc), s	* 4.2	4.6		4.6	* 4.2	4.6		4.6
Max Green Setting (Gmax), s	* 4	20.8		35.4	* 6.4	28.0		22.2
Max Q Clear Time (g_c+I1), s	5.0	5.4		11.7	2.9	6.4		5.7
Green Ext Time (p_c), s	0.1	2.1		0.7	0.0	2.3		0.4

Intersection Summary		
HCM 2010 Ctrl Delay	19.0	
HCM 2010 LOS	B	

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	11.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	343	140	300	20	30	337
Future Vol, veh/h	343	140	300	20	30	337
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	361	147	316	21	32	355

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	337	0	-	0	1195	326
Stage 1	-	-	-	-	326	-
Stage 2	-	-	-	-	869	-
Critical Hdwy	4.14	-	-	-	6.44	6.24
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	2.236	-	-	-	3.536	3.336
Pot Cap-1 Maneuver	1211	-	-	-	204	711
Stage 1	-	-	-	-	727	-
Stage 2	-	-	-	-	407	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1211	-	-	-	138	711
Mov Cap-2 Maneuver	-	-	-	-	138	-
Stage 1	-	-	-	-	727	-
Stage 2	-	-	-	-	275	-

Approach	EB	WB	SB
HCM Control Delay, s	6.6	0	27.8
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1211	-	-	-	531
HCM Lane V/C Ratio	0.298	-	-	-	0.728
HCM Control Delay (s)	9.2	0	-	-	27.8
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	1.3	-	-	-	6

Intersection	
Int Delay, s/veh	406.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	367	360	602	333	120	1157
Future Vol, veh/h	367	360	602	333	120	1157
Conflicting Peds, #/hr	5	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	315	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	386	379	634	351	126	1218

Major/Minor	Minor1		Major1		Minor2	
Conflicting Flow All	1248	634	0	0	823	634
Stage 1	634	-	-	-	0	0
Stage 2	614	-	-	-	823	634
Critical Hdwy	7.13	6.23	-	-	7.13	6.53
Critical Hdwy Stg 1	6.13	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	6.13	5.53
Follow-up Hdwy	3.527	3.327	-	-	3.527	4.027
Pot Cap-1 Maneuver	~ 149	477	-	-	291	~ 395
Stage 1	466	-	-	-	-	-
Stage 2	-	-	-	-	366	~ 471
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	-	477	-	-	~ 60	~ 395
Mov Cap-2 Maneuver	-	-	-	-	~ 60	~ 395
Stage 1	466	-	-	-	-	-
Stage 2	-	-	-	-	~ 75	~ 471

Approach	WB	NB	SB
HCM Control Delay, s		0	$ 936.1
HCM LOS	-		F

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBLn1	SBLn2
Capacity (veh/h)	-	-	-	60	395
HCM Lane V/C Ratio	-	-	-	2.105	3.083
HCM Control Delay (s)	-	-	-$	658.2	$ 964.9
HCM Lane LOS	-	-	-	F	F
HCM 95th %tile Q(veh)	-	-	-	12.2	107.1

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

Intersection	
Int Delay, s/veh	1247.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	90	40	895	20	60	1334
Future Vol, veh/h	90	40	895	20	60	1334
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	95	42	942	21	63	1404

Major/Minor	Minor1		Minor2		Major2	
Conflicting Flow All	2012	0	1531	1404	0	0
Stage 1	0	-	1531	-	-	-
Stage 2	2012	-	0	-	-	-
Critical Hdwy	7.13	6.23	6.53	6.23	4.13	-
Critical Hdwy Stg 1	-	-	5.53	-	-	-
Critical Hdwy Stg 2	6.13	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	4.027	3.327	2.227	-
Pot Cap-1 Maneuver	~ 43	-	~ 116	170	-	-
Stage 1	-	-	~ 178	-	-	-
Stage 2	~ 76	-	-	-	-	-
Platoon blocked, %						-
Mov Cap-1 Maneuver	-	-	~ 116	170	-	-
Mov Cap-2 Maneuver	-	-	~ 116	-	-	-
Stage 1	-	-	~ 178	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s		$ 3324.9	
HCM LOS	-	F	

Minor Lane/Major Mvmt	NBLn1	WBLn1	SBL	SBT
Capacity (veh/h)	117	-	-	-
HCM Lane V/C Ratio	8.232	-	-	-
HCM Control Delay (s)	$ 3324.9	-	-	-
HCM Lane LOS	F	-	-	-
HCM 95th %tile Q(veh)	109.1	-	-	-

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)	30	92	160	210	171	111	180	520	180	61	300	50
Future Volume (veh/h)	30	92	160	210	171	111	180	520	180	61	300	50
Number	5	2	12	1	6	16	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		0.98	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	1845	1845	1845	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	33	100	29	228	186	39	196	565	168	66	326	43
Adj No. of Lanes	1	2	1	1	3	0	2	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	60	461	202	274	1066	213	672	867	257	93	531	69
Arrive On Green	0.03	0.13	0.13	0.16	0.25	0.25	0.20	0.32	0.32	0.05	0.17	0.17
Sat Flow, veh/h	1757	3505	1532	1757	4210	842	3408	2667	791	1757	3117	408
Grp Volume(v), veh/h	33	100	29	228	146	79	196	371	362	66	182	187
Grp Sat Flow(s),veh/h/ln	1757	1752	1532	1757	1679	1695	1704	1752	1705	1757	1752	1772
Q Serve(g_s), s	1.2	1.7	1.1	8.4	2.3	2.4	3.3	12.0	12.1	2.5	6.4	6.5
Cycle Q Clear(g_c), s	1.2	1.7	1.1	8.4	2.3	2.4	3.3	12.0	12.1	2.5	6.4	6.5
Prop In Lane	1.00		1.00	1.00		0.50	1.00		0.46	1.00		0.23
Lane Grp Cap(c), veh/h	60	461	202	274	850	429	672	569	554	93	298	302
V/C Ratio(X)	0.55	0.22	0.14	0.83	0.17	0.18	0.29	0.65	0.65	0.71	0.61	0.62
Avail Cap(c_a), veh/h	177	2271	993	418	2636	1331	672	1030	1002	132	819	828
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.5	25.8	25.5	27.2	19.3	19.4	22.7	19.2	19.2	30.9	25.5	25.5
Incr Delay (d2), s/veh	2.9	0.1	0.1	5.0	0.0	0.1	0.3	1.8	1.9	3.7	2.9	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.8	0.5	4.4	1.0	1.1	1.6	6.0	5.9	1.3	3.3	3.4
LnGrp Delay(d),s/veh	34.4	25.8	25.6	32.2	19.4	19.5	23.0	21.0	21.1	34.6	28.3	28.5
LnGrp LOS	C	C	C	C	B	B	C	C	C	C	C	C
Approach Vol, veh/h		162			453			929			435	
Approach Delay, s/veh		27.5			25.8			21.4			29.3	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.5	14.6	8.7	27.5	7.5	22.7	19.0	17.2
Change Period (Y+Rc), s	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9	5.9	* 5.9
Max Green Setting (Gmax), s	* 16	43.0	* 5	39.0	* 6.7	52.1	13.0	* 31
Max Q Clear Time (g_c+I1), s	10.4	3.7	4.5	14.1	3.2	4.4	5.3	8.5
Green Ext Time (p_c), s	0.1	1.3	0.0	7.3	0.0	1.3	3.8	2.7

Intersection Summary	
HCM 2010 Ctrl Delay	24.7
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	392	650	351	201	70	860	680	290	30	460	180
Future Volume (veh/h)	130	392	650	351	201	70	860	680	290	30	460	180
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	1845	1845	1845	1845	1845	1900	1845	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	137	413	551	432	123	62	905	716	119	32	484	162
Adj No. of Lanes	1	1	2	2	1	0	2	2	1	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	484	508	1088	599	197	99	243	1127	503	50	720	240
Arrive On Green	0.28	0.28	0.28	0.17	0.17	0.17	0.07	0.32	0.32	0.03	0.28	0.28
Sat Flow, veh/h	1757	1845	3136	3514	1158	584	3408	3505	1565	1757	2585	860
Grp Volume(v), veh/h	137	413	551	432	0	185	905	716	119	32	327	319
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	0	1742	1704	1752	1565	1757	1752	1693
Q Serve(g_s), s	6.7	22.8	15.2	12.7	0.0	10.8	7.8	19.0	6.1	2.0	18.1	18.3
Cycle Q Clear(g_c), s	6.7	22.8	15.2	12.7	0.0	10.8	7.8	19.0	6.1	2.0	18.1	18.3
Prop In Lane	1.00		1.00	1.00		0.34	1.00		1.00	1.00		0.51
Lane Grp Cap(c), veh/h	484	508	1088	599	0	297	243	1127	503	50	488	472
V/C Ratio(X)	0.28	0.81	0.51	0.72	0.00	0.62	3.72	0.64	0.24	0.64	0.67	0.68
Avail Cap(c_a), veh/h	723	759	1515	1189	0	590	243	1127	503	96	527	510
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.1	37.0	28.3	42.9	0.0	42.1	50.8	31.6	27.2	52.5	35.0	35.0
Incr Delay (d2), s/veh	0.3	4.2	0.4	2.4	0.0	3.0	1234.5	2.3	0.9	5.0	6.0	6.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	12.2	6.7	6.4	0.0	5.4	45.3	9.5	2.8	1.0	9.5	9.3
LnGrp Delay(d),s/veh	31.4	41.1	28.6	45.2	0.0	45.1	1285.2	33.9	28.1	57.5	41.0	41.5
LnGrp LOS	C	D	C	D		D	F	C	C	E	D	D
Approach Vol, veh/h		1101			617			1740			678	
Approach Delay, s/veh		33.7			45.2			684.4			42.0	
Approach LOS		C			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	8.3	41.0		24.2	13.0	36.4		35.7
Change Period (Y+Rc), s	* 5.2	5.9		5.6	* 5.2	5.9		5.6
Max Green Setting (Gmax), s	* 6	34.7		37.0	* 7.8	32.9		45.0
Max Q Clear Time (g_c+I1), s	4.0	21.0		14.7	9.8	20.3		24.8
Green Ext Time (p_c), s	0.0	11.5		3.9	0.0	10.1		5.3

Intersection Summary	
HCM 2010 Ctrl Delay	310.5
HCM 2010 LOS	F

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	1040	0	650	140	1180	0	0	1143	318
Future Volume (veh/h)	0	0	0	1040	0	650	140	1180	0	0	1143	318
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		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				1845	1845	1845	1845	1845	0	0	1845	1900
Adj Flow Rate, veh/h				1289	0	416	147	1242	0	0	1203	293
Adj No. of Lanes				2	0	1	1	3	0	0	3	0
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				1516	0	676	104	2410	0	0	1507	367
Arrive On Green				0.43	0.00	0.43	0.06	0.48	0.00	0.00	0.37	0.37
Sat Flow, veh/h				3514	0	1568	1757	5202	0	0	4209	985
Grp Volume(v), veh/h				1289	0	416	147	1242	0	0	999	497
Grp Sat Flow(s),veh/h/ln				1757	0	1568	1757	1679	0	0	1679	1671
Q Serve(g_s), s				33.3	0.0	20.8	6.0	17.3	0.0	0.0	26.9	26.9
Cycle Q Clear(g_c), s				33.3	0.0	20.8	6.0	17.3	0.0	0.0	26.9	26.9
Prop In Lane				1.00		1.00	1.00		0.00	0.00		0.59
Lane Grp Cap(c), veh/h				1516	0	676	104	2410	0	0	1252	623
V/C Ratio(X)				0.85	0.00	0.61	1.41	0.52	0.00	0.00	0.80	0.80
Avail Cap(c_a), veh/h				2154	0	961	104	2435	0	0	1268	631
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	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				25.8	0.0	22.3	47.6	18.2	0.0	0.0	28.3	28.3
Incr Delay (d2), s/veh				2.4	0.0	0.9	232.0	0.4	0.0	0.0	3.6	7.1
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				16.6	0.0	9.2	9.6	8.0	0.0	0.0	13.0	13.5
LnGrp Delay(d),s/veh				28.2	0.0	23.2	279.5	18.6	0.0	0.0	32.0	35.4
LnGrp LOS				C		C	F	B			C	D
Approach Vol, veh/h					1705			1389			1496	
Approach Delay, s/veh					27.0			46.2			33.1	
Approach LOS					C			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		53.5			10.7	42.8		47.6
Change Period (Y+Rc), s		5.1			* 4.7	5.1		4.0
Max Green Setting (Gmax), s		48.9			* 6	38.2		62.0
Max Q Clear Time (g_c+I1), s		19.3			8.0	28.9		35.3
Green Ext Time (p_c), s		25.9			0.0	8.8		8.3

Intersection Summary		
HCM 2010 Ctrl Delay		34.8
HCM 2010 LOS		C

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	486	140	450	834	1113	1070
Future Volume (veh/h)	486	140	450	834	1113	1070
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	512	129	474	878	1172	877
Adj No. of Lanes	2	1	2	3	3	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	586	527	559	3639	2566	799
Arrive On Green	0.17	0.17	0.16	0.72	0.51	0.51
Sat Flow, veh/h	3408	1568	3408	5202	5202	1568
Grp Volume(v), veh/h	512	129	474	878	1172	877
Grp Sat Flow(s),veh/h/ln	1704	1568	1704	1679	1679	1568
Q Serve(g_s), s	14.0	5.7	12.9	5.6	14.2	48.8
Cycle Q Clear(g_c), s	14.0	5.7	12.9	5.6	14.2	48.8
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	586	527	559	3639	2566	799
V/C Ratio(X)	0.87	0.24	0.85	0.24	0.46	1.10
Avail Cap(c_a), veh/h	658	560	993	4280	2566	799
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.6	23.0	38.9	4.5	15.0	23.5
Incr Delay (d2), s/veh	10.6	0.1	1.4	0.0	0.0	62.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.5	5.7	6.2	2.6	6.5	34.6
LnGrp Delay(d),s/veh	49.2	23.1	40.3	4.5	15.1	85.4
LnGrp LOS	D	C	D	A	B	F
Approach Vol, veh/h	641			1352	2049	
Approach Delay, s/veh	44.0			17.0	45.2	
Approach LOS	D			B	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		74.6		21.2	20.4	54.2		
Change Period (Y+Rc), s		5.4		* 4.7	* 4.7	5.4		
Max Green Setting (Gmax), s		81.4		* 19	* 28	48.8		
Max Q Clear Time (g_c+I1), s		7.6		16.0	14.9	50.8		
Green Ext Time (p_c), s		20.0		0.5	0.8	0.0		

Intersection Summary	
HCM 2010 Ctrl Delay	35.6
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	0	503	0	350	30	52	41	0	0	91	140
Future Volume (veh/h)	80	0	503	0	350	30	52	41	0	0	91	140
Number	1	6	16	5	2	12	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		0.96
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	0	1845	1900	1845	1845	0	0	1845	1900
Adj Flow Rate, veh/h	87	0	344	0	380	30	57	45	0	0	99	24
Adj No. of Lanes	2	1	2	0	1	0	2	1	0	0	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, %	3	3	3	0	3	3	3	3	0	0	3	3
Cap, veh/h	260	906	1554	0	514	41	292	153	0	0	264	62
Arrive On Green	0.08	0.00	0.49	0.00	0.30	0.30	0.08	0.08	0.00	0.00	0.09	0.09
Sat Flow, veh/h	3408	1845	2698	0	1688	133	3514	1845	0	0	2892	653
Grp Volume(v), veh/h	87	0	344	0	0	410	57	45	0	0	61	62
Grp Sat Flow(s),veh/h/ln	1704	1845	1349	0	0	1821	1757	1845	0	0	1752	1700
Q Serve(g_s), s	1.0	0.0	2.6	0.0	0.0	8.4	0.6	1.0	0.0	0.0	1.3	1.4
Cycle Q Clear(g_c), s	1.0	0.0	2.6	0.0	0.0	8.4	0.6	1.0	0.0	0.0	1.3	1.4
Prop In Lane	1.00		1.00	0.00		0.07	1.00		0.00	0.00		0.38
Lane Grp Cap(c), veh/h	260	906	1554	0	0	554	292	153	0	0	165	160
V/C Ratio(X)	0.33	0.00	0.22	0.00	0.00	0.74	0.19	0.29	0.00	0.00	0.37	0.39
Avail Cap(c_a), veh/h	2048	2793	4314	0	0	1462	1537	807	0	0	1053	1022
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	18.2	0.0	4.3	0.0	0.0	13.0	17.8	17.9	0.0	0.0	17.7	17.7
Incr Delay (d2), s/veh	0.8	0.0	0.1	0.0	0.0	2.0	0.3	1.0	0.0	0.0	1.4	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	1.2	0.0	0.0	4.5	0.3	0.5	0.0	0.0	0.7	0.7
LnGrp Delay(d),s/veh	19.0	0.0	4.4	0.0	0.0	15.0	18.1	19.0	0.0	0.0	19.0	19.3
LnGrp LOS	B		A			B	B	B			B	B
Approach Vol, veh/h		431			410			102			123	
Approach Delay, s/veh		7.3			15.0			18.5			19.2	
Approach LOS		A			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	7.8	17.3		8.5		25.0		8.1
Change Period (Y+Rc), s	4.6	4.6		4.6		4.6		4.6
Max Green Setting (Gmax), s	25.0	33.4		25.0		63.0		18.2
Max Q Clear Time (g_c+I1), s	3.0	10.4		3.4		4.6		3.0
Green Ext Time (p_c), s	1.6	2.4		0.6		1.8		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	12.7
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	864	9	57	447	20	2	2	34	540	2	52
Future Volume (veh/h)	71	864	9	57	447	20	2	2	34	540	2	52
Number	3	8	18	7	4	14	1	6	16	5	2	12
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	1845	1845	1900	1845	1845	1900	1900	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	77	939	9	62	486	19	2	2	1	587	2	22
Adj No. of Lanes	2	2	0	1	2	0	0	1	1	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	189	1191	11	88	1133	44	5	5	8	650	49	539
Arrive On Green	0.06	0.33	0.33	0.05	0.33	0.33	0.01	0.01	0.01	0.37	0.37	0.37
Sat Flow, veh/h	3408	3557	34	1757	3439	134	900	900	1568	1757	132	1455
Grp Volume(v), veh/h	77	463	485	62	247	258	4	0	1	587	0	24
Grp Sat Flow(s),veh/h/ln	1704	1752	1839	1757	1752	1821	1800	0	1568	1757	0	1588
Q Serve(g_s), s	1.5	16.7	16.7	2.4	7.7	7.7	0.2	0.0	0.0	22.1	0.0	0.7
Cycle Q Clear(g_c), s	1.5	16.7	16.7	2.4	7.7	7.7	0.2	0.0	0.0	22.1	0.0	0.7
Prop In Lane	1.00		0.02	1.00		0.07	0.50		1.00	1.00		0.92
Lane Grp Cap(c), veh/h	189	587	616	88	577	600	10	0	8	650	0	588
V/C Ratio(X)	0.41	0.79	0.79	0.71	0.43	0.43	0.42	0.00	0.12	0.90	0.00	0.04
Avail Cap(c_a), veh/h	263	660	693	170	695	722	103	0	89	902	0	816
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	32.0	21.1	21.1	32.8	18.3	18.4	34.7	0.0	34.7	20.9	0.0	14.1
Incr Delay (d2), s/veh	1.4	5.7	5.5	3.8	0.5	0.5	26.8	0.0	6.3	9.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	9.0	9.4	1.3	3.8	3.9	0.1	0.0	0.0	12.3	0.0	0.3
LnGrp Delay(d),s/veh	33.4	26.8	26.5	36.6	18.9	18.8	61.5	0.0	41.0	30.4	0.0	14.1
LnGrp LOS	C	C	C	D	B	B	E		D	C		B
Approach Vol, veh/h		1025			567			5			611	
Approach Delay, s/veh		27.2			20.8			57.4			29.8	
Approach LOS		C			C			E			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		29.9	8.1	27.7		4.4	7.7	28.1
Change Period (Y+Rc), s		4.0	* 4.2	4.6		4.0	* 4.2	4.6
Max Green Setting (Gmax), s		36.0	* 5.4	27.8		4.0	* 6.8	26.4
Max Q Clear Time (g_c+I1), s		24.1	3.5	9.7		2.2	4.4	18.7
Green Ext Time (p_c), s		1.8	0.0	8.3		0.0	0.0	4.7

Intersection Summary	
HCM 2010 Ctrl Delay	26.3
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	889	16	69	412	20	11	0	25	30	0	30
Future Vol, veh/h	20	889	16	69	412	20	11	0	25	30	0	30
Conflicting Peds, #/hr	2	0	0	0	0	2	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	-	-	130	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	22	966	17	75	448	22	12	0	27	33	0	33

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	472	0	0	984	0	0	1392	1640	492	1138	1638	237
Stage 1	-	-	-	-	-	-	1018	1018	-	611	611	-
Stage 2	-	-	-	-	-	-	374	622	-	527	1027	-
Critical Hdwy	4.16	-	-	4.16	-	-	7.56	6.56	6.96	7.56	6.56	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Follow-up Hdwy	2.23	-	-	2.23	-	-	3.53	4.03	3.33	3.53	4.03	3.33
Pot Cap-1 Maneuver	1079	-	-	692	-	-	101	98	520	155	99	761
Stage 1	-	-	-	-	-	-	252	311	-	445	480	-
Stage 2	-	-	-	-	-	-	616	475	-	500	308	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1079	-	-	692	-	-	87	85	520	132	86	760
Mov Cap-2 Maneuver	-	-	-	-	-	-	87	85	-	132	86	-
Stage 1	-	-	-	-	-	-	247	305	-	435	427	-
Stage 2	-	-	-	-	-	-	526	423	-	464	302	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	1.5	26.5	27.4
HCM LOS			D	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	206	1079	-	-	692	-	-	225
HCM Lane V/C Ratio	0.19	0.02	-	-	0.108	-	-	0.29
HCM Control Delay (s)	26.5	8.4	-	-	10.8	-	-	27.4
HCM Lane LOS	D	A	-	-	B	-	-	D
HCM 95th %tile Q(veh)	0.7	0.1	-	-	0.4	-	-	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	70	170	181	80	70	80	751	171	40	572	80
Future Volume (veh/h)	80	70	170	181	80	70	80	751	171	40	572	80
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		0.99
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	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	87	76	113	197	87	25	87	816	161	43	622	74
Adj No. of Lanes	1	1	0	1	2	0	1	3	0	1	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	113	107	159	248	642	178	113	1705	334	72	1734	204
Arrive On Green	0.06	0.16	0.16	0.14	0.24	0.24	0.06	0.40	0.40	0.04	0.38	0.38
Sat Flow, veh/h	1757	671	998	1757	2713	751	1757	4225	828	1757	4562	537
Grp Volume(v), veh/h	87	0	189	197	55	57	87	647	330	43	456	240
Grp Sat Flow(s),veh/h/ln	1757	0	1669	1757	1752	1712	1757	1679	1695	1757	1679	1742
Q Serve(g_s), s	3.3	0.0	7.4	7.4	1.7	1.8	3.3	9.8	9.9	1.7	6.7	6.8
Cycle Q Clear(g_c), s	3.3	0.0	7.4	7.4	1.7	1.8	3.3	9.8	9.9	1.7	6.7	6.8
Prop In Lane	1.00		0.60	1.00		0.44	1.00		0.49	1.00		0.31
Lane Grp Cap(c), veh/h	113	0	266	248	415	405	113	1355	684	72	1276	662
V/C Ratio(X)	0.77	0.00	0.71	0.79	0.13	0.14	0.77	0.48	0.48	0.60	0.36	0.36
Avail Cap(c_a), veh/h	353	0	1105	665	1472	1438	353	2048	1034	233	1818	943
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.6	0.0	27.4	28.5	20.7	20.7	31.6	15.1	15.2	32.4	15.3	15.3
Incr Delay (d2), s/veh	10.5	0.0	3.5	5.7	0.1	0.2	10.5	0.3	0.6	3.0	0.2	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	3.7	4.0	0.8	0.9	1.9	4.6	4.7	0.9	3.1	3.3
LnGrp Delay(d),s/veh	42.1	0.0	30.8	34.2	20.8	20.9	42.2	15.4	15.8	35.4	15.5	15.7
LnGrp LOS	D		C	C	C	C	D	B	B	D	B	B
Approach Vol, veh/h		276			309			1064			739	
Approach Delay, s/veh		34.4			29.4			17.7			16.7	
Approach LOS		C			C			B			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	7.0	32.3	13.9	15.5	8.6	30.7	8.6	20.7
Change Period (Y+Rc), s	* 4.2	4.6	* 4.2	4.5	* 4.2	4.6	* 4.2	4.5
Max Green Setting (Gmax), s	* 9.1	41.9	* 26	45.5	* 14	37.2	* 14	57.7
Max Q Clear Time (g_c+I1), s	3.7	11.9	9.4	9.4	5.3	8.8	5.3	3.8
Green Ext Time (p_c), s	0.0	15.6	0.5	1.9	0.1	15.1	0.1	2.0

Intersection Summary	
HCM 2010 Ctrl Delay	20.8
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	152	684	602	560	216	30	475	820	550	40	670	213
Future Volume (veh/h)	152	684	602	560	216	30	475	820	550	40	670	213
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		0.99	1.00		1.00	1.00		1.00	1.00		0.98
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	1900	1845	1845	1900	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	160	720	521	589	227	19	500	863	484	42	705	53
Adj No. of Lanes	2	3	0	2	3	0	2	2	1	2	2	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	210	939	432	631	1912	157	481	1174	524	138	820	361
Arrive On Green	0.06	0.28	0.28	0.19	0.40	0.40	0.14	0.33	0.33	0.04	0.23	0.23
Sat Flow, veh/h	3408	3357	1545	3408	4743	390	3408	3505	1565	3408	3505	1542
Grp Volume(v), veh/h	160	720	521	589	159	87	500	863	484	42	705	53
Grp Sat Flow(s),veh/h/ln	1704	1679	1545	1704	1679	1775	1704	1752	1565	1704	1752	1542
Q Serve(g_s), s	6.4	27.3	38.8	23.6	4.1	4.2	19.6	30.2	41.3	1.7	26.8	3.8
Cycle Q Clear(g_c), s	6.4	27.3	38.8	23.6	4.1	4.2	19.6	30.2	41.3	1.7	26.8	3.8
Prop In Lane	1.00		1.00	1.00		0.22	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	210	939	432	631	1354	716	481	1174	524	138	820	361
V/C Ratio(X)	0.76	0.77	1.21	0.93	0.12	0.12	1.04	0.74	0.92	0.30	0.86	0.15
Avail Cap(c_a), veh/h	273	939	432	634	1354	716	481	1174	524	172	849	373
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	64.1	45.8	50.0	55.7	25.9	26.0	59.6	40.7	44.4	64.7	51.0	42.2
Incr Delay (d2), s/veh	9.9	4.0	112.9	21.1	0.0	0.1	51.4	2.5	22.3	1.5	8.8	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	3.3	13.2	30.0	13.0	1.9	2.1	12.6	15.0	21.0	0.8	13.9	1.6
LnGrp Delay(d),s/veh	74.0	49.8	162.9	76.8	26.0	26.1	111.0	43.3	66.7	66.2	59.8	42.4
LnGrp LOS	E	D	F	E	C	C	F	D	E	E	E	D
Approach Vol, veh/h		1401			835			1847			800	
Approach Delay, s/veh		94.6			61.8			67.7			59.0	
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	13.7	61.8	10.8	52.4	30.9	44.7	24.8	38.4
Change Period (Y+Rc), s	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9
Max Green Setting (Gmax), s	* 11	53.5	* 7	46.2	* 26	38.8	* 20	33.6
Max Q Clear Time (g_c+I1), s	8.4	6.2	3.7	43.3	25.6	40.8	21.6	28.8
Green Ext Time (p_c), s	0.1	17.1	0.0	2.6	0.1	0.0	0.0	3.7

Intersection Summary		
HCM 2010 Ctrl Delay		73.0
HCM 2010 LOS		E

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	352.5
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	778	0	320	0	0	0	150	1067	0	0	898	934
Future Vol, veh/h	778	0	320	0	0	0	150	1067	0	0	898	934
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
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	819	0	337	0	0	0	158	1123	0	0	945	983
Number of Lanes	1	1	1	0	0	0	1	2	0	0	2	1

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	3	3
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	3	3	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	3	0	3
HCM Control Delay	62.8	326.3	543.5
HCM LOS	F	F	F

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	100%	100%	0%	0%	0%	0%
Vol Thru, %	0%	100%	100%	0%	0%	0%	100%	100%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	150	534	534	389	389	320	449	449	934
LT Vol	150	0	0	389	389	0	0	0	0
Through Vol	0	534	534	0	0	0	449	449	0
RT Vol	0	0	0	0	0	320	0	0	934
Lane Flow Rate	158	562	562	409	409	337	473	473	983
Geometry Grp	8	8	8	7	7	7	8	8	8
Degree of Util (X)	0.56	1.912	1.639	1.085	1.085	0.781	1.585	1.585	2.629
Departure Headway (Hd)	7.02	6.497	4.665	5.176	5.176	3.948	13.863	13.863	11.339
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	515	562	781	700	700	916	265	265	334
Service Time	4.72	4.197	2.365	2.876	2.876	1.648	11.563	11.563	9.039
HCM Lane V/C Ratio	0.307	1	0.72	0.584	0.584	0.368	1.785	1.785	2.943
HCM Control Delay	18.3	432.8	306.4	80.8	80.8	19.1	313.2	313.2	765
HCM Lane LOS	C	F	F	F	F	C	F	F	F
HCM 95th-tile Q	3.4	68.9	68.6	20.9	20.9	8.1	25.1	25.1	69.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	728	20	460	0	0	0	0	489	570	682	536	0
Future Volume (veh/h)	728	20	460	0	0	0	0	489	570	682	536	0
Number	3	8	18				1	6	16	5	2	12
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	1900	1845	1845				0	1845	1845	1845	1845	0
Adj Flow Rate, veh/h	766	21	331				0	515	215	718	564	0
Adj No. of Lanes	0	1	1				0	1	1	2	1	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	711	19	651				0	513	435	690	944	0
Arrive On Green	0.41	0.41	0.41				0.00	0.28	0.28	0.20	0.51	0.00
Sat Flow, veh/h	1712	47	1568				0	1845	1565	3408	1845	0
Grp Volume(v), veh/h	787	0	331				0	515	215	718	564	0
Grp Sat Flow(s),veh/h/ln	1759	0	1568				0	1845	1565	1704	1845	0
Q Serve(g_s), s	49.8	0.0	18.8				0.0	33.4	13.8	24.3	25.8	0.0
Cycle Q Clear(g_c), s	49.8	0.0	18.8				0.0	33.4	13.8	24.3	25.8	0.0
Prop In Lane	0.97		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	730	0	651				0	513	435	690	944	0
V/C Ratio(X)	1.08	0.00	0.51				0.00	1.00	0.49	1.04	0.60	0.00
Avail Cap(c_a), veh/h	730	0	651				0	513	435	690	944	0
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	1.00	1.00	0.00
Uniform Delay (d), s/veh	35.1	0.0	26.0				0.0	43.3	36.2	47.8	20.6	0.0
Incr Delay (d2), s/veh	56.4	0.0	0.3				0.0	40.5	0.3	45.2	0.7	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	35.6	0.0	8.1				0.0	22.7	6.0	15.7	13.2	0.0
LnGrp Delay(d),s/veh	91.5	0.0	26.3				0.0	83.8	36.5	93.0	21.3	0.0
LnGrp LOS	F		C					F	D	F	C	
Approach Vol, veh/h		1118						730			1282	
Approach Delay, s/veh		72.2						69.9			61.5	
Approach LOS		E						E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		66.0			28.0	38.0		54.0
Change Period (Y+Rc), s		4.6			3.7	4.6		4.2
Max Green Setting (Gmax), s		61.4			24.3	33.4		49.8
Max Q Clear Time (g_c+I1), s		27.8			26.3	35.4		51.8
Green Ext Time (p_c), s		5.3			0.0	0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	67.3
HCM 2010 LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	554	50	30	50	40	150	20	255	50	180	443	273
Future Volume (veh/h)	554	50	30	50	40	150	20	255	50	180	443	273
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	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	583	53	12	53	42	34	21	268	38	189	466	204
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	640	531	120	120	65	52	42	509	71	233	650	283
Arrive On Green	0.36	0.36	0.36	0.07	0.07	0.07	0.02	0.17	0.17	0.13	0.27	0.27
Sat Flow, veh/h	1757	1456	330	1757	945	765	1757	3086	433	1757	2379	1034
Grp Volume(v), veh/h	583	0	65	53	0	76	21	151	155	189	342	328
Grp Sat Flow(s),veh/h/ln	1757	0	1786	1757	0	1710	1757	1752	1767	1757	1752	1660
Q Serve(g_s), s	21.1	0.0	1.6	1.9	0.0	2.9	0.8	5.2	5.4	7.0	11.8	11.9
Cycle Q Clear(g_c), s	21.1	0.0	1.6	1.9	0.0	2.9	0.8	5.2	5.4	7.0	11.8	11.9
Prop In Lane	1.00		0.18	1.00		0.45	1.00		0.24	1.00		0.62
Lane Grp Cap(c), veh/h	640	0	651	120	0	117	42	289	292	233	479	454
V/C Ratio(X)	0.91	0.00	0.10	0.44	0.00	0.65	0.49	0.52	0.53	0.81	0.71	0.72
Avail Cap(c_a), veh/h	1142	0	1161	279	0	271	132	583	588	416	866	821
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.2	0.0	14.0	29.9	0.0	30.3	32.2	25.5	25.5	28.1	21.9	22.0
Incr Delay (d2), s/veh	2.7	0.0	0.0	0.9	0.0	2.3	3.3	0.5	0.6	2.6	0.8	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	10.7	0.0	0.8	1.0	0.0	1.4	0.4	2.6	2.7	3.5	5.8	5.6
LnGrp Delay(d),s/veh	22.9	0.0	14.0	30.8	0.0	32.6	35.5	26.0	26.1	30.7	22.7	22.8
LnGrp LOS	C		B	C		C	D	C	C	C	C	C
Approach Vol, veh/h		648			129			327			859	
Approach Delay, s/veh		22.0			31.9			26.6			24.5	
Approach LOS		C			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	13.0	15.6		28.9	5.8	22.9		9.2
Change Period (Y+Rc), s	* 4.2	4.6		4.6	* 4.2	4.6		4.6
Max Green Setting (Gmax), s	* 16	22.2		43.4	* 5	33.0		10.6
Max Q Clear Time (g_c+I1), s	12.9	7.4		23.1	2.8	13.9		4.9
Green Ext Time (p_c), s	0.1	3.5		1.1	0.0	3.8		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	24.5
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	188.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	464	480	300	20	60	453
Future Vol, veh/h	464	480	300	20	60	453
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	488	505	316	21	63	477

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	337	0	-	0	1808	326
Stage 1	-	-	-	-	326	-
Stage 2	-	-	-	-	1482	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1217	-	-	-	86	713
Stage 1	-	-	-	-	729	-
Stage 2	-	-	-	-	207	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1217	-	-	-	~ 38	713
Mov Cap-2 Maneuver	-	-	-	-	~ 38	-
Stage 1	-	-	-	-	729	-
Stage 2	-	-	-	-	92	-

Approach	EB	WB	SB
HCM Control Delay, s	4.9	0	$ 644
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1217	-	-	-	232
HCM Lane V/C Ratio	0.401	-	-	-	2.328
HCM Control Delay (s)	9.9	0	-	-	$ 644
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	2	-	-	-	43.2

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

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	293	520	774	524	400	783
Future Vol, veh/h	293	520	774	524	400	783
Conflicting Peds, #/hr	2	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	315	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	308	547	815	552	421	824

Major/Minor	Minor1		Major1		Minor2	
Conflicting Flow All	1229	815	0	0	1088	815
Stage 1	815	-	-	-	0	0
Stage 2	414	-	-	-	1088	815
Critical Hdwy	7.13	6.23	-	-	7.13	6.53
Critical Hdwy Stg 1	6.13	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	6.13	5.53
Follow-up Hdwy	3.527	3.327	-	-	3.527	4.027
Pot Cap-1 Maneuver	~ 154	~ 376	-	-	~ 192	~ 311
Stage 1	370	-	-	-	-	-
Stage 2	-	-	-	-	~ 260	~ 390
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	-	~ 376	-	-	-	~ 311
Mov Cap-2 Maneuver	-	-	-	-	-	~ 311
Stage 1	370	-	-	-	-	-
Stage 2	-	-	-	-	-	~ 390

Approach	WB	NB	SB
HCM Control Delay, s		0	
HCM LOS	-		-

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBLn1	SBLn2
Capacity (veh/h)	-	-	-	-	311
HCM Lane V/C Ratio	-	-	-	-	2.65
HCM Control Delay (s)	-	-	-	-$	777.3
HCM Lane LOS	-	-	-	-	F
HCM 95th %tile Q(veh)	-	-	-	-	68.7

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

Intersection	
Int Delay, s/veh	701.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	370	928	20	40	976
Future Vol, veh/h	20	370	928	20	40	976
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	21	389	977	21	42	1027

Major/Minor	Minor1		Minor2		Major2	
Conflicting Flow All	1611	0	1112	1027	0	0
Stage 1	0	-	1112	-	-	-
Stage 2	1611	-	0	-	-	-
Critical Hdwy	7.13	6.23	6.53	6.23	4.13	-
Critical Hdwy Stg 1	-	-	5.53	-	-	-
Critical Hdwy Stg 2	6.13	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	4.027	3.327	2.227	-
Pot Cap-1 Maneuver	84	-	~ 208	283	-	-
Stage 1	-	-	~ 283	-	-	-
Stage 2	131	-	-	-	-	-
Platoon blocked, %						-
Mov Cap-1 Maneuver	-	-	~ 208	283	-	-
Mov Cap-2 Maneuver	-	-	~ 208	-	-	-
Stage 1	-	-	~ 283	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s		$ 1742.3	
HCM LOS	-	F	

Minor Lane/Major Mvmt	NBLn1	WBLn1	SBL	SBT
Capacity (veh/h)	209	-	-	-
HCM Lane V/C Ratio	4.775	-	-	-
HCM Control Delay (s)	$ 1742.3	-	-	-
HCM Lane LOS	F	-	-	-
HCM 95th %tile Q(veh)	102.3	-	-	-

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 (veh/h)	86	130	647	440	393	30	605	910	550	20	320	182
Future Volume (veh/h)	86	130	647	440	393	30	605	910	550	20	320	182
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		0.99	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	1845	1845	1845	1845	1845	1900	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	91	137	626	463	414	25	637	958	511	21	337	36
Adj No. of Lanes	2	2	1	2	3	0	2	2	1	2	2	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	142	752	679	554	1631	98	754	1413	632	101	742	332
Arrive On Green	0.04	0.21	0.21	0.16	0.34	0.34	0.22	0.40	0.40	0.03	0.21	0.21
Sat Flow, veh/h	3408	3505	1548	3408	4859	291	3408	3505	1568	3408	3505	1568
Grp Volume(v), veh/h	91	137	626	463	285	154	637	958	511	21	337	36
Grp Sat Flow(s),veh/h/ln	1704	1752	1548	1704	1679	1793	1704	1752	1568	1704	1752	1568
Q Serve(g_s), s	3.1	3.7	25.1	15.4	7.2	7.3	20.9	26.2	33.7	0.7	9.8	2.2
Cycle Q Clear(g_c), s	3.1	3.7	25.1	15.4	7.2	7.3	20.9	26.2	33.7	0.7	9.8	2.2
Prop In Lane	1.00		1.00	1.00		0.16	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	142	752	679	554	1127	602	754	1413	632	101	742	332
V/C Ratio(X)	0.64	0.18	0.92	0.84	0.25	0.26	0.85	0.68	0.81	0.21	0.45	0.11
Avail Cap(c_a), veh/h	227	752	679	839	1324	707	1277	1592	712	606	902	404
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	55.2	37.5	31.2	47.4	28.2	28.2	43.6	28.7	30.9	55.4	40.2	37.2
Incr Delay (d2), s/veh	5.7	0.1	18.2	5.2	0.1	0.3	3.2	1.1	6.5	1.2	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	1.6	1.8	22.4	7.7	3.3	3.6	10.2	12.9	15.7	0.3	4.8	1.0
LnGrp Delay(d),s/veh	60.9	37.7	49.4	52.6	28.3	28.5	46.9	29.7	37.4	56.6	40.7	37.4
LnGrp LOS	E	D	D	D	C	C	D	C	D	E	D	D
Approach Vol, veh/h		854			902			2106			394	
Approach Delay, s/veh		48.8			40.8			36.8			41.3	
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	10.1	45.2	8.7	53.1	24.2	31.0	31.1	30.7
Change Period (Y+Rc), s	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9
Max Green Setting (Gmax), s	* 7.8	46.1	* 21	53.1	* 29	25.1	* 44	30.1
Max Q Clear Time (g_c+I1), s	5.1	9.3	2.7	35.7	17.4	27.1	22.9	11.8
Green Ext Time (p_c), s	0.1	8.9	0.0	11.4	1.6	0.0	2.9	11.8

Intersection Summary	
HCM 2010 Ctrl Delay	40.5
HCM 2010 LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1099	0	290	0	0	0	370	966	0	20	707	680
Future Volume (veh/h)	1099	0	290	0	0	0	370	966	0	20	707	680
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	1845	1845	1845				1845	1845	0	1845	1845	1845
Adj Flow Rate, veh/h	1157	0	0				389	1017	0	21	744	396
Adj No. of Lanes	2	0	1				1	2	0	1	2	1
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3				3	3	0	3	3	3
Cap, veh/h	1089	0	486				351	1936	0	31	1297	580
Arrive On Green	0.31	0.00	0.00				0.20	0.55	0.00	0.02	0.37	0.37
Sat Flow, veh/h	3514	0	1568				1757	3597	0	1757	3505	1568
Grp Volume(v), veh/h	1157	0	0				389	1017	0	21	744	396
Grp Sat Flow(s),veh/h/ln	1757	0	1568				1757	1752	0	1757	1752	1568
Q Serve(g_s), s	31.0	0.0	0.0				20.0	18.3	0.0	1.2	17.0	21.3
Cycle Q Clear(g_c), s	31.0	0.0	0.0				20.0	18.3	0.0	1.2	17.0	21.3
Prop In Lane	1.00		1.00				1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	1089	0	486				351	1936	0	31	1297	580
V/C Ratio(X)	1.06	0.00	0.00				1.11	0.53	0.00	0.68	0.57	0.68
Avail Cap(c_a), veh/h	1089	0	486				351	1936	0	88	1297	580
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				1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.5	0.0	0.0				40.0	14.1	0.0	48.8	25.2	26.6
Incr Delay (d2), s/veh	45.4	0.0	0.0				80.1	1.0	0.0	22.6	1.9	6.4
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	21.8	0.0	0.0				17.5	9.0	0.0	0.8	8.5	10.2
LnGrp Delay(d),s/veh	79.9	0.0	0.0				120.1	15.1	0.0	71.5	27.0	32.9
LnGrp LOS	F						F	B		E	C	C
Approach Vol, veh/h		1157						1406			1161	
Approach Delay, s/veh		79.9						44.2			29.9	
Approach LOS		E						D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		
Phs Duration (G+Y+Rc), s	5.8	59.2		35.0	24.0	41.0		
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		
Max Green Setting (Gmax), s	5.0	52.0		31.0	20.0	37.0		
Max Q Clear Time (g_c+I1), s	3.2	20.3		33.0	22.0	23.3		
Green Ext Time (p_c), s	0.0	18.0		0.0	0.0	10.1		

Intersection Summary	
HCM 2010 Ctrl Delay	50.8
HCM 2010 LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	890	20	250	0	0	0	0	446	370	422	575	0
Future Volume (veh/h)	890	20	250	0	0	0	0	446	370	422	575	0
Number	3	8	18				1	6	16	5	2	12
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	1845	1845	1900				0	1845	1845	1845	1845	0
Adj Flow Rate, veh/h	595	500	231				0	469	113	444	605	0
Adj No. of Lanes	1	1	0				0	1	1	2	1	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	737	501	232				0	531	451	512	886	0
Arrive On Green	0.42	0.42	0.42				0.00	0.29	0.29	0.15	0.48	0.00
Sat Flow, veh/h	1757	1195	552				0	1845	1566	3408	1845	0
Grp Volume(v), veh/h	595	0	731				0	469	113	444	605	0
Grp Sat Flow(s),veh/h/ln	1757	0	1747				0	1845	1566	1704	1845	0
Q Serve(g_s), s	26.1	0.0	36.6				0.0	21.3	4.9	11.2	22.3	0.0
Cycle Q Clear(g_c), s	26.1	0.0	36.6				0.0	21.3	4.9	11.2	22.3	0.0
Prop In Lane	1.00		0.32				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	737	0	733				0	531	451	512	886	0
V/C Ratio(X)	0.81	0.00	1.00				0.00	0.88	0.25	0.87	0.68	0.00
Avail Cap(c_a), veh/h	737	0	733				0	576	489	517	934	0
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	1.00	1.00	0.00
Uniform Delay (d), s/veh	22.3	0.0	25.4				0.0	29.8	24.0	36.4	17.6	0.0
Incr Delay (d2), s/veh	6.2	0.0	32.5				0.0	13.5	0.1	13.8	1.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.8	0.0	24.1				0.0	12.8	2.1	6.2	11.6	0.0
LnGrp Delay(d),s/veh	28.5	0.0	57.9				0.0	43.3	24.1	50.2	19.2	0.0
LnGrp LOS	C		E					D	C	D	B	
Approach Vol, veh/h		1326						582			1049	
Approach Delay, s/veh		44.7						39.6			32.3	
Approach LOS		D						D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		46.7			16.9	29.8		41.0
Change Period (Y+Rc), s		4.6			3.7	4.6		4.2
Max Green Setting (Gmax), s		44.4			13.3	27.4		36.8
Max Q Clear Time (g_c+I1), s		24.3			13.2	23.3		38.6
Green Ext Time (p_c), s		4.7			0.0	1.9		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	39.3
HCM 2010 LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	152	684	602	560	216	30	475	820	550	40	670	213
Future Volume (veh/h)	152	684	602	560	216	30	475	820	550	40	670	213
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		0.98	1.00		1.00	1.00		1.00	1.00		0.98
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	1845	1845	1900	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	160	720	572	589	227	19	500	863	488	42	705	55
Adj No. of Lanes	2	2	1	2	3	0	2	2	1	2	2	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	215	798	617	667	1708	140	578	1261	563	145	816	359
Arrive On Green	0.06	0.23	0.23	0.20	0.36	0.36	0.17	0.36	0.36	0.04	0.23	0.23
Sat Flow, veh/h	3408	3505	1544	3408	4742	390	3408	3505	1565	3408	3505	1542
Grp Volume(v), veh/h	160	720	572	589	159	87	500	863	488	42	705	55
Grp Sat Flow(s),veh/h/ln	1704	1752	1544	1704	1679	1775	1704	1752	1565	1704	1752	1542
Q Serve(g_s), s	5.9	25.4	29.0	21.4	4.1	4.2	18.2	26.6	36.9	1.5	24.6	3.6
Cycle Q Clear(g_c), s	5.9	25.4	29.0	21.4	4.1	4.2	18.2	26.6	36.9	1.5	24.6	3.6
Prop In Lane	1.00		1.00	1.00		0.22	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	215	798	617	667	1209	639	578	1261	563	145	816	359
V/C Ratio(X)	0.74	0.90	0.93	0.88	0.13	0.14	0.87	0.68	0.87	0.29	0.86	0.15
Avail Cap(c_a), veh/h	313	798	617	797	1241	656	741	1261	563	366	861	379
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	58.7	47.8	36.7	49.8	27.4	27.4	51.5	34.6	37.9	59.1	46.9	38.9
Incr Delay (d2), s/veh	6.4	13.6	20.4	10.4	0.1	0.1	9.0	1.6	13.5	1.3	8.9	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	13.8	22.7	11.0	1.9	2.1	9.3	13.1	18.1	0.7	13.0	1.6
LnGrp Delay(d),s/veh	65.1	61.5	57.1	60.2	27.4	27.5	60.5	36.3	51.5	60.5	55.9	39.1
LnGrp LOS	E	E	E	E	C	C	E	D	D	E	E	D
Approach Vol, veh/h		1452			835			1851			802	
Approach Delay, s/veh		60.2			50.6			46.8			55.0	
Approach LOS		E			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.2	51.8	10.6	51.8	30.1	34.9	26.8	35.6
Change Period (Y+Rc), s	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9
Max Green Setting (Gmax), s	* 12	47.1	* 14	45.3	* 30	29.0	* 28	31.3
Max Q Clear Time (g_c+I1), s	7.9	6.2	3.5	38.9	23.4	31.0	20.2	26.6
Green Ext Time (p_c), s	0.2	13.9	0.1	5.4	1.5	0.0	1.4	3.1

Intersection Summary	
HCM 2010 Ctrl Delay	52.7
HCM 2010 LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	778	0	320	0	0	0	150	1067	0	1	898	934
Future Volume (veh/h)	778	0	320	0	0	0	150	1067	0	1	898	934
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		0.98
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	1845	1845	1845				1845	1845	0	1845	1845	1845
Adj Flow Rate, veh/h	819	0	0				158	1123	0	1	945	698
Adj No. of Lanes	2	0	1				1	2	0	1	2	1
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3				3	3	0	3	3	3
Cap, veh/h	898	0	401				180	2245	0	2	1889	828
Arrive On Green	0.26	0.00	0.00				0.10	0.64	0.00	0.00	0.54	0.54
Sat Flow, veh/h	3514	0	1568				1757	3597	0	1757	3505	1536
Grp Volume(v), veh/h	819	0	0				158	1123	0	1	945	698
Grp Sat Flow(s),veh/h/ln	1757	0	1568				1757	1752	0	1757	1752	1536
Q Serve(g_s), s	26.4	0.0	0.0				10.4	19.8	0.0	0.1	19.9	44.9
Cycle Q Clear(g_c), s	26.4	0.0	0.0				10.4	19.8	0.0	0.1	19.9	44.9
Prop In Lane	1.00		1.00				1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	898	0	401				180	2245	0	2	1889	828
V/C Ratio(X)	0.91	0.00	0.00				0.88	0.50	0.00	0.52	0.50	0.84
Avail Cap(c_a), veh/h	992	0	443				180	2245	0	60	1889	828
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				1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.2	0.0	0.0				51.7	11.1	0.0	58.3	17.0	22.8
Incr Delay (d2), s/veh	11.7	0.0	0.0				34.9	0.8	0.0	135.2	0.9	10.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.3	0.0	0.0				6.8	9.8	0.0	0.1	9.8	21.2
LnGrp Delay(d),s/veh	53.9	0.0	0.0				86.6	11.9	0.0	193.5	17.9	33.0
LnGrp LOS	D						F	B		F	B	C
Approach Vol, veh/h		819						1281			1644	
Approach Delay, s/veh		53.9						21.1			24.4	
Approach LOS		D						C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		
Phs Duration (G+Y+Rc), s	14.1	78.9		33.9	16.0	67.0		
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		
Max Green Setting (Gmax), s	10.0	71.0		33.0	12.0	63.0		
Max Q Clear Time (g_c+I1), s	12.1	21.8		28.4	12.4	46.9		
Green Ext Time (p_c), s	0.0	31.3		1.4	0.0	13.5		

Intersection Summary	
HCM 2010 Ctrl Delay	29.7
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	728	20	460	0	0	0	0	489	570	682	536	0
Future Volume (veh/h)	728	20	460	0	0	0	0	489	570	682	536	0
Number	3	8	18				1	6	16	5	2	12
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	1845	1845	1900				0	1845	1845	1845	1845	0
Adj Flow Rate, veh/h	570	295	353				0	515	181	718	564	0
Adj No. of Lanes	1	1	0				0	1	1	2	1	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	684	298	357				0	527	447	722	979	0
Arrive On Green	0.39	0.39	0.39				0.00	0.29	0.29	0.21	0.53	0.00
Sat Flow, veh/h	1757	766	917				0	1845	1565	3408	1845	0
Grp Volume(v), veh/h	570	0	648				0	515	181	718	564	0
Grp Sat Flow(s),veh/h/ln	1757	0	1683				0	1845	1565	1704	1845	0
Q Serve(g_s), s	32.3	0.0	42.1				0.0	30.4	10.3	23.1	22.7	0.0
Cycle Q Clear(g_c), s	32.3	0.0	42.1				0.0	30.4	10.3	23.1	22.7	0.0
Prop In Lane	1.00		0.54				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	684	0	655				0	527	447	722	979	0
V/C Ratio(X)	0.83	0.00	0.99				0.00	0.98	0.41	0.99	0.58	0.00
Avail Cap(c_a), veh/h	684	0	655				0	527	447	722	979	0
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	1.00	1.00	0.00
Uniform Delay (d), s/veh	30.4	0.0	33.4				0.0	39.0	31.8	43.3	17.4	0.0
Incr Delay (d2), s/veh	8.3	0.0	32.4				0.0	33.4	0.2	32.0	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	17.1	0.0	25.3				0.0	20.3	4.5	14.1	11.6	0.0
LnGrp Delay(d),s/veh	38.6	0.0	65.8				0.0	72.3	32.0	75.3	18.0	0.0
LnGrp LOS	D		E					E	C	E	B	
Approach Vol, veh/h		1218						696			1282	
Approach Delay, s/veh		53.1						61.8			50.1	
Approach LOS		D						E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		63.0			27.0	36.0		47.0
Change Period (Y+Rc), s		4.6			3.7	4.6		4.2
Max Green Setting (Gmax), s		58.4			23.3	31.4		42.8
Max Q Clear Time (g_c+I1), s		24.7			25.1	32.4		44.1
Green Ext Time (p_c), s		5.2			0.0	0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	53.8
HCM 2010 LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

APPENDIX C: PEAK HOUR SIGNAL WARRANT WORKSHEETS

FEHR PEERS

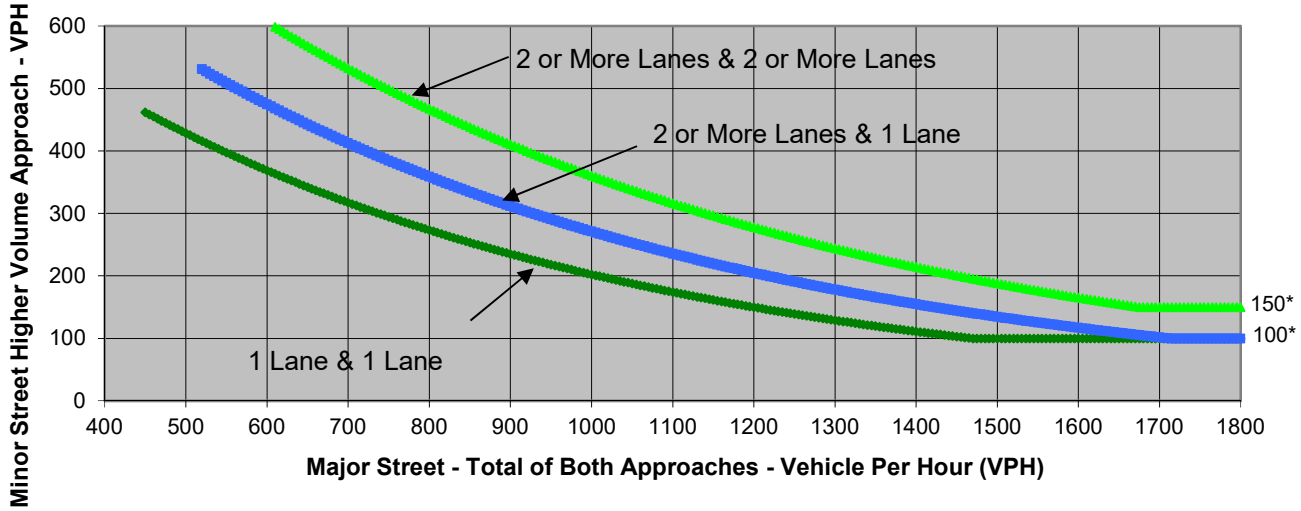
Major Street	Suisun Valley Road	Project	Green Valley II Apartments
Minor Street	Neitzel Road	Scenario	Existing Conditions
		Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	72	1	410	0
Through	657	457	0	0
Right	0	22	249	0
Total	729	480	659	0

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
	Suisun Valley Road	Neitzel Road	
Number of Approach Lanes	**3**	**3**	**YES**
Traffic Volume (VPH) *	**1,209**	**659**	

* 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	Suisun Valley Road	Project	Green Valley II Apartments
Minor Street	Neitzel Road	Scenario	Existing Conditions
		Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	72	1	410	0
Through	657	457	0	0
Right	0	22	249	0
Total	729	480	659	0

Major Street Direction

x	North/South
	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	2
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	124.9
Approach with Worst Case Delay	SB
Total Vehicles on Approach	480

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 Conditions	**16.7**	**659**	**1,868**
Limiting Value	**5**	**150**	**650**
Condition Satisfied?	**Met**	**Met**	**Met**
Warrant Met	**YES**		

FEHR PEERS

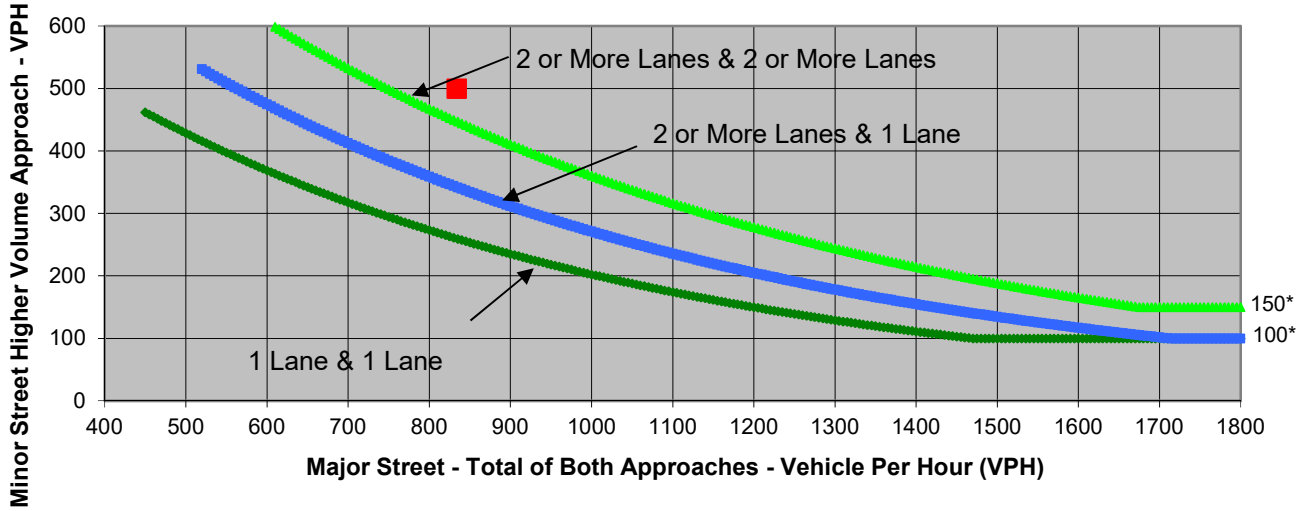
Major Street	Lopes Road	Project	Green Valley II
Minor Street	Cordelia Road	Scenario	Existing Conditions
		Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	47	0	266
Through	298	373	0	0
Right	116	0	0	234
Total	414	420	0	500

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
	Lopes Road	Cordelia Road	
Number of Approach Lanes	**1**	**1**	**YES**
Traffic Volume (VPH) *	**834**	**500**	

* 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	Lopes Road	Project	Green Valley II
Minor Street	Cordelia Road	Scenario	Existing Conditions
		Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	47	0	266
Through	298	373	0	0
Right	116	0	0	234
Total	414	420	0	500

Major Street Direction

x	North/South
	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)	421.6
Approach with Worst Case Delay	WB
Total Vehicles on Approach	500

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 Conditions	**58.6**	**500**	**1,334**
Limiting Value	**4**	**100**	**650**
Condition Satisfied?	**Met**	**Met**	**Met**
Warrant Met	**YES**		

FEHR PEERS

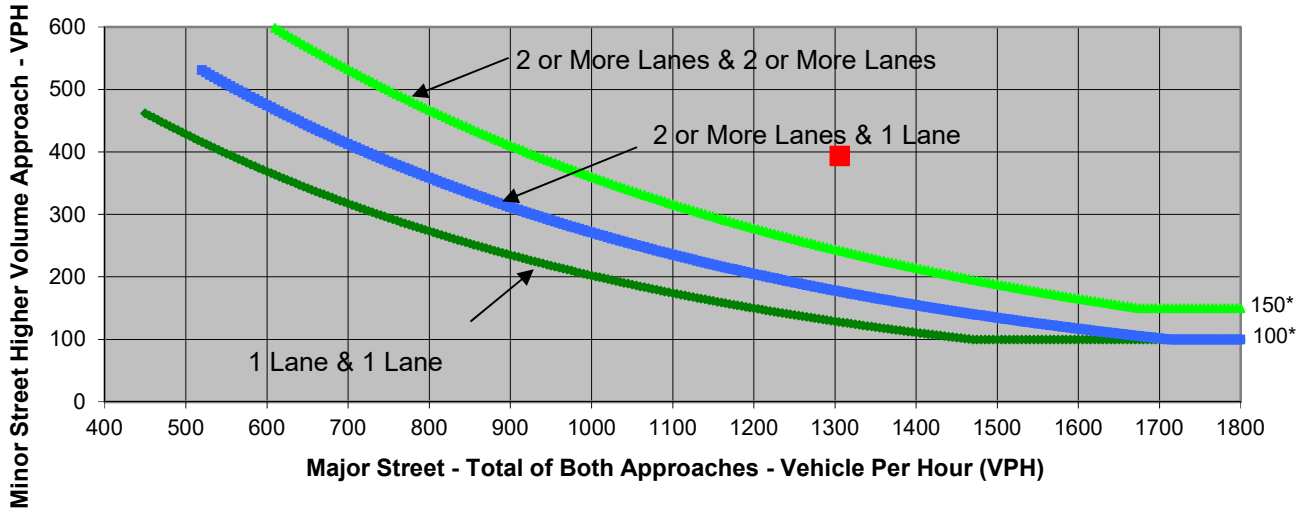
Major Street	Lopes Road	Project	Green Valley II
Minor Street	Cordelia Road	Scenario	Existing Conditions
		Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	135	0	196
Through	554	258	0	0
Right	359	0	0	198
Total	913	393	0	394

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
	Lopes Road	Cordelia Road	
Number of Approach Lanes	**1**	**1**	**YES**
Traffic Volume (VPH) *	**1,306**	**394**	

* 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	Green Valley II
Scenario	Existing Conditions
Peak Hour	PM

Major Street	Lopes Road
Minor Street	Cordelia Road

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	135	0	196
Through	554	258	0	0
Right	359	0	0	198
Total	913	393	0	394

Major Street Direction

x	North/South
	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)	565.6
Approach with Worst Case Delay	WB
Total Vehicles on Approach	394

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 Conditions	**61.9**	**394**	**1,700**
Limiting Value	**4**	**100**	**650**
Condition Satisfied?	**Met**	**Met**	**Met**
Warrant Met	**YES**		

FEHR PEERS

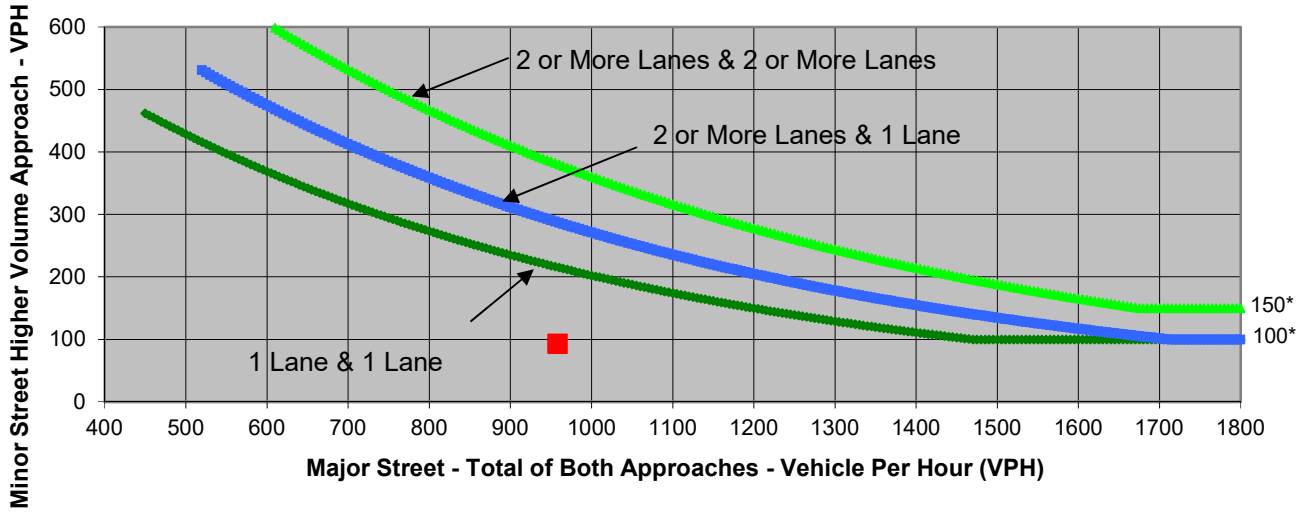
Major Street	Lopes Road	Project	Green Valley II
Minor Street	Bridgeport Avenue	Scenario	Existing Conditions
		Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	42	0	72
Through	393	514	0	0
Right	9	0	0	21
Total	402	556	0	93

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
	Lopes Road	Bridgeport Avenue	
Number of Approach Lanes	**1**	**1**	**NO**
Traffic Volume (VPH) *	**958**	**93**	

* 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	Lopes Road	Project	Green Valley II
Minor Street	Bridgeport Avenue	Scenario	Existing Conditions
		Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	42	0	72
Through	393	514	0	0
Right	9	0	0	21
Total	402	556	0	93

Major Street Direction

x	North/South
	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)	324.7
Approach with Worst Case Delay	NB
Total Vehicles on Approach	402

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 Conditions	**36.3**	**93**	**1,051**
Limiting Value	**4**	**100**	**650**
Condition Satisfied?	**Met**	**Not Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

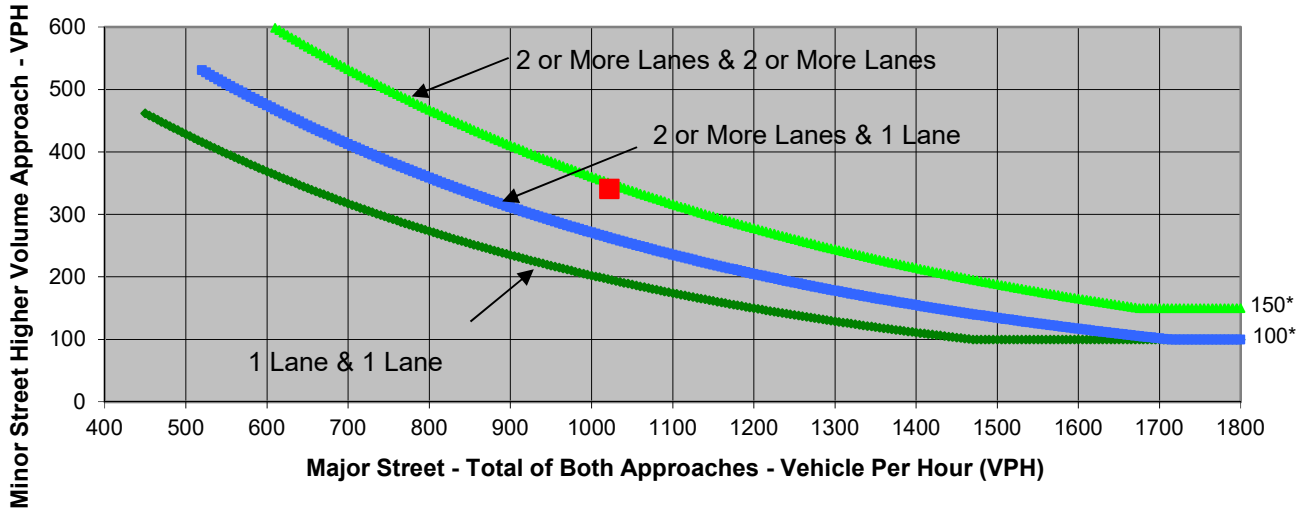
Major Street	Lopes Road	Project	Green Valley II
Minor Street	Bridgeport Avenue	Scenario	Existing Conditions
		Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	20	0	9
Through	581	418	0	0
Right	3	0	0	332
Total	584	438	0	341

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
	Lopes Road	Bridgeport Avenue	
Number of Approach Lanes	**1**	**1**	**YES**
Traffic Volume (VPH) *	**1,022**	**341**	

* 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	Lopes Road	Project	Green Valley II
Minor Street	Bridgeport Avenue	Scenario	Existing Conditions
		Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	20	0	9
Through	581	418	0	0
Right	3	0	0	332
Total	584	438	0	341

Major Street Direction

x	North/South
	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)	260.8
Approach with Worst Case Delay	NB
Total Vehicles on Approach	584

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 Conditions	**42.3**	**341**	**1,363**
Limiting Value	**4**	**100**	**650**
Condition Satisfied?	**Met**	**Met**	**Met**
Warrant Met	**YES**		

FEHR PEERS

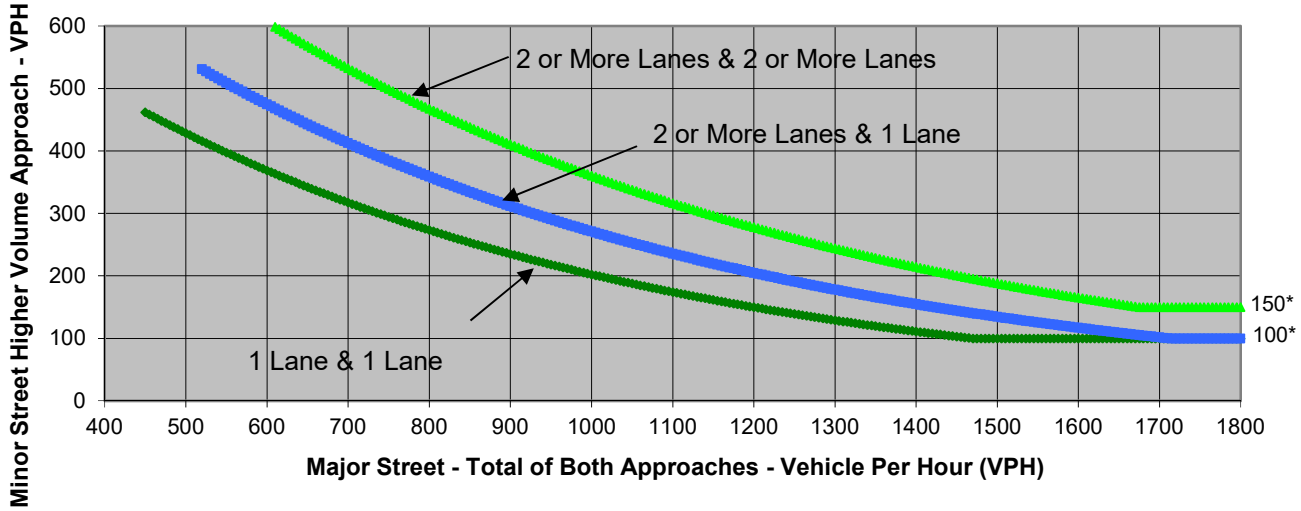
Major Street	Suisun Valley Road	Project	Green Valley II Apartments
Minor Street	Neitzel Road	Scenario	EPAP Conditions
		Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	100	0	410	0
Through	570	700	0	0
Right	0	50	300	0
Total	670	750	710	0

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
	Suisun Valley Road	Neitzel Road	
Number of Approach Lanes	**3**	**3**	**YES**
Traffic Volume (VPH) *	**1,420**	**710**	

* 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	Green Valley II Apartments
Scenario	EPAP Conditions
Peak Hour	PM

Major Street	Suisun Valley Road
Minor Street	Neitzel Road

Turn Movement Volumes

	NB	SB	EB	WB
Left	100	0	410	0
Through	570	700	0	0
Right	0	50	300	0
Total	670	750	710	0

Major Street Direction

x	North/South
	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	2
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	57.6
Approach with Worst Case Delay	SB
Total Vehicles on Approach	750

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)**
EPAP Conditions	**12**	**710**	**2,130**
Limiting Value	**5**	**150**	**650**
Condition Satisfied?	**Met**	**Met**	**Met**
Warrant Met	**YES**		

FEHR PEERS

Major Street	Business Center Drive
Minor Street	South Project Driveway

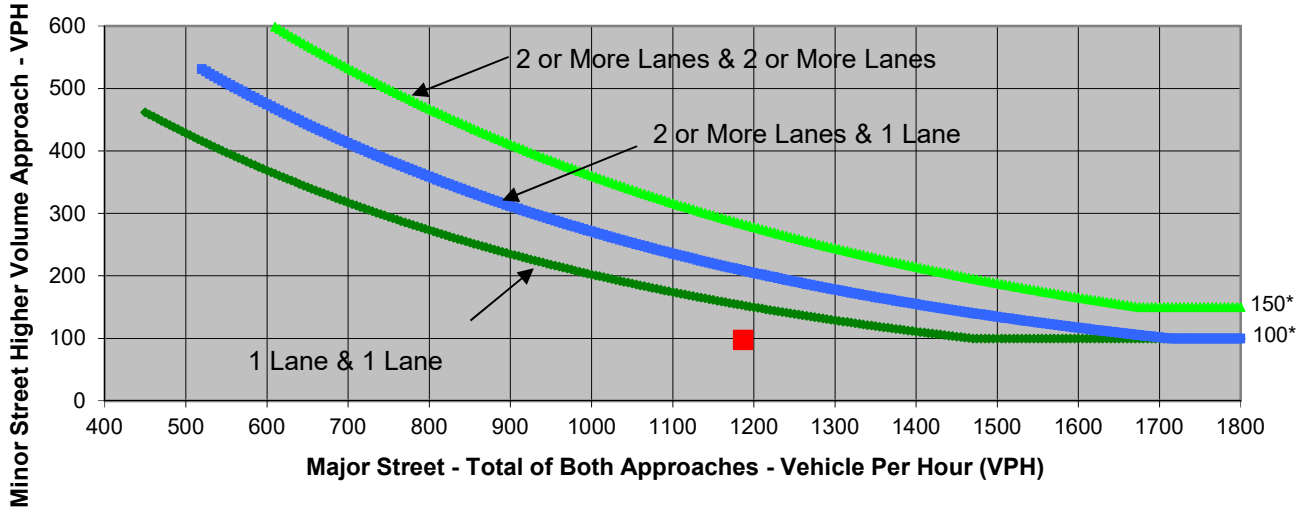
Project	Green Valley II
Scenario	C+P Alt 2 Conditions
Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	29	20	30	41
Through	0	0	355	735
Right	69	0	6	20
Total	98	20	391	796

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
	Business Center Drive	South Project Driveway	
Number of Approach Lanes	**1**	**1**	**NO**
Traffic Volume (VPH) *	**1,187**	**98**	

* 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	Business Center Drive	Project	Green Valley II
Minor Street	South Project Driveway	Scenario	C+P Alt 2 Conditions
		Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	29	20	30	41
Through	0	0	355	735
Right	69	0	6	20
Total	98	20	391	796

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	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)**
C+P Alt 2 Conditions	**0.2**	**98**	**1,305**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Not Met**	**Not Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

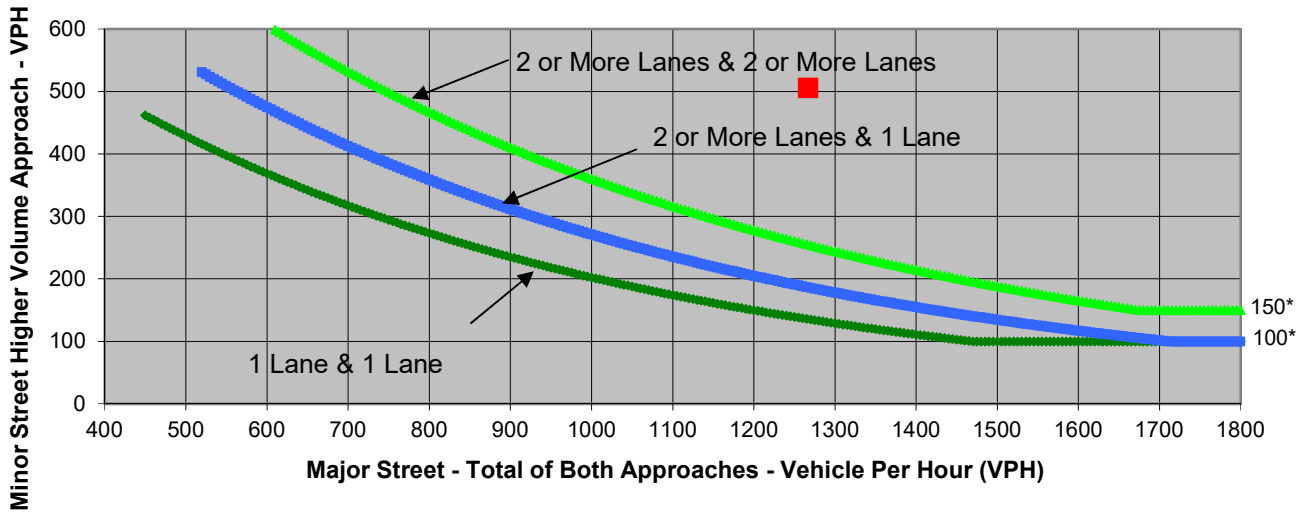
Major Street	Cordelia Road	Project	Green Valley II
Minor Street	Central Way	Scenario	C+P Alt 1 Conditions
		Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	60	467	0
Through	0	0	480	300
Right	0	446	0	20
Total	0	506	947	320

Major Street Direction

x	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
	Cordelia Road	Central Way	
Number of Approach Lanes	**1**	**1**	**YES**
Traffic Volume (VPH) *	**1,267**	**506**	

* 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	Green Valley II
Major Street	Cordelia Road
Scenario	C+P Alt 1 Conditions
Minor Street	Central Way
Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	60	467	0
Through	0	0	480	300
Right	0	446	0	20
Total	0	506	947	320

Major Street Direction

x	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)	639.1
Approach with Worst Case Delay	SB
Total Vehicles on Approach	506

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)**
C+P Alt 1 Conditions	**89.8**	**947**	**1,773**
Limiting Value	**4**	**100**	**650**
Condition Satisfied?	**Met**	**Met**	**Met**
Warrant Met	**YES**		

APPENDIX D: APPROVED/PENDING PROJECTS TRIP GENERATION

APPENDIX D: APPROVED/PENDING PROJECTS TRIP GENERATION

Project	Project Size	Project Type	AM Peak Hour[1]			PM Peak Hour[1]		
			In	Out	Total	In	Out	Total
Denny's Restaurant	5,000 square feet	Quick Turnover Restaurant (ITE Land Use Code 932)	27	22	50	30	19	49
Montessori Preschool	6,000 square feet	Preschool (ITE Land Use Code 565)	35	31	66	31	35	67
Falls Event Center	15,000 square feet	Events Center (Special Generator)	0*	0*	0*	51	7	58
Partnership Health Plan	101,000 square feet	Office (ITE Land Use Code 710)	104	17	121	18	97	115
Eastridge	54 dwelling units	Single-Family Residential (ITE Land Use Code 210)	11	32	43	35	21	56
Garibaldi Ranch Unit	112 dwelling units	Single-Family Residential (ITE Land Use Code 210)	21	63	84	71	42	113
Goldhill Village 2	64 dwelling units	Single-Family Residential (ITE Land Use Code 210)	13	38	50	42	24	66
Harvest and Bloom	151 dwelling units	Single-Family Residential (ITE Land Use Code 210)	30	90	120	98	58	156
Koros (Village Oaks)	38 dwelling units	Single-Family Residential (ITE Land Use Code 210)	8	24	32	25	15	40
Bella Vita	13 dwelling units	Single-Family Residential (ITE Land Use Code 210)	4	11	14	9	5	14
Enclave	148 dwelling units	Single-Family Residential (ITE Land Use Code 210)	27	82	110	93	55	148

APPENDIX D: APPROVED/PENDING PROJECTS TRIP GENERATION

Project	Project Size	Project Type	AM Peak Hour[1]			PM Peak Hour[1]		
			In	Out	Total	In	Out	Total
Fieldcrest	394 dwelling units	Apartments (ITE Land Use Code 220)	40	135	175	126	74	200
Villas at Havenhill	324 dwelling units	Apartments (ITE Land Use Code 220)	34	112	146	106	62	168
Estaire	25 dwelling units	Apartments (ITE Land Use Code 220)	3	10	13	11	6	17
The Vines at 80	30 dwelling units[2]	Apartments (ITE Land Use Code 220)	3	12	15	13	7	20
Verdant at Green Valley	143 dwelling units[2]	Apartments (ITE Land Use Code 220)	15	52	67	51	30	81
Rockville Terrace	148 dwelling units	Senior Residential (ITE Land Use Code 252)	10	19	30	21	17	38
The Cottages (Bradbury Park)	15 dwelling units	Single-Family Residential (ITE Land Use Code 210)	4	12	15	10	6	16

Notes:
1. Trip Generation estimates prepared using data from the ITE *Trip Generation Manual, 10th Edition* or the approved transportation impact analysis for the project (where available).
2. Aerial imagery from October 2017 indicate these developments are constructed and partially occupied. Accordingly, the EPAP Conditions analysis assumes that the projects were 50 percent occupied at the time of the traffic counts. Values in the table reflect the portions of the projects yet to be occupied.
* Falls Events Center is not proposed to be in operation during the AM peak hour.
Fehr & Peers, January 2019.

APPENDIX E: FREEWAY LOS WORKSHEETS

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	East of Suisun Valley Road
Alternative	No Project (Baseline)
Time period	Existing AM

Flow Inputs and Adjustments

Volume, V	6,653	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	1,697	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	6,992	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,398	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.60	
Density, D	21.5	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	Suisun Valley Off-Ramp
Alternative	No Project (Baseline)
Time period	Existing AM

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	5	
Free-flow speed on freeway	65	mph
Volume on freeway	6,653	vph

Off Ramp Data

Type of diverge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	50	mph
Volume on ramp	659	vph
Length of deceleration lane(s)	150	ft

Adjacent Ramp Data

	Upstream		Downstream	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

Junction Components	Freeway	Ramp	Adj. Ramp	
Volume, V	6,653	659		vph
Peak-hour factor, PHF	0.98	0.98		
Peak 15-min volume, v_{15}	1,697	168		veh
Trucks and buses	6.0%	6.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.971	0.971		
Driver popoulation factor, f_p	1.00	1.00		
Flow rate, v_p	6,992	693		pcph

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	Suisun Valley Off-Ramp
Alternative	No Project (Baseline)
Time period	Existing AM

Estimation of Volume in Diverge Area

L_{EQ} =		ft	(Equation 13-12 or 13-13)
P_{FM} =	0.436		(Equation 13-9, 13-10, or 13-11)
v_{12} =	2,982	pcph	

Capacity Checks

	Actual		Maximum		LOS F?
Entering freeway volume, v_{Fi}	6,992	pcph	11,750	pcph	No
Exiting freeway volume, v_{FO}	6,300	pcph	11,750	pcph	No
Ramp volume, v_R	693	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}	1,481	pcph	(Equation 13-14 or 13-17)		
Is v_3 or v_{av34} > 2,700 pcph?	No				
Is v_3 or v_{av34} > 1.5 v_{12} / 2?	No				
If yes, v_{12A} =		pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Diverge Influence Area

	Actual		Maximum		Violation?
v_{12A}	2,982	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.68	
Density, D_R	28.5	pcpmpl
Level of service for ramp-freeway junction area of influence	D	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.295	
Space mean speed in ramp influence area, S_R	58.2	mph
Space mean speed in outer lanes, S_O	69.4	mph
Space mean speed for all vehicles, S	63.3	mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	Inside Suisun Interchange
Alternative	No Project (Baseline)
Time period	Existing AM

Flow Inputs and Adjustments

Volume, V	6,073	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	1,549	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	6,383	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,277	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.54	
Density, D	19.6	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	I-680 off-ramp
Alternative	No Project (Baseline)
Time period	Existing AM

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	5	
Free-flow speed on freeway	65	mph
Volume on freeway	6,073	vph

Off Ramp Data

Type of diverge	Major	
Number of lanes in ramp	2	
Free-flow speed on ramp	65	mph
Volume on ramp	2,710	vph
Length of deceleration lane(s)	525	ft

Adjacent Ramp Data

	Upstream		Downstream	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

Junction Components	Freeway	Ramp	Adj. Ramp	
Volume, V	6,073	2,710		vph
Peak-hour factor, PHF	0.98	0.98		
Peak 15-min volume, v_{15}	1,549	691		veh
Trucks and buses	6.0%	6.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.971	0.971		
Driver popoulation factor, f_p	1.00	1.00		
Flow rate, v_p	6,383	2,848		pcph

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	I-680 off-ramp
Alternative	No Project (Baseline)
Time period	Existing AM

Estimation of Volume in Diverge Area

L_{EQ} =		ft	(Equation 13-12 or 13-13)
P_{FM} =			(Equation 13-9, 13-10, or 13-11)
v_{12} =		pcph	

Capacity Checks

	Actual		Maximum		LOS F?
Entering freeway volume, v_{Fi}	6,383	pcph	11,750	pcph	No
Exiting freeway volume, v_{FO}	3,535	pcph	9,400	pcph	No
Ramp volume, v_R	2,848	pcph	4,700	pcph	No
Outer lanes volume, v_3 or v_{av34}	#VALUE!	pcph	(Equation 13-14 or 13-17)		
Is v_3 or v_{av34} > 2,700 pcph?	#VALUE!				
Is v_3 or v_{av34} > 1.5 v_{12} / 2?	#VALUE!				
If yes, v_{12A} =	#VALUE!	pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Diverge Influence Area

	Actual		Maximum		Violation?
v_{12A}		pcph	4,600	pcph	Yes

Level of Service Determination

Volume-to-capacity ratio, v/c		
Density, D_R	22.3	pcpmpl
Level of service for ramp-freeway junction area of influence	C	

Speed Estimation

Intermediate speed variable, M_S or D_S		
Space mean speed in ramp influence area, S_R		mph
Space mean speed in outer lanes, S_O		mph
Space mean speed for all vehicles, S		mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	West of I-680
Alternative	No Project (Baseline)
Time period	Existing AM

Flow Inputs and Adjustments

Volume, V	3,688	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	941	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	3,876	pcph
Number of lanes, N	4	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	969	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.41	
Density, D	14.9	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	East of Suisun Valley Road
Alternative	No Project (Baseline)
Time period	Existing PM

Flow Inputs and Adjustments

Volume, V	5,114	vph
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v_{15}	1,318	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	5,430	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,086	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.46	
Density, D	16.7	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	Suisun Valley Off-Ramp
Alternative	No Project (Baseline)
Time period	Existing PM

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	5	
Free-flow speed on freeway	65	mph
Volume on freeway	5,114	vph

Off Ramp Data

Type of diverge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	50	mph
Volume on ramp	629	vph
Length of deceleration lane(s)	150	ft

Adjacent Ramp Data

	Upstream		Downstream	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

Junction Components	Freeway	Ramp	Adj. Ramp	
Volume, V	5,114	629		vph
Peak-hour factor, PHF	0.97	0.97		
Peak 15-min volume, v_{15}	1,318	162		veh
Trucks and buses	6.0%	6.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.971	0.971		
Driver popoulation factor, f_p	1.00	1.00		
Flow rate, v_p	5,430	668		pcph

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	Suisun Valley Off-Ramp
Alternative	No Project (Baseline)
Time period	Existing PM

Estimation of Volume in Diverge Area

L_{EQ} =		ft	(Equation 13-12 or 13-13)
P_{FM} =	0.436		(Equation 13-9, 13-10, or 13-11)
v_{12} =	2,508	pcph	

Capacity Checks

	Actual		Maximum		LOS F?
Entering freeway volume, v_{Fi}	5,430	pcph	11,750	pcph	No
Exiting freeway volume, v_{FO}	4,762	pcph	11,750	pcph	No
Ramp volume, v_R	668	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}	1,190	pcph	(Equation 13-14 or 13-17)		
Is v_3 or v_{av34} > 2,700 pcph?	No				
Is v_3 or v_{av34} > 1.5 v_{12} / 2?	No				
If yes, v_{12A} =		pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Diverge Influence Area

	Actual		Maximum		Violation?
v_{12A}	2,508	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.57	
Density, D_R	24.5	pcpmpl
Level of service for ramp-freeway junction area of influence	C	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.293	
Space mean speed in ramp influence area, S_R	58.3	mph
Space mean speed in outer lanes, S_O	70.6	mph
Space mean speed for all vehicles, S	63.7	mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	Inside Suisun Interchange
Alternative	No Project (Baseline)
Time period	Existing PM

Flow Inputs and Adjustments

Volume, V	4,542	vph
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v_{15}	1,171	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	4,823	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	965	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.41	
Density, D	14.8	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	I-680 off-ramp
Alternative	No Project (Baseline)
Time period	Existing PM

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	5	
Free-flow speed on freeway	65	mph
Volume on freeway	4,542	vph

Off Ramp Data

Type of diverge	Major	
Number of lanes in ramp	2	
Free-flow speed on ramp	65	mph
Volume on ramp	2,090	vph
Length of deceleration lane(s)	525	ft

Adjacent Ramp Data

	Upstream		Downstream	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

Junction Components	Freeway	Ramp	Adj. Ramp	
Volume, V	4,542	2,090		vph
Peak-hour factor, PHF	0.97	0.97		
Peak 15-min volume, v_{15}	1,171	539		veh
Trucks and buses	6.0%	6.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.971	0.971		
Driver popoulation factor, f_p	1.00	1.00		
Flow rate, v_p	4,823	2,219		pcph

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	I-680 off-ramp
Alternative	No Project (Baseline)
Time period	Existing PM

Estimation of Volume in Diverge Area

L_{EQ} =		ft	(Equation 13-12 or 13-13)
P_{FM} =			(Equation 13-9, 13-10, or 13-11)
v_{12} =		pcph	

Capacity Checks

	Actual		Maximum		LOS F?
Entering freeway volume, v_{Fi}	4,823	pcph	11,750	pcph	No
Exiting freeway volume, v_{FO}	2,604	pcph	9,400	pcph	No
Ramp volume, v_R	2,219	pcph	4,700	pcph	No
Outer lanes volume, v_3 or v_{av34}	#VALUE!	pcph	(Equation 13-14 or 13-17)		
Is v_3 or v_{av34} > 2,700 pcph?	#VALUE!				
Is v_3 or v_{av34} > 1.5 v_{12} / 2?	#VALUE!				
If yes, v_{12A} =	#VALUE!	pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Diverge Influence Area

	Actual		Maximum		Violation?
v_{12A}		pcph	4,600	pcph	Yes

Level of Service Determination

Volume-to-capacity ratio, v/c		
Density, D_R	16.9	pcpmpl
Level of service for ramp-freeway junction area of influence	B	

Speed Estimation

Intermediate speed variable, M_S or D_S		
Space mean speed in ramp influence area, S_R		mph
Space mean speed in outer lanes, S_O		mph
Space mean speed for all vehicles, S		mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	West of I-680
Alternative	No Project (Baseline)
Time period	Existing PM

Flow Inputs and Adjustments

Volume, V	2,640	vph
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v_{15}	680	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	2,803	pcph
Number of lanes, N	4	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	701	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.30	
Density, D	10.8	pcpmpl
Level of service, LOS	A	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	East of Suisun Valley Road
Alternative	No Project (Baseline)
Time period	Existing Plus Approved AM

Flow Inputs and Adjustments

Volume, V	6,987	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	1,782	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	7,343	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,469	pcphpl
Average passenger-car speed, S	64.9	mph
Volume-to-capacity ratio, v/c	0.62	
Density, D	22.6	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	Suisun Valley Off-Ramp
Alternative	No Project (Baseline)
Time period	Existing Plus Approved AM

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	5	
Free-flow speed on freeway	65	mph
Volume on freeway	6,987	vph

Off Ramp Data

Type of diverge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	50	mph
Volume on ramp	710	vph
Length of deceleration lane(s)	150	ft

Adjacent Ramp Data

	Upstream		Downstream	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

Junction Components	Freeway	Ramp	Adj. Ramp	
Volume, V	6,987	710		vph
Peak-hour factor, PHF	0.98	0.98		
Peak 15-min volume, v_{15}	1,782	181		veh
Trucks and buses	6.0%	6.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.971	0.971		
Driver popoulation factor, f_p	1.00	1.00		
Flow rate, v_p	7,343	746		pcph

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	Suisun Valley Off-Ramp
Alternative	No Project (Baseline)
Time period	Existing Plus Approved AM

Estimation of Volume in Diverge Area

L_{EQ} =		ft	(Equation 13-12 or 13-13)
P_{FM} =	0.436		(Equation 13-9, 13-10, or 13-11)
v_{12} =	2,982	pcph	

Capacity Checks

	Actual		Maximum		LOS F?
Entering freeway volume, v_{Fi}	7,343	pcph	11,750	pcph	No
Exiting freeway volume, v_{FO}	6,597	pcph	11,750	pcph	No
Ramp volume, v_R	746	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}	1,446	pcph	(Equation 13-14 or 13-17)		
Is v_3 or v_{av34} > 2,700 pcph?	No				
Is v_3 or v_{av34} > 1.5 v_{12} / 2?	No				
If yes, v_{12A} =		pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Diverge Influence Area

	Actual		Maximum		Violation?
v_{12A}	2,982	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.68	
Density, D_R	28.5	pcpmpl
Level of service for ramp-freeway junction area of influence	D	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.300	
Space mean speed in ramp influence area, S_R	58.1	mph
Space mean speed in outer lanes, S_O	69.6	mph
Space mean speed for all vehicles, S	63.2	mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	Inside Suisun Interchange
Alternative	No Project (Baseline)
Time period	Existing Plus Approved AM

Flow Inputs and Adjustments

Volume, V	6,362	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	1,623	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	6,687	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,337	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.57	
Density, D	20.6	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	I-680 off-ramp
Alternative	No Project (Baseline)
Time period	Existing Plus Approved AM

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	5	
Free-flow speed on freeway	65	mph
Volume on freeway	6,362	vph

Off Ramp Data

Type of diverge	Major	
Number of lanes in ramp	2	
Free-flow speed on ramp	65	mph
Volume on ramp	2,850	vph
Length of deceleration lane(s)	525	ft

Adjacent Ramp Data

	Upstream		Downstream	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

Junction Components	Freeway	Ramp	Adj. Ramp	
Volume, V	6,362	2,850		vph
Peak-hour factor, PHF	0.98	0.98		
Peak 15-min volume, v_{15}	1,623	727		veh
Trucks and buses	6.0%	6.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.971	0.971		
Driver popoulation factor, f_p	1.00	1.00		
Flow rate, v_p	6,687	2,995		pcph

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	I-680 off-ramp
Alternative	No Project (Baseline)
Time period	Existing Plus Approved AM

Estimation of Volume in Diverge Area

L_{EQ} =		ft	(Equation 13-12 or 13-13)
P_{FM} =			(Equation 13-9, 13-10, or 13-11)
v_{12} =		pcph	

Capacity Checks

	Actual		Maximum		LOS F?
Entering freeway volume, v_{Fi}	6,687	pcph	11,750	pcph	No
Exiting freeway volume, v_{FO}	3,691	pcph	9,400	pcph	No
Ramp volume, v_R	2,995	pcph	4,700	pcph	No
Outer lanes volume, v_3 or v_{av34}	#VALUE!	pcph	(Equation 13-14 or 13-17)		
Is v_3 or v_{av34} > 2,700 pcph?	#VALUE!				
Is v_3 or v_{av34} > 1.5 v_{12} / 2?	#VALUE!				
If yes, v_{12A} =	#VALUE!	pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Diverge Influence Area

	Actual		Maximum		Violation?
v_{12A}		pcph	4,600	pcph	Yes

Level of Service Determination

Volume-to-capacity ratio, v/c		
Density, D_R	23.4	pcpmpl
Level of service for ramp-freeway junction area of influence	C	

Speed Estimation

Intermediate speed variable, M_S or D_S		
Space mean speed in ramp influence area, S_R		mph
Space mean speed in outer lanes, S_O		mph
Space mean speed for all vehicles, S		mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	West of I-680
Alternative	No Project (Baseline)
Time period	Existing Plus Approved AM

Flow Inputs and Adjustments

Volume, V	3,854	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	983	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	4,051	pcph
Number of lanes, N	4	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,013	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.43	
Density, D	15.6	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	East of Suisun Valley Road
Alternative	No Project (Baseline)
Time period	Existing Plus Approved PM

Flow Inputs and Adjustments

Volume, V	5,378	vph
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v_{15}	1,386	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	5,711	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,142	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.49	
Density, D	17.6	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	Suisun Valley Off-Ramp
Alternative	No Project (Baseline)
Time period	Existing Plus Approved PM

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	5	
Free-flow speed on freeway	65	mph
Volume on freeway	5,378	vph

Off Ramp Data

Type of diverge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	50	mph
Volume on ramp	710	vph
Length of deceleration lane(s)	150	ft

Adjacent Ramp Data

	Upstream		Downstream	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

Junction Components	Freeway	Ramp	Adj. Ramp	
Volume, V	5,378	710		vph
Peak-hour factor, PHF	0.97	0.97		
Peak 15-min volume, v_{15}	1,386	183		veh
Trucks and buses	6.0%	6.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.971	0.971		
Driver popoulation factor, f_p	1.00	1.00		
Flow rate, v_p	5,711	754		pcph

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	Suisun Valley Off-Ramp
Alternative	No Project (Baseline)
Time period	Existing Plus Approved PM

Estimation of Volume in Diverge Area

L_{EQ} =		ft	(Equation 13-12 or 13-13)
P_{FM} =	0.436		(Equation 13-9, 13-10, or 13-11)
v_{12} =	2,542	pcph	

Capacity Checks

	Actual		Maximum		LOS F?
Entering freeway volume, v_{Fi}	5,711	pcph	11,750	pcph	No
Exiting freeway volume, v_{FO}	4,957	pcph	11,750	pcph	No
Ramp volume, v_R	754	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}	1,156	pcph	(Equation 13-14 or 13-17)		
Is v_3 or v_{av34} > 2,700 pcph?	No				
Is v_3 or v_{av34} > 1.5 v_{12} / 2?	No				
If yes, v_{12A} =		pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Diverge Influence Area

	Actual		Maximum		Violation?
v_{12A}	2,542	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.58	
Density, D_R	24.8	pcpmpl
Level of service for ramp-freeway junction area of influence	C	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.301	
Space mean speed in ramp influence area, S_R	58.1	mph
Space mean speed in outer lanes, S_O	70.7	mph
Space mean speed for all vehicles, S	63.5	mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	Inside Suisun Interchange
Alternative	No Project (Baseline)
Time period	Existing Plus Approved PM

Flow Inputs and Adjustments

Volume, V	4,732	vph
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v_{15}	1,220	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	5,025	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,005	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.43	
Density, D	15.5	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	I-680 off-ramp
Alternative	No Project (Baseline)
Time period	Existing Plus Approved PM

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	5	
Free-flow speed on freeway	65	mph
Volume on freeway	4,732	vph

Off Ramp Data

Type of diverge	Major	
Number of lanes in ramp	2	
Free-flow speed on ramp	65	mph
Volume on ramp	2,200	vph
Length of deceleration lane(s)	525	ft

Adjacent Ramp Data

	Upstream		Downstream	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

Junction Components	Freeway	Ramp	Adj. Ramp	
Volume, V	4,732	2,200		vph
Peak-hour factor, PHF	0.97	0.97		
Peak 15-min volume, v_{15}	1,220	567		veh
Trucks and buses	6.0%	6.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.971	0.971		
Driver popoulation factor, f_p	1.00	1.00		
Flow rate, v_p	5,025	2,336		pcph

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	I-680 off-ramp
Alternative	No Project (Baseline)
Time period	Existing Plus Approved PM

Estimation of Volume in Diverge Area

L_{EQ} =		ft	(Equation 13-12 or 13-13)
P_{FM} =			(Equation 13-9, 13-10, or 13-11)
v_{12} =		pcph	

Capacity Checks

	Actual		Maximum		LOS F?
Entering freeway volume, v_{Fi}	5,025	pcph	11,750	pcph	No
Exiting freeway volume, v_{FO}	2,689	pcph	9,400	pcph	No
Ramp volume, v_R	2,336	pcph	4,700	pcph	No
Outer lanes volume, v_3 or v_{av34}	#VALUE!	pcph	(Equation 13-14 or 13-17)		
Is v_3 or v_{av34} > 2,700 pcph?	#VALUE!				
Is v_3 or v_{av34} > 1.5 v_{12} / 2?	#VALUE!				
If yes, v_{12A} =	#VALUE!	pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Diverge Influence Area

	Actual		Maximum		Violation?
v_{12A}		pcph	4,600	pcph	Yes

Level of Service Determination

Volume-to-capacity ratio, v/c		
Density, D_R	17.6	pcpmpl
Level of service for ramp-freeway junction area of influence	B	

Speed Estimation

Intermediate speed variable, M_S or D_S		
Space mean speed in ramp influence area, S_R		mph
Space mean speed in outer lanes, S_O		mph
Space mean speed for all vehicles, S		mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	West of I-680
Alternative	No Project (Baseline)
Time period	Existing Plus Approved PM

Flow Inputs and Adjustments

Volume, V	2,730	vph
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v_{15}	704	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	2,899	pcph
Number of lanes, N	4	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	725	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.31	
Density, D	11.1	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Far Term)
Segment	East of Suisun Valley Road
Alternative	No Project (Baseline)
Time period	Cumulative NP AM

Flow Inputs and Adjustments

Volume, V	8,923	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	2,276	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	9,378	pcph
Number of lanes, N	8	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,172	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.50	
Density, D	18.0	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Far Term)
Segment	Suisun Valley Off-Ramp
Alternative	No Project (Baseline)
Time period	Cumulative NP AM

Flow Inputs and Adjustments

Volume, V	8,923	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	2,276	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	9,378	pcph
Number of lanes, N	8	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume	7,938	pcph	16,450	pcph	No
On-ramp volume		pcph		pcph	
Off-ramp volume	1,440	pcph	2,100	pcph	No

LOS and Performance Measures

Flow rate, v_p	1,172	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.50	
Density, D	18.0	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Far Term)
Segment	Inside Suisun Interchnage
Alternative	No Project (Baseline)
Time period	Cumulative NP AM

Flow Inputs and Adjustments

Volume, V	7,718	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	1,969	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	8,112	pcph
Number of lanes, N	7	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,159	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.49	
Density, D	17.8	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Far Term)
Segment	Suisun Valley On-ramp
Alternative	No Project (Baseline)
Time period	Cumulative NP AM

Flow Inputs and Adjustments

Volume, V	8,698	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	2,219	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	9,142	pcph
Number of lanes, N	8	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume	8,112	pcph	16,450	pcph	No
Exiting freeway volume		pcph		pcph	
On-ramp volume	1,030	pcph	2,100	pcph	No
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,143	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.49	
Density, D	17.6	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Far Term)
Segment	Green Valley off-ramp
Alternative	No Project (Baseline)
Time period	Cumulative NP AM

Flow Inputs and Adjustments

Volume, V	8,580	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	2,189	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	9,018	pcph
Number of lanes, N	8	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume	7,242	pcph	18,800	pcph	No
On-ramp volume		pcph		pcph	
Off-ramp volume	1,776	pcph	2,100	pcph	No

LOS and Performance Measures

Flow rate, v_p	1,127	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.48	
Density, D	17.3	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Far Term)
Segment	Between Green Valley and I-680
Alternative	No Project (Baseline)
Time period	Cumulative NP AM

Flow Inputs and Adjustments

Volume, V	7,093	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	1,809	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	7,455	pcph
Number of lanes, N	8	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	932	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.40	
Density, D	14.3	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Far Term)
Segment	East of Suisun Valley Road
Alternative	No Project (Baseline)
Time period	Cumulative NP PM

Flow Inputs and Adjustments

Volume, V	6,861	vph
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v_{15}	1,768	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	7,285	pcph
Number of lanes, N	8	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	911	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.39	
Density, D	14.0	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Far Term)
Segment	Suisun Valley Off-Ramp
Alternative	No Project (Baseline)
Time period	Cumulative NP PM

Flow Inputs and Adjustments

Volume, V	6,861	vph
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v_{15}	1,768	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	7,285	pcph
Number of lanes, N	8	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume	6,160	pcph	16,450	pcph	No
On-ramp volume		pcph		pcph	
Off-ramp volume	1,126	pcph	2,100	pcph	No

LOS and Performance Measures

Flow rate, v_p	911	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.39	
Density, D	14.0	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Far Term)
Segment	Inside Suisun Interchnage
Alternative	No Project (Baseline)
Time period	Cumulative NP PM

Flow Inputs and Adjustments

Volume, V	5,897	vph
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v_{15}	1,520	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	6,262	pcph
Number of lanes, N	7	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	895	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.38	
Density, D	13.8	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Far Term)
Segment	Suisun Valley On-ramp
Alternative	No Project (Baseline)
Time period	Cumulative NP PM

Flow Inputs and Adjustments

Volume, V	6,957	vph
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v_{15}	1,793	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	7,387	pcph
Number of lanes, N	8	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume	6,262	pcph	16,450	pcph	No
Exiting freeway volume		pcph		pcph	
On-ramp volume	1,126	pcph	2,100	pcph	No
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	923	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.39	
Density, D	14.2	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Far Term)
Segment	Green Valley off-ramp
Alternative	No Project (Baseline)
Time period	Cumulative NP PM

Flow Inputs and Adjustments

Volume, V	6,861	vph
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v_{15}	1,768	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	7,285	pcph
Number of lanes, N	8	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume	5,491	pcph	18,800	pcph	No
On-ramp volume		pcph		pcph	
Off-ramp volume	1,795	pcph	2,100	pcph	No

LOS and Performance Measures

Flow rate, v_p	911	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.39	
Density, D	14.0	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Far Term)
Segment	Between Green Valley and I-680
Alternative	No Project (Baseline)
Time period	Cumulative NP PM

Flow Inputs and Adjustments

Volume, V	5,323	vph
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v_{15}	1,372	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	5,652	pcph
Number of lanes, N	8	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	707	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.30	
Density, D	10.9	pcpmpl
Level of service, LOS	A	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	East of Suisun Valley Road
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	Existing + Project AM

Flow Inputs and Adjustments

Volume, V	6,666	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	1,701	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	7,006	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,401	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.60	
Density, D	21.6	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	Suisun Valley Off-Ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	Existing + Project AM

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	5	
Free-flow speed on freeway	65	mph
Volume on freeway	6,666	vph

Off Ramp Data

Type of diverge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	50	mph
Volume on ramp	674	vph
Length of deceleration lane(s)	150	ft

Adjacent Ramp Data

	Upstream		Downstream	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

Junction Components	Freeway	Ramp	Adj. Ramp	
Volume, V	6,666	674		vph
Peak-hour factor, PHF	0.98	0.98		
Peak 15-min volume, v_{15}	1,701	172		veh
Trucks and buses	6.0%	6.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.971	0.971		
Driver popoulation factor, f_p	1.00	1.00		
Flow rate, v_p	7,006	708		pcph

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	Suisun Valley Off-Ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	Existing + Project AM

Estimation of Volume in Diverge Area

L_{EQ} =		ft	(Equation 13-12 or 13-13)
P_{FM} =	0.436		(Equation 13-9, 13-10, or 13-11)
v_{12} =	2,843	pcph	

Capacity Checks

	Actual		Maximum		LOS F?
Entering freeway volume, v_{Fi}	7,006	pcph	11,750	pcph	No
Exiting freeway volume, v_{FO}	6,298	pcph	11,750	pcph	No
Ramp volume, v_R	708	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}	1,381	pcph	(Equation 13-14 or 13-17)		
Is v_3 or v_{av34} > 2,700 pcph?	No				
Is v_3 or v_{av34} > 1.5 v_{12} / 2?	No				
If yes, v_{12A} =		pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Diverge Influence Area

	Actual		Maximum		Violation?
v_{12A}	2,843	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.65	
Density, D_R	27.4	pcpmpl
Level of service for ramp-freeway junction area of influence	C	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.297	
Space mean speed in ramp influence area, S_R	58.2	mph
Space mean speed in outer lanes, S_O	69.8	mph
Space mean speed for all vehicles, S	63.4	mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	Inside Suisun Interchange
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	Existing + Project AM

Flow Inputs and Adjustments

Volume, V	6,073	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	1,549	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	6,383	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,277	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.54	
Density, D	19.6	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	I-680 off-ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	Existing + Project AM

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	5	
Free-flow speed on freeway	65	mph
Volume on freeway	6,073	vph

Off Ramp Data

Type of diverge	Major	
Number of lanes in ramp	2	
Free-flow speed on ramp	65	mph
Volume on ramp	2,710	vph
Length of deceleration lane(s)	525	ft

Adjacent Ramp Data

	Upstream		Downstream	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

Junction Components	Freeway	Ramp	Adj. Ramp	
Volume, V	6,073	2,710		vph
Peak-hour factor, PHF	0.98	0.98		
Peak 15-min volume, v_{15}	1,549	691		veh
Trucks and buses	6.0%	6.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.971	0.971		
Driver popoulation factor, f_p	1.00	1.00		
Flow rate, v_p	6,383	2,848		pcph

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	I-680 off-ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	Existing + Project AM

Estimation of Volume in Diverge Area

L_{EQ} =		ft	(Equation 13-12 or 13-13)
P_{FM} =			(Equation 13-9, 13-10, or 13-11)
v_{12} =		pcph	

Capacity Checks

	Actual		Maximum		LOS F?
Entering freeway volume, v_{Fi}	6,383	pcph	11,750	pcph	No
Exiting freeway volume, v_{FO}	3,535	pcph	9,400	pcph	No
Ramp volume, v_R	2,848	pcph	4,700	pcph	No
Outer lanes volume, v_3 or v_{av34}	#VALUE!	pcph	(Equation 13-14 or 13-17)		
Is v_3 or v_{av34} > 2,700 pcph?	#VALUE!				
Is v_3 or v_{av34} > 1.5 v_{12} / 2?	#VALUE!				
If yes, v_{12A} =	#VALUE!	pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Diverge Influence Area

	Actual		Maximum		Violation?
v_{12A}		pcph	4,600	pcph	Yes

Level of Service Determination

Volume-to-capacity ratio, v/c		
Density, D_R	22.3	pcpmpl
Level of service for ramp-freeway junction area of influence	C	

Speed Estimation

Intermediate speed variable, M_S or D_S		
Space mean speed in ramp influence area, S_R		mph
Space mean speed in outer lanes, S_O		mph
Space mean speed for all vehicles, S		mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	West of I-680
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	Existing + Project AM

Flow Inputs and Adjustments

Volume, V	3,688	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	941	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	3,876	pcph
Number of lanes, N	4	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	969	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.41	
Density, D	14.9	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	East of Suisun Valley Road
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	Existing + Project PM

Flow Inputs and Adjustments

Volume, V	5,146	vph
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v_{15}	1,326	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	5,464	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,093	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.47	
Density, D	16.8	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	Suisun Valley Off-Ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	Existing + Project PM

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	5	
Free-flow speed on freeway	65	mph
Volume on freeway	5,146	vph

Off Ramp Data

Type of diverge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	50	mph
Volume on ramp	664	vph
Length of deceleration lane(s)	150	ft

Adjacent Ramp Data

	Upstream		Downstream	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

Junction Components	Freeway	Ramp	Adj. Ramp	
Volume, V	5,146	664		vph
Peak-hour factor, PHF	0.97	0.97		
Peak 15-min volume, v_{15}	1,326	171		veh
Trucks and buses	6.0%	6.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.971	0.971		
Driver popoulation factor, f_p	1.00	1.00		
Flow rate, v_p	5,464	705		pcph

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	Suisun Valley Off-Ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	Existing + Project PM

Estimation of Volume in Diverge Area

L_{EQ} =		ft	(Equation 13-12 or 13-13)
P_{FM} =	0.436		(Equation 13-9, 13-10, or 13-11)
v_{12} =	2,542	pcph	

Capacity Checks

	Actual		Maximum		LOS F?
Entering freeway volume, v_{Fi}	5,464	pcph	11,750	pcph	No
Exiting freeway volume, v_{FO}	4,759	pcph	11,750	pcph	No
Ramp volume, v_R	705	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}	1,188	pcph	(Equation 13-14 or 13-17)		
Is v_3 or v_{av34} > 2,700 pcph?	No				
Is v_3 or v_{av34} > 1.5 v_{12} / 2?	No				
If yes, v_{12A} =		pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Diverge Influence Area

	Actual		Maximum		Violation?
v_{12A}	2,542	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.58	
Density, D_R	24.8	pcpmpl
Level of service for ramp-freeway junction area of influence	C	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.296	
Space mean speed in ramp influence area, S_R	58.2	mph
Space mean speed in outer lanes, S_O	70.6	mph
Space mean speed for all vehicles, S	63.6	mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	Inside Suisun Interchange
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	Existing + Project PM

Flow Inputs and Adjustments

Volume, V	4,542	vph
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v_{15}	1,171	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	4,823	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	965	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.41	
Density, D	14.8	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	I-680 off-ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	Existing + Project PM

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	5	
Free-flow speed on freeway	65	mph
Volume on freeway	4,542	vph

Off Ramp Data

Type of diverge	Major	
Number of lanes in ramp	2	
Free-flow speed on ramp	65	mph
Volume on ramp	2,090	vph
Length of deceleration lane(s)	525	ft

Adjacent Ramp Data

	Upstream		Downstream	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

Junction Components	Freeway	Ramp	Adj. Ramp	
Volume, V	4,542	2,090		vph
Peak-hour factor, PHF	0.97	0.97		
Peak 15-min volume, v_{15}	1,171	539		veh
Trucks and buses	6.0%	6.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.971	0.971		
Driver popoulation factor, f_p	1.00	1.00		
Flow rate, v_p	4,823	2,219		pcph

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	I-680 off-ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	Existing + Project PM

Estimation of Volume in Diverge Area

L_{EQ} =		ft	(Equation 13-12 or 13-13)
P_{FM} =			(Equation 13-9, 13-10, or 13-11)
v_{12} =		pcph	

Capacity Checks

	Actual		Maximum		LOS F?
Entering freeway volume, v_{Fi}	4,823	pcph	11,750	pcph	No
Exiting freeway volume, v_{FO}	2,604	pcph	9,400	pcph	No
Ramp volume, v_R	2,219	pcph	4,700	pcph	No
Outer lanes volume, v_3 or v_{av34}	#VALUE!	pcph	(Equation 13-14 or 13-17)		
Is v_3 or v_{av34} > 2,700 pcph?	#VALUE!				
Is v_3 or v_{av34} > 1.5 v_{12} / 2?	#VALUE!				
If yes, v_{12A} =	#VALUE!	pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Diverge Influence Area

	Actual		Maximum		Violation?
v_{12A}		pcph	4,600	pcph	Yes

Level of Service Determination

Volume-to-capacity ratio, v/c		
Density, D_R	16.9	pcpmpl
Level of service for ramp-freeway junction area of influence	B	

Speed Estimation

Intermediate speed variable, M_S or D_S		
Space mean speed in ramp influence area, S_R		mph
Space mean speed in outer lanes, S_O		mph
Space mean speed for all vehicles, S		mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	West of I-680
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	Existing + Project PM

Flow Inputs and Adjustments

Volume, V	2,640	vph
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v_{15}	680	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	2,803	pcph
Number of lanes, N	4	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	701	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.30	
Density, D	10.8	pcpmpl
Level of service, LOS	A	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	East of Suisun Valley Road
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	EPAP+P AM

Flow Inputs and Adjustments

Volume, V	7,000	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	1,786	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	7,357	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,471	pcphpl
Average passenger-car speed, S	64.9	mph
Volume-to-capacity ratio, v/c	0.63	
Density, D	22.7	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	Suisun Valley Off-Ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	EPAP+P AM

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	5	
Free-flow speed on freeway	65	mph
Volume on freeway	7,000	vph

Off Ramp Data

Type of diverge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	50	mph
Volume on ramp	725	vph
Length of deceleration lane(s)	150	ft

Adjacent Ramp Data

	Upstream		Downstream	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

Junction Components	Freeway	Ramp	Adj. Ramp	
Volume, V	7,000	725		vph
Peak-hour factor, PHF	0.98	0.98		
Peak 15-min volume, v_{15}	1,786	185		veh
Trucks and buses	6.0%	6.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.971	0.971		
Driver popoulation factor, f_P	1.00	1.00		
Flow rate, v_p	7,357	762		pcph

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	Suisun Valley Off-Ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	EPAP+P AM

Estimation of Volume in Diverge Area

L_{EQ} =		ft	(Equation 13-12 or 13-13)
P_{FM} =	0.436		(Equation 13-9, 13-10, or 13-11)
v_{12} =	2,996	pcph	

Capacity Checks

	Actual		Maximum		LOS F?
Entering freeway volume, v_{Fi}	7,357	pcph	11,750	pcph	No
Exiting freeway volume, v_{FO}	6,595	pcph	11,750	pcph	No
Ramp volume, v_R	762	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}	1,445	pcph	(Equation 13-14 or 13-17)		
Is v_3 or v_{av34} > 2,700 pcph?	No				
Is v_3 or v_{av34} > 1.5 v_{12} / 2?	No				
If yes, v_{12A} =		pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Diverge Influence Area

	Actual		Maximum		Violation?
v_{12A}	2,996	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.68	
Density, D_R	28.7	pcpmpl
Level of service for ramp-freeway junction area of influence	D	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.302	
Space mean speed in ramp influence area, S_R	58.1	mph
Space mean speed in outer lanes, S_O	69.6	mph
Space mean speed for all vehicles, S	63.2	mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	Inside Suisun Interchange
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	EPAP+P AM

Flow Inputs and Adjustments

Volume, V	6,362	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	1,623	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	6,687	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,337	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.57	
Density, D	20.6	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	I-680 off-ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	EPAP+P AM

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	5	
Free-flow speed on freeway	65	mph
Volume on freeway	6,362	vph

Off Ramp Data

Type of diverge	Major	
Number of lanes in ramp	2	
Free-flow speed on ramp	65	mph
Volume on ramp	2,850	vph
Length of deceleration lane(s)	525	ft

Adjacent Ramp Data

	Upstream		Downstream	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

Junction Components	Freeway	Ramp	Adj. Ramp	
Volume, V	6,362	2,850		vph
Peak-hour factor, PHF	0.98	0.98		
Peak 15-min volume, v_{15}	1,623	727		veh
Trucks and buses	6.0%	6.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.971	0.971		
Driver popoulation factor, f_p	1.00	1.00		
Flow rate, v_p	6,687	2,995		pcph

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	I-680 off-ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	EPAP+P AM

Estimation of Volume in Diverge Area

L_{EQ} =		ft	(Equation 13-12 or 13-13)
P_{FM} =			(Equation 13-9, 13-10, or 13-11)
v_{12} =		pcph	

Capacity Checks

	Actual		Maximum		LOS F?
Entering freeway volume, v_{Fi}	6,687	pcph	11,750	pcph	No
Exiting freeway volume, v_{FO}	3,691	pcph	9,400	pcph	No
Ramp volume, v_R	2,995	pcph	4,700	pcph	No
Outer lanes volume, v_3 or v_{av34}	#VALUE!	pcph	(Equation 13-14 or 13-17)		
Is v_3 or v_{av34} > 2,700 pcph?	#VALUE!				
Is v_3 or v_{av34} > 1.5 v_{12} / 2?	#VALUE!				
If yes, v_{12A} =	#VALUE!	pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Diverge Influence Area

	Actual		Maximum		Violation?
v_{12A}		pcph	4,600	pcph	Yes

Level of Service Determination

Volume-to-capacity ratio, v/c		
Density, D_R	23.4	pcpmpl
Level of service for ramp-freeway junction area of influence	C	

Speed Estimation

Intermediate speed variable, M_S or D_S		
Space mean speed in ramp influence area, S_R		mph
Space mean speed in outer lanes, S_O		mph
Space mean speed for all vehicles, S		mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	West of I-680
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	EPAP+P AM

Flow Inputs and Adjustments

Volume, V	3,854	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	983	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	4,051	pcph
Number of lanes, N	4	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,013	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.43	
Density, D	15.6	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	East of Suisun Valley Road
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	EPAP+P PM

Flow Inputs and Adjustments

Volume, V	5,410	vph
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v_{15}	1,394	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	5,745	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,149	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.49	
Density, D	17.7	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	Suisun Valley Off-Ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	EPAP+P PM

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	5	
Free-flow speed on freeway	65	mph
Volume on freeway	5,410	vph

Off Ramp Data

Type of diverge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	50	mph
Volume on ramp	745	vph
Length of deceleration lane(s)	150	ft

Adjacent Ramp Data

	Upstream		Downstream	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

Junction Components	Freeway	Ramp	Adj. Ramp	
Volume, V	5,410	745		vph
Peak-hour factor, PHF	0.97	0.97		
Peak 15-min volume, v_{15}	1,394	192		veh
Trucks and buses	6.0%	6.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.971	0.971		
Driver popoulation factor, f_p	1.00	1.00		
Flow rate, v_p	5,745	791		pcph

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	Suisun Valley Off-Ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	EPAP+P PM

Estimation of Volume in Diverge Area

L_{EQ} =		ft	(Equation 13-12 or 13-13)
P_{FM} =	0.436		(Equation 13-9, 13-10, or 13-11)
v_{12} =	2,575	pcph	

Capacity Checks

	Actual		Maximum		LOS F?
Entering freeway volume, v_{Fi}	5,745	pcph	11,750	pcph	No
Exiting freeway volume, v_{FO}	4,954	pcph	11,750	pcph	No
Ramp volume, v_R	791	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}	1,154	pcph	(Equation 13-14 or 13-17)		
Is v_3 or v_{av34} > 2,700 pcph?	No				
Is v_3 or v_{av34} > 1.5 v_{12} / 2?	No				
If yes, v_{12A} =		pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Diverge Influence Area

	Actual		Maximum		Violation?
v_{12A}	2,575	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.59	
Density, D_R	25.0	pcpmpl
Level of service for ramp-freeway junction area of influence	C	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.304	
Space mean speed in ramp influence area, S_R	58.0	mph
Space mean speed in outer lanes, S_O	70.7	mph
Space mean speed for all vehicles, S	63.4	mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	Inside Suisun Interchange
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	EPAP+P PM

Flow Inputs and Adjustments

Volume, V	4,732	vph
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v_{15}	1,220	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	5,025	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,005	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.43	
Density, D	15.5	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	I-680 off-ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	EPAP+P PM

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	5	
Free-flow speed on freeway	65	mph
Volume on freeway	4,732	vph

Off Ramp Data

Type of diverge	Major	
Number of lanes in ramp	2	
Free-flow speed on ramp	65	mph
Volume on ramp	2,200	vph
Length of deceleration lane(s)	525	ft

Adjacent Ramp Data

	Upstream		Downstream	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

Junction Components	Freeway	Ramp	Adj. Ramp	
Volume, V	4,732	2,200		vph
Peak-hour factor, PHF	0.97	0.97		
Peak 15-min volume, v_{15}	1,220	567		veh
Trucks and buses	6.0%	6.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.971	0.971		
Driver popoulation factor, f_p	1.00	1.00		
Flow rate, v_p	5,025	2,336		pcph

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	I-680 off-ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	EPAP+P PM

Estimation of Volume in Diverge Area

L_{EQ} =		ft	(Equation 13-12 or 13-13)
P_{FM} =			(Equation 13-9, 13-10, or 13-11)
v_{12} =		pcph	

Capacity Checks

	Actual		Maximum		LOS F?
Entering freeway volume, v_{Fi}	5,025	pcph	11,750	pcph	No
Exiting freeway volume, v_{FO}	2,689	pcph	9,400	pcph	No
Ramp volume, v_R	2,336	pcph	4,700	pcph	No
Outer lanes volume, v_3 or v_{av34}	#VALUE!	pcph	(Equation 13-14 or 13-17)		
Is v_3 or v_{av34} > 2,700 pcph?	#VALUE!				
Is v_3 or v_{av34} > 1.5 v_{12} / 2?	#VALUE!				
If yes, v_{12A} =	#VALUE!	pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Diverge Influence Area

	Actual		Maximum		Violation?
v_{12A}		pcph	4,600	pcph	Yes

Level of Service Determination

Volume-to-capacity ratio, v/c		
Density, D_R	17.6	pcpmpl
Level of service for ramp-freeway junction area of influence	B	

Speed Estimation

Intermediate speed variable, M_S or D_S		
Space mean speed in ramp influence area, S_R		mph
Space mean speed in outer lanes, S_O		mph
Space mean speed for all vehicles, S		mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	West of I-680
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	EPAP+P PM

Flow Inputs and Adjustments

Volume, V	2,730	vph
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v_{15}	704	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	2,899	pcph
Number of lanes, N	4	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	725	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.31	
Density, D	11.1	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Far Term)
Segment	East of Suisun Valley Road
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	C+P AM

Flow Inputs and Adjustments

Volume, V	8,936	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	2,280	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	9,392	pcph
Number of lanes, N	8	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,174	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.50	
Density, D	18.1	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Far Term)
Segment	Suisun Valley Off-Ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	C+P AM

Flow Inputs and Adjustments

Volume, V	8,936	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	2,280	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	9,392	pcph
Number of lanes, N	8	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume	7,936	pcph	16,450	pcph	No
On-ramp volume		pcph		pcph	
Off-ramp volume	1,456	pcph	2,100	pcph	No

LOS and Performance Measures

Flow rate, v_p	1,174	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.50	
Density, D	18.1	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Far Term)
Segment	Inside Suisun Interchnage
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	C+P AM

Flow Inputs and Adjustments

Volume, V	7,718	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	1,969	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	8,112	pcph
Number of lanes, N	7	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,159	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.49	
Density, D	17.8	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Far Term)
Segment	Suisun Valley On-ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	C+P AM

Flow Inputs and Adjustments

Volume, V	8,750	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	2,232	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	9,196	pcph
Number of lanes, N	8	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume	8,112	pcph	16,450	pcph	No
Exiting freeway volume		pcph		pcph	
On-ramp volume	1,085	pcph	2,100	pcph	No
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,150	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.49	
Density, D	17.7	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Far Term)
Segment	Green Valley off-ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	C+P AM

Flow Inputs and Adjustments

Volume, V	8,626	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	2,201	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	9,066	pcph
Number of lanes, N	8	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume	7,290	pcph	18,800	pcph	No
On-ramp volume		pcph		pcph	
Off-ramp volume	1,776	pcph	2,100	pcph	No

LOS and Performance Measures

Flow rate, v_p	1,133	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.48	
Density, D	17.4	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Far Term)
Segment	Between Green Valley and I-680
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	C+P AM

Flow Inputs and Adjustments

Volume, V	7,139	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	1,821	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	7,503	pcph
Number of lanes, N	8	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	938	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.40	
Density, D	14.4	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Far Term)
Segment	East of Suisun Valley Road
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	C+P PM

Flow Inputs and Adjustments

Volume, V	7,285	vph
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v_{15}	1,878	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	7,736	pcph
Number of lanes, N	8	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	967	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.41	
Density, D	14.9	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Far Term)
Segment	Suisun Valley Off-Ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	C+P PM

Flow Inputs and Adjustments

Volume, V	7,285	vph
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v_{15}	1,878	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	7,736	pcph
Number of lanes, N	8	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume	6,573	pcph	16,450	pcph	No
On-ramp volume		pcph		pcph	
Off-ramp volume	1,163	pcph	2,100	pcph	No

LOS and Performance Measures

Flow rate, v_p	967	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.41	
Density, D	14.9	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Far Term)
Segment	Inside Suisun Interchnage
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	C+P PM

Flow Inputs and Adjustments

Volume, V	6,289	vph
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v_{15}	1,621	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	6,678	pcph
Number of lanes, N	7	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	954	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.41	
Density, D	14.7	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Far Term)
Segment	Suisun Valley On-ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	C+P PM

Flow Inputs and Adjustments

Volume, V	7,386	vph
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v_{15}	1,904	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	7,843	pcph
Number of lanes, N	8	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume	6,678	pcph	16,450	pcph	No
Exiting freeway volume		pcph		pcph	
On-ramp volume	1,165	pcph	2,100	pcph	No
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	980	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.42	
Density, D	15.1	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Far Term)
Segment	Green Valley off-ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	C+P PM

Flow Inputs and Adjustments

Volume, V	7,287	vph
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v_{15}	1,878	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	7,738	pcph
Number of lanes, N	8	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume	5,943	pcph	18,800	pcph	No
On-ramp volume		pcph		pcph	
Off-ramp volume	1,795	pcph	2,100	pcph	No

LOS and Performance Measures

Flow rate, v_p	967	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.41	
Density, D	14.9	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Far Term)
Segment	Between Green Valley and I-680
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	C+P PM

Flow Inputs and Adjustments

Volume, V	5,749	vph
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v_{15}	1,482	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	6,105	pcph
Number of lanes, N	8	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	763	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.32	
Density, D	11.7	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	East of Suisun Valley Road
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	Existing + Project AM

Flow Inputs and Adjustments

Volume, V	6,670	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	1,702	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	7,010	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,402	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.60	
Density, D	21.6	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	Suisun Valley Off-Ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	Existing + Project AM

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	5	
Free-flow speed on freeway	65	mph
Volume on freeway	6,670	vph

Off Ramp Data

Type of diverge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	50	mph
Volume on ramp	678	vph
Length of deceleration lane(s)	150	ft

Adjacent Ramp Data

	Upstream		Downstream	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

Junction Components	Freeway	Ramp	Adj. Ramp	
Volume, V	6,670	678		vph
Peak-hour factor, PHF	0.98	0.98		
Peak 15-min volume, v_{15}	1,702	173		veh
Trucks and buses	6.0%	6.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.971	0.971		
Driver popoulation factor, f_p	1.00	1.00		
Flow rate, v_p	7,010	713		pcph

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	Suisun Valley Off-Ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	Existing + Project AM

Estimation of Volume in Diverge Area

L_{EQ} =		ft	(Equation 13-12 or 13-13)
P_{FM} =	0.436		(Equation 13-9, 13-10, or 13-11)
v_{12} =	2,847	pcph	

Capacity Checks

	Actual		Maximum		LOS F?
Entering freeway volume, v_{Fi}	7,010	pcph	11,750	pcph	No
Exiting freeway volume, v_{FO}	6,298	pcph	11,750	pcph	No
Ramp volume, v_R	713	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}	1,381	pcph	(Equation 13-14 or 13-17)		
Is v_3 or v_{av34} > 2,700 pcph?	No				
Is v_3 or v_{av34} > 1.5 v_{12} / 2?	No				
If yes, v_{12A} =		pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Diverge Influence Area

	Actual		Maximum		Violation?
v_{12A}	2,847	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.65	
Density, D_R	27.4	pcpmpl
Level of service for ramp-freeway junction area of influence	C	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.297	
Space mean speed in ramp influence area, S_R	58.2	mph
Space mean speed in outer lanes, S_O	69.8	mph
Space mean speed for all vehicles, S	63.4	mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	Inside Suisun Interchange
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	Existing + Project AM

Flow Inputs and Adjustments

Volume, V	6,073	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	1,549	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	6,383	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,277	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.54	
Density, D	19.6	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	I-680 off-ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	Existing + Project AM

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	5	
Free-flow speed on freeway	65	mph
Volume on freeway	6,073	vph

Off Ramp Data

Type of diverge	Major	
Number of lanes in ramp	2	
Free-flow speed on ramp	65	mph
Volume on ramp	2,710	vph
Length of deceleration lane(s)	525	ft

Adjacent Ramp Data

	Upstream		Downstream	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

Junction Components	Freeway	Ramp	Adj. Ramp	
Volume, V	6,073	2,710		vph
Peak-hour factor, PHF	0.98	0.98		
Peak 15-min volume, v_{15}	1,549	691		veh
Trucks and buses	6.0%	6.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.971	0.971		
Driver popoulation factor, f_p	1.00	1.00		
Flow rate, v_p	6,383	2,848		pcph

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	I-680 off-ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	Existing + Project AM

Estimation of Volume in Diverge Area

L_{EQ} =		ft	(Equation 13-12 or 13-13)
P_{FM} =			(Equation 13-9, 13-10, or 13-11)
v_{12} =		pcph	

Capacity Checks

	Actual		Maximum		LOS F?
Entering freeway volume, v_{Fi}	6,383	pcph	11,750	pcph	No
Exiting freeway volume, v_{FO}	3,535	pcph	9,400	pcph	No
Ramp volume, v_R	2,848	pcph	4,700	pcph	No
Outer lanes volume, v_3 or v_{av34}	#VALUE!	pcph	(Equation 13-14 or 13-17)		
Is v_3 or v_{av34} > 2,700 pcph?	#VALUE!				
Is v_3 or v_{av34} > 1.5 v_{12} / 2?	#VALUE!				
If yes, v_{12A} =	#VALUE!	pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Diverge Influence Area

	Actual		Maximum		Violation?
v_{12A}		pcph	4,600	pcph	Yes

Level of Service Determination

Volume-to-capacity ratio, v/c		
Density, D_R	22.3	pcpmpl
Level of service for ramp-freeway junction area of influence	C	

Speed Estimation

Intermediate speed variable, M_S or D_S		
Space mean speed in ramp influence area, S_R		mph
Space mean speed in outer lanes, S_O		mph
Space mean speed for all vehicles, S		mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	West of I-680
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	Existing + Project AM

Flow Inputs and Adjustments

Volume, V	3,688	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	941	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	3,876	pcph
Number of lanes, N	4	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	969	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.41	
Density, D	14.9	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	East of Suisun Valley Road
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	Existing + Project PM

Flow Inputs and Adjustments

Volume, V	5,148	vph
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v_{15}	1,327	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	5,466	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,093	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.47	
Density, D	16.8	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	Suisun Valley Off-Ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	Existing + Project PM

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	5	
Free-flow speed on freeway	65	mph
Volume on freeway	5,148	vph

Off Ramp Data

Type of diverge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	50	mph
Volume on ramp	666	vph
Length of deceleration lane(s)	150	ft

Adjacent Ramp Data

	Upstream		Downstream	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

Junction Components	Freeway	Ramp	Adj. Ramp	
Volume, V	5,148	666		vph
Peak-hour factor, PHF	0.97	0.97		
Peak 15-min volume, v_{15}	1,327	172		veh
Trucks and buses	6.0%	6.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.971	0.971		
Driver popoulation factor, f_P	1.00	1.00		
Flow rate, v_p	5,466	707		pcph

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	Suisun Valley Off-Ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	Existing + Project PM

Estimation of Volume in Diverge Area

L_{EQ} =		ft	(Equation 13-12 or 13-13)
P_{FM} =	0.436		(Equation 13-9, 13-10, or 13-11)
v_{12} =	2,544	pcph	

Capacity Checks

	Actual		Maximum		LOS F?
Entering freeway volume, v_{Fi}	5,466	pcph	11,750	pcph	No
Exiting freeway volume, v_{FO}	4,759	pcph	11,750	pcph	No
Ramp volume, v_R	707	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}	1,188	pcph	(Equation 13-14 or 13-17)		
Is v_3 or v_{av34} > 2,700 pcph?	No				
Is v_3 or v_{av34} > 1.5 v_{12} / 2?	No				
If yes, v_{12A} =		pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Diverge Influence Area

	Actual		Maximum		Violation?
v_{12A}	2,544	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.58	
Density, D_R	24.8	pcpmpl
Level of service for ramp-freeway junction area of influence	C	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.297	
Space mean speed in ramp influence area, S_R	58.2	mph
Space mean speed in outer lanes, S_O	70.6	mph
Space mean speed for all vehicles, S	63.6	mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	Inside Suisun Interchange
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	Existing + Project PM

Flow Inputs and Adjustments

Volume, V	4,542	vph
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v_{15}	1,171	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	4,823	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	965	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.41	
Density, D	14.8	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	I-680 off-ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	Existing + Project PM

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	5	
Free-flow speed on freeway	65	mph
Volume on freeway	4,542	vph

Off Ramp Data

Type of diverge	Major	
Number of lanes in ramp	2	
Free-flow speed on ramp	65	mph
Volume on ramp	2,090	vph
Length of deceleration lane(s)	525	ft

Adjacent Ramp Data

	Upstream		Downstream	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

Junction Components	Freeway	Ramp	Adj. Ramp	
Volume, V	4,542	2,090		vph
Peak-hour factor, PHF	0.97	0.97		
Peak 15-min volume, v_{15}	1,171	539		veh
Trucks and buses	6.0%	6.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.971	0.971		
Driver popoulation factor, f_p	1.00	1.00		
Flow rate, v_p	4,823	2,219		pcph

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	I-680 off-ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	Existing + Project PM

Estimation of Volume in Diverge Area

L_{EQ} =		ft	(Equation 13-12 or 13-13)
P_{FM} =			(Equation 13-9, 13-10, or 13-11)
v_{12} =		pcph	

Capacity Checks

	Actual		Maximum		LOS F?
Entering freeway volume, v_{Fi}	4,823	pcph	11,750	pcph	No
Exiting freeway volume, v_{FO}	2,604	pcph	9,400	pcph	No
Ramp volume, v_R	2,219	pcph	4,700	pcph	No
Outer lanes volume, v_3 or v_{av34}	#VALUE!	pcph	(Equation 13-14 or 13-17)		
Is v_3 or v_{av34} > 2,700 pcph?	#VALUE!				
Is v_3 or v_{av34} > 1.5 v_{12} / 2?	#VALUE!				
If yes, v_{12A} =	#VALUE!	pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Diverge Influence Area

	Actual		Maximum		Violation?
v_{12A}		pcph	4,600	pcph	Yes

Level of Service Determination

Volume-to-capacity ratio, v/c		
Density, D_R	16.9	pcpmpl
Level of service for ramp-freeway junction area of influence	B	

Speed Estimation

Intermediate speed variable, M_S or D_S		
Space mean speed in ramp influence area, S_R		mph
Space mean speed in outer lanes, S_O		mph
Space mean speed for all vehicles, S		mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	West of I-680
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	Existing + Project PM

Flow Inputs and Adjustments

Volume, V	2,640	vph
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v_{15}	680	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	2,803	pcph
Number of lanes, N	4	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	701	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.30	
Density, D	10.8	pcpmpl
Level of service, LOS	A	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	East of Suisun Valley Road
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	EPAP+P AM

Flow Inputs and Adjustments

Volume, V	7,004	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	1,787	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	7,361	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,472	pcphpl
Average passenger-car speed, S	64.9	mph
Volume-to-capacity ratio, v/c	0.63	
Density, D	22.7	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	Suisun Valley Off-Ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	EPAP+P AM

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	5	
Free-flow speed on freeway	65	mph
Volume on freeway	7,004	vph

Off Ramp Data

Type of diverge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	50	mph
Volume on ramp	729	vph
Length of deceleration lane(s)	150	ft

Adjacent Ramp Data

	Upstream		Downstream	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

Junction Components	Freeway	Ramp	Adj. Ramp	
Volume, V	7,004	729		vph
Peak-hour factor, PHF	0.98	0.98		
Peak 15-min volume, v_{15}	1,787	186		veh
Trucks and buses	6.0%	6.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.971	0.971		
Driver popoulation factor, f_p	1.00	1.00		
Flow rate, v_p	7,361	766		pcph

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	Suisun Valley Off-Ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	EPAP+P AM

Estimation of Volume in Diverge Area

L_{EQ} =		ft	(Equation 13-12 or 13-13)
P_{FM} =	0.436		(Equation 13-9, 13-10, or 13-11)
v_{12} =	3,000	pcph	

Capacity Checks

	Actual		Maximum		LOS F?
Entering freeway volume, v_{Fi}	7,361	pcph	11,750	pcph	No
Exiting freeway volume, v_{FO}	6,595	pcph	11,750	pcph	No
Ramp volume, v_R	766	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}	1,445	pcph	(Equation 13-14 or 13-17)		
Is v_3 or v_{av34} > 2,700 pcph?	No				
Is v_3 or v_{av34} > 1.5 v_{12} / 2?	No				
If yes, v_{12A} =		pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Diverge Influence Area

	Actual		Maximum		Violation?
v_{12A}	3,000	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.68	
Density, D_R	28.7	pcpmpl
Level of service for ramp-freeway junction area of influence	D	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.302	
Space mean speed in ramp influence area, S_R	58.1	mph
Space mean speed in outer lanes, S_O	69.6	mph
Space mean speed for all vehicles, S	63.2	mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	Inside Suisun Interchange
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	EPAP+P AM

Flow Inputs and Adjustments

Volume, V	6,362	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	1,623	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	6,687	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,337	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.57	
Density, D	20.6	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	I-680 off-ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	EPAP+P AM

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	5	
Free-flow speed on freeway	65	mph
Volume on freeway	6,362	vph

Off Ramp Data

Type of diverge	Major	
Number of lanes in ramp	2	
Free-flow speed on ramp	65	mph
Volume on ramp	2,850	vph
Length of deceleration lane(s)	525	ft

Adjacent Ramp Data

	Upstream		Downstream	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

Junction Components	Freeway	Ramp	Adj. Ramp	
Volume, V	6,362	2,850		vph
Peak-hour factor, PHF	0.98	0.98		
Peak 15-min volume, v_{15}	1,623	727		veh
Trucks and buses	6.0%	6.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.971	0.971		
Driver popoulation factor, f_p	1.00	1.00		
Flow rate, v_p	6,687	2,995		pcph

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	I-680 off-ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	EPAP+P AM

Estimation of Volume in Diverge Area

L_{EQ} =		ft	(Equation 13-12 or 13-13)
P_{FM} =			(Equation 13-9, 13-10, or 13-11)
v_{12} =		pcph	

Capacity Checks

	Actual		Maximum		LOS F?
Entering freeway volume, v_{Fi}	6,687	pcph	11,750	pcph	No
Exiting freeway volume, v_{FO}	3,691	pcph	9,400	pcph	No
Ramp volume, v_R	2,995	pcph	4,700	pcph	No
Outer lanes volume, v_3 or v_{av34}	#VALUE!	pcph	(Equation 13-14 or 13-17)		
Is v_3 or v_{av34} > 2,700 pcph?	#VALUE!				
Is v_3 or v_{av34} > 1.5 v_{12} / 2?	#VALUE!				
If yes, v_{12A} =	#VALUE!	pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Diverge Influence Area

	Actual		Maximum		Violation?
v_{12A}		pcph	4,600	pcph	Yes

Level of Service Determination

Volume-to-capacity ratio, v/c		
Density, D_R	23.4	pcpmpl
Level of service for ramp-freeway junction area of influence	C	

Speed Estimation

Intermediate speed variable, M_S or D_S		
Space mean speed in ramp influence area, S_R		mph
Space mean speed in outer lanes, S_O		mph
Space mean speed for all vehicles, S		mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	West of I-680
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	EPAP+P AM

Flow Inputs and Adjustments

Volume, V	3,854	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	983	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	4,051	pcph
Number of lanes, N	4	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,013	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.43	
Density, D	15.6	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	East of Suisun Valley Road
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	EPAP+P PM

Flow Inputs and Adjustments

Volume, V	5,412	vph
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v_{15}	1,395	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	5,747	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,149	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.49	
Density, D	17.7	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	Suisun Valley Off-Ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	EPAP+P PM

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	5	
Free-flow speed on freeway	65	mph
Volume on freeway	5,412	vph

Off Ramp Data

Type of diverge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	50	mph
Volume on ramp	747	vph
Length of deceleration lane(s)	150	ft

Adjacent Ramp Data

	Upstream		Downstream	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

Junction Components	Freeway	Ramp	Adj. Ramp	
Volume, V	5,412	747		vph
Peak-hour factor, PHF	0.97	0.97		
Peak 15-min volume, v_{15}	1,395	193		veh
Trucks and buses	6.0%	6.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.971	0.971		
Driver popoulation factor, f_P	1.00	1.00		
Flow rate, v_p	5,747	793		pcph

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	Suisun Valley Off-Ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	EPAP+P PM

Estimation of Volume in Diverge Area

L_{EQ} =		ft	(Equation 13-12 or 13-13)
P_{FM} =	0.436		(Equation 13-9, 13-10, or 13-11)
v_{12} =	2,577	pcph	

Capacity Checks

	Actual		Maximum		LOS F?
Entering freeway volume, v_{Fi}	5,747	pcph	11,750	pcph	No
Exiting freeway volume, v_{FO}	4,954	pcph	11,750	pcph	No
Ramp volume, v_R	793	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}	1,154	pcph	(Equation 13-14 or 13-17)		
Is v_3 or v_{av34} > 2,700 pcph?	No				
Is v_3 or v_{av34} > 1.5 v_{12} / 2?	No				
If yes, v_{12A} =		pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Diverge Influence Area

	Actual		Maximum		Violation?
v_{12A}	2,577	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.59	
Density, D_R	25.1	pcpmpl
Level of service for ramp-freeway junction area of influence	C	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.304	
Space mean speed in ramp influence area, S_R	58.0	mph
Space mean speed in outer lanes, S_O	70.7	mph
Space mean speed for all vehicles, S	63.4	mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	Inside Suisun Interchange
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	EPAP+P PM

Flow Inputs and Adjustments

Volume, V	4,732	vph
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v_{15}	1,220	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	5,025	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,005	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.43	
Density, D	15.5	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	I-680 off-ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	EPAP+P PM

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	5	
Free-flow speed on freeway	65	mph
Volume on freeway	4,732	vph

Off Ramp Data

Type of diverge	Major	
Number of lanes in ramp	2	
Free-flow speed on ramp	65	mph
Volume on ramp	2,200	vph
Length of deceleration lane(s)	525	ft

Adjacent Ramp Data

	Upstream		Downstream	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

Junction Components	Freeway	Ramp	Adj. Ramp	
Volume, V	4,732	2,200		vph
Peak-hour factor, PHF	0.97	0.97		
Peak 15-min volume, v_{15}	1,220	567		veh
Trucks and buses	6.0%	6.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.971	0.971		
Driver popoulation factor, f_p	1.00	1.00		
Flow rate, v_p	5,025	2,336		pcph

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	I-680 off-ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	EPAP+P PM

Estimation of Volume in Diverge Area

L_{EQ} =		ft	(Equation 13-12 or 13-13)
P_{FM} =			(Equation 13-9, 13-10, or 13-11)
v_{12} =		pcph	

Capacity Checks

	Actual		Maximum		LOS F?
Entering freeway volume, v_{Fi}	5,025	pcph	11,750	pcph	No
Exiting freeway volume, v_{FO}	2,689	pcph	9,400	pcph	No
Ramp volume, v_R	2,336	pcph	4,700	pcph	No
Outer lanes volume, v_3 or v_{av34}	#VALUE!	pcph	(Equation 13-14 or 13-17)		
Is v_3 or v_{av34} > 2,700 pcph?	#VALUE!				
Is v_3 or v_{av34} > 1.5 v_{12} / 2?	#VALUE!				
If yes, v_{12A} =	#VALUE!	pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Diverge Influence Area

	Actual		Maximum		Violation?
v_{12A}		pcph	4,600	pcph	Yes

Level of Service Determination

Volume-to-capacity ratio, v/c		
Density, D_R	17.6	pcpmpl
Level of service for ramp-freeway junction area of influence	B	

Speed Estimation

Intermediate speed variable, M_S or D_S		
Space mean speed in ramp influence area, S_R		mph
Space mean speed in outer lanes, S_O		mph
Space mean speed for all vehicles, S		mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Near Term)
Segment	West of I-680
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	EPAP+P PM

Flow Inputs and Adjustments

Volume, V	2,730	vph
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v_{15}	704	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	2,899	pcph
Number of lanes, N	4	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	725	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.31	
Density, D	11.1	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Far Term)
Segment	East of Suisun Valley Road
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	C+P AM

Flow Inputs and Adjustments

Volume, V	8,940	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	2,281	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	9,396	pcph
Number of lanes, N	8	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,175	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.50	
Density, D	18.1	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Far Term)
Segment	Suisun Valley Off-Ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	C+P AM

Flow Inputs and Adjustments

Volume, V	8,940	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	2,281	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	9,396	pcph
Number of lanes, N	8	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume	7,936	pcph	16,450	pcph	No
On-ramp volume		pcph		pcph	
Off-ramp volume	1,460	pcph	2,100	pcph	No

LOS and Performance Measures

Flow rate, v_p	1,175	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.50	
Density, D	18.1	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Far Term)
Segment	Inside Suisun Interchnage
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	C+P AM

Flow Inputs and Adjustments

Volume, V	7,718	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	1,969	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	8,112	pcph
Number of lanes, N	7	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,159	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.49	
Density, D	17.8	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Far Term)
Segment	Suisun Valley On-ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	C+P AM

Flow Inputs and Adjustments

Volume, V	8,768	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	2,237	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	9,215	pcph
Number of lanes, N	8	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume	8,112	pcph	16,450	pcph	No
Exiting freeway volume		pcph		pcph	
On-ramp volume	1,104	pcph	2,100	pcph	No
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,152	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.49	
Density, D	17.7	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Far Term)
Segment	Green Valley off-ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	C+P AM

Flow Inputs and Adjustments

Volume, V	8,642	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	2,205	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	9,083	pcph
Number of lanes, N	8	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume	7,307	pcph	18,800	pcph	No
On-ramp volume		pcph		pcph	
Off-ramp volume	1,776	pcph	2,100	pcph	No

LOS and Performance Measures

Flow rate, v_p	1,135	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.48	
Density, D	17.5	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Far Term)
Segment	Between Green Valley and I-680
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	C+P AM

Flow Inputs and Adjustments

Volume, V	7,154	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	1,825	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	7,519	pcph
Number of lanes, N	8	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	940	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.40	
Density, D	14.5	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Far Term)
Segment	East of Suisun Valley Road
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	C+P PM

Flow Inputs and Adjustments

Volume, V	6,896	vph
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v_{15}	1,777	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	7,323	pcph
Number of lanes, N	8	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	915	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.39	
Density, D	14.1	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Far Term)
Segment	Suisun Valley Off-Ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	C+P PM

Flow Inputs and Adjustments

Volume, V	6,896	vph
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v_{15}	1,777	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	7,323	pcph
Number of lanes, N	8	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume	6,157	pcph	16,450	pcph	No
On-ramp volume		pcph		pcph	
Off-ramp volume	1,166	pcph	2,100	pcph	No

LOS and Performance Measures

Flow rate, v_p	915	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.39	
Density, D	14.1	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Far Term)
Segment	Inside Suisun Interchnage
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	C+P PM

Flow Inputs and Adjustments

Volume, V	5,897	vph
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v_{15}	1,520	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	6,262	pcph
Number of lanes, N	7	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	895	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.38	
Density, D	13.8	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Far Term)
Segment	Suisun Valley On-ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	C+P PM

Flow Inputs and Adjustments

Volume, V	6,981	vph
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v_{15}	1,799	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	7,413	pcph
Number of lanes, N	8	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume	6,262	pcph	16,450	pcph	No
Exiting freeway volume		pcph		pcph	
On-ramp volume	1,151	pcph	2,100	pcph	No
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	927	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.39	
Density, D	14.3	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Far Term)
Segment	Green Valley off-ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	C+P PM

Flow Inputs and Adjustments

Volume, V	6,883	vph
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v_{15}	1,774	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	7,309	pcph
Number of lanes, N	8	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume	5,514	pcph	18,800	pcph	No
On-ramp volume		pcph		pcph	
Off-ramp volume	1,795	pcph	2,100	pcph	No

LOS and Performance Measures

Flow rate, v_p	914	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.39	
Density, D	14.1	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Westbound I-80 (Far Term)
Segment	Between Green Valley and I-680
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	C+P PM

Flow Inputs and Adjustments

Volume, V	5,345	vph
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v_{15}	1,378	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	5,676	pcph
Number of lanes, N	8	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	709	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.30	
Density, D	10.9	pcpmpl
Level of service, LOS	A	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	West of I-680
Alternative	No Project (Baseline)
Time period	Existing AM

Flow Inputs and Adjustments

Volume, V	3,490	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	928	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	3,824	pcph
Number of lanes, N	4	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	956	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.41	
Density, D	14.7	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	NB I-680/Green Valley on-ramp
Alternative	No Project (Baseline)
Time period	Existing AM

Flow Inputs and Adjustments

Volume, V	6,500	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	1,729	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	7,122	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume	3,824	pcph	9,400	pcph	No
Exiting freeway volume		pcph		pcph	
On-ramp volume	3,298	pcph	4,700	pcph	No
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,424	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.61	
Density, D	21.9	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Suisun Valley off-ramp
Alternative	No Project (Baseline)
Time period	Existing AM

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	5	
Free-flow speed on freeway	65	mph
Volume on freeway	6,379	vph

Off Ramp Data

Type of diverge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45	mph
Volume on ramp	695	vph
Length of deceleration lane(s)	100	ft

Adjacent Ramp Data

	Upstream		Downstream	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

Junction Components	Freeway	Ramp	Adj. Ramp	
Volume, V	6,379	695		vph
Peak-hour factor, PHF	0.94	0.95		
Peak 15-min volume, v_{15}	1,697	183		veh
Trucks and buses	6.0%	6.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.971	0.971		
Driver popoulation factor, f_p	1.00	1.00		
Flow rate, v_p	6,990	754		pcph

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Suisun Valley off-ramp
Alternative	No Project (Baseline)
Time period	Existing AM

Estimation of Volume in Diverge Area

L_{EQ} =		ft	(Equation 13-12 or 13-13)
P_{FM} =	0.436		(Equation 13-9, 13-10, or 13-11)
v_{12} =	3,015	pcph	

Capacity Checks

	Actual		Maximum		LOS F?
Entering freeway volume, v_{Fi}	6,990	pcph	11,750	pcph	No
Exiting freeway volume, v_{FO}	6,236	pcph	11,750	pcph	No
Ramp volume, v_R	754	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}	1,463	pcph	(Equation 13-14 or 13-17)		
Is v_3 or v_{av34} > 2,700 pcph?	No				
Is v_3 or v_{av34} > 1.5 v_{12} / 2?	No				
If yes, v_{12A} =		pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Diverge Influence Area

	Actual		Maximum		Violation?
v_{12A}	3,015	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.69	
Density, D_R	29.3	pcpmpl
Level of service for ramp-freeway junction area of influence	D	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.366	
Space mean speed in ramp influence area, S_R	56.6	mph
Space mean speed in outer lanes, S_O	69.5	mph
Space mean speed for all vehicles, S	62.3	mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Inside Suisun Valley Interchange
Alternative	No Project (Baseline)
Time period	Existing AM

Flow Inputs and Adjustments

Volume, V	5,712	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	1,519	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	6,259	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,252	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.53	
Density, D	19.3	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Merge Segment

Merge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Suisun Valley on-ramp
Alternative	No Project (Baseline)
Time period	Existing AM

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	5	
Free-flow speed on freeway	65	mph
Volume on freeway	5,712	vph

On Ramp Data

Type of merge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	50	mph
Volume on ramp	540	vph
Length of acceleration lane(s)	100	ft

Adjacent Ramp Data

	Upstream		Downstream	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

Junction Components	Freeway	Ramp	Adj. Ramp	
Volume, V	5,712	540		vph
Peak-hour factor, PHF	0.94	0.94		
Peak 15-min volume, v_{15}	1,519	144		veh
Trucks and buses	6.0%	6.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.971	0.971		
Driver popoulation factor, f_p	1.00	1.00		
Flow rate, v_p	6,259	592		pcph

HCM 2010: Freeway Merge Segment

Merge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Suisun Valley on-ramp
Alternative	No Project (Baseline)
Time period	Existing AM

Estimation of Volume in Merge Area

L_{EQ} =		ft	(Equation 13-6 or 13-7)
P_{FM} =	0.144		(Equation 13-3, 13-4, or 13-5)
v_{12} =	684	pcph	

Capacity Checks

	Actual		Maximum		LOS F?
Entering freeway volume, v_{Fi}	6,259	pcph	11,750	pcph	No
Exiting freeway volume, v_{FO}	6,851	pcph	11,750	pcph	No
Ramp volume, v_R	592	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}	2,036	pcph	(Equation 13-14 or 13-17)		
Is v_3 or v_{av34} > 2,700 pcph?	No				
Is v_3 or v_{av34} > 1.5 v_{12} / 2?	Yes				
If yes, v_{12A} =	1,903	pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Merge Influence Area

	Actual		Maximum		Violation?
v_{R12}	2,494	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.54	
Density, D_R	24.0	pcpmpl
Level of service for ramp-freeway junction area of influence	C	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.358	
Space mean speed in ramp influence area, S_R	56.8	mph
Space mean speed in outer lanes, S_O	61.7	mph
Space mean speed for all vehicles, S	59.3	mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	East of Suisun Valley on-ramp
Alternative	No Project (Baseline)
Time period	Existing AM

Flow Inputs and Adjustments

Volume, V	6,230	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	1,657	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	6,826	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,365	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.58	
Density, D	21.0	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	West of I-680
Alternative	No Project (Baseline)
Time period	Existing PM

Flow Inputs and Adjustments

Volume, V	4,387	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	1,119	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	4,611	pcph
Number of lanes, N	4	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,153	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.49	
Density, D	17.7	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	NB I-680/Green Valley on-ramp
Alternative	No Project (Baseline)
Time period	Existing PM

Flow Inputs and Adjustments

Volume, V	8,737	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	2,229	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	9,183	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume	4,611	pcph	9,400	pcph	No
Exiting freeway volume		pcph		pcph	
On-ramp volume	4,572	pcph	4,700	pcph	No
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,837	pcphpl
Average passenger-car speed, S	62.3	mph
Volume-to-capacity ratio, v/c	0.78	
Density, D	29.5	pcpmpl
Level of service, LOS	D	

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Suisun Valley off-ramp
Alternative	No Project (Baseline)
Time period	Existing PM

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	5	
Free-flow speed on freeway	65	mph
Volume on freeway	8,302	vph

Off Ramp Data

Type of diverge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45	mph
Volume on ramp	544	vph
Length of deceleration lane(s)	100	ft

Adjacent Ramp Data

	Upstream		Downstream	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

Junction Components	Freeway	Ramp	Adj. Ramp	
Volume, V	8,302	544		vph
Peak-hour factor, PHF	0.98	0.95		
Peak 15-min volume, v_{15}	2,118	143		veh
Trucks and buses	6.0%	6.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.971	0.971		
Driver popoulation factor, f_p	1.00	1.00		
Flow rate, v_p	8,726	590		pcph

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Suisun Valley off-ramp
Alternative	No Project (Baseline)
Time period	Existing PM

Estimation of Volume in Diverge Area

L_{EQ} =		ft	(Equation 13-12 or 13-13)
P_{FM} =	0.436		(Equation 13-9, 13-10, or 13-11)
v_{12} =	3,376	pcph	

Capacity Checks

	Actual		Maximum		LOS F?
Entering freeway volume, v_{Fi}	8,726	pcph	11,750	pcph	No
Exiting freeway volume, v_{FO}	8,136	pcph	11,750	pcph	No
Ramp volume, v_R	590	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}	1,802	pcph	(Equation 13-14 or 13-17)		
Is v_3 or v_{av34} > 2,700 pcph?	No				
Is v_3 or v_{av34} > 1.5 v_{12} / 2?	No				
If yes, v_{12A} =		pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Diverge Influence Area

	Actual		Maximum		Violation?
v_{12A}	3,376	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.77	
Density, D_R	32.4	pcpmpl
Level of service for ramp-freeway junction area of influence	D	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.351	
Space mean speed in ramp influence area, S_R	56.9	mph
Space mean speed in outer lanes, S_O	68.2	mph
Space mean speed for all vehicles, S	62.2	mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Inside Suisun Valley Interchange
Alternative	No Project (Baseline)
Time period	Existing PM

Flow Inputs and Adjustments

Volume, V	7,812	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	1,993	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	8,211	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,642	pcphpl
Average passenger-car speed, S	64.2	mph
Volume-to-capacity ratio, v/c	0.70	
Density, D	25.6	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Merge Segment

Merge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Suisun Valley on-ramp
Alternative	No Project (Baseline)
Time period	Existing PM

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	5	
Free-flow speed on freeway	65	mph
Volume on freeway	7,812	vph

On Ramp Data

Type of merge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	50	mph
Volume on ramp	820	vph
Length of acceleration lane(s)	100	ft

Adjacent Ramp Data

	Upstream		Downstream	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

Junction Components	Freeway	Ramp	Adj. Ramp	
Volume, V	7,812	820		vph
Peak-hour factor, PHF	0.98	0.98		
Peak 15-min volume, v_{15}	1,993	209		veh
Trucks and buses	6.0%	6.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.971	0.971		
Driver popoulation factor, f_p	1.00	1.00		
Flow rate, v_p	8,211	862		pcph

HCM 2010: Freeway Merge Segment

Merge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Suisun Valley on-ramp
Alternative	No Project (Baseline)
Time period	Existing PM

Estimation of Volume in Merge Area

L_{EQ} =		ft	(Equation 13-6 or 13-7)
P_{FM} =	0.110		(Equation 13-3, 13-4, or 13-5)
v_{12} =	646	pcph	

Capacity Checks

	Actual		Maximum		LOS F?
Entering freeway volume, v_{Fi}	8,211	pcph	11,750	pcph	No
Exiting freeway volume, v_{FO}	9,072	pcph	11,750	pcph	No
Ramp volume, v_R	862	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}	2,612	pcph	(Equation 13-14 or 13-17)		
Is v_3 or v_{av34} > 2,700 pcph?	No				
Is v_3 or v_{av34} > 1.5 v_{12} / 2?	Yes				
If yes, v_{12A} =	2,348	pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Merge Influence Area

	Actual		Maximum		Violation?
v_{R12}	3,210	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.70	
Density, D_R	29.5	pcpmpl
Level of service for ramp-freeway junction area of influence	D	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.408	
Space mean speed in ramp influence area, S_R	55.6	mph
Space mean speed in outer lanes, S_O	60.5	mph
Space mean speed for all vehicles, S	58.1	mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	East of Suisun Valley on-ramp
Alternative	No Project (Baseline)
Time period	Existing PM

Flow Inputs and Adjustments

Volume, V	8,550	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	2,181	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	8,986	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,797	pcphpl
Average passenger-car speed, S	62.8	mph
Volume-to-capacity ratio, v/c	0.76	
Density, D	28.6	pcpmpl
Level of service, LOS	D	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	West of I-680
Alternative	No Project (Baseline)
Time period	Existing Plus Approved AM

Flow Inputs and Adjustments

Volume, V	3,658	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	973	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	4,008	pcph
Number of lanes, N	4	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,002	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.43	
Density, D	15.4	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	NB I-680/Green Valley on-ramp
Alternative	No Project (Baseline)
Time period	Existing Plus Approved AM

Flow Inputs and Adjustments

Volume, V	6,878	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	1,829	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	7,537	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume	4,008	pcph	9,400	pcph	No
Exiting freeway volume		pcph		pcph	
On-ramp volume	3,528	pcph	4,700	pcph	No
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,507	pcphpl
Average passenger-car speed, S	64.8	mph
Volume-to-capacity ratio, v/c	0.64	
Density, D	23.2	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Suisun Valley off-ramp
Alternative	No Project (Baseline)
Time period	Existing Plus Approved AM

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	5	
Free-flow speed on freeway	65	mph
Volume on freeway	6,749	vph

Off Ramp Data

Type of diverge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45	mph
Volume on ramp	780	vph
Length of deceleration lane(s)	100	ft

Adjacent Ramp Data

	Upstream		Downstream	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

Junction Components	Freeway	Ramp	Adj. Ramp	
Volume, V	6,749	780		vph
Peak-hour factor, PHF	0.94	0.95		
Peak 15-min volume, v_{15}	1,795	205		veh
Trucks and buses	6.0%	6.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.971	0.971		
Driver popoulation factor, f_p	1.00	1.00		
Flow rate, v_p	7,395	846		pcph

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Suisun Valley off-ramp
Alternative	No Project (Baseline)
Time period	Existing Plus Approved AM

Estimation of Volume in Diverge Area

L_{EQ} =		ft	(Equation 13-12 or 13-13)
P_{FM} =	0.436		(Equation 13-9, 13-10, or 13-11)
v_{12} =	3,056	pcph	

Capacity Checks

	Actual		Maximum		LOS F?
Entering freeway volume, v_{Fi}	7,395	pcph	11,750	pcph	No
Exiting freeway volume, v_{FO}	6,549	pcph	11,750	pcph	No
Ramp volume, v_R	846	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}	1,430	pcph	(Equation 13-14 or 13-17)		
Is v_3 or v_{av34} > 2,700 pcph?	No				
Is v_3 or v_{av34} > 1.5 v_{12} / 2?	No				
If yes, v_{12A} =		pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Diverge Influence Area

	Actual		Maximum		Violation?
v_{12A}	3,056	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.69	
Density, D_R	29.6	pcpmpl
Level of service for ramp-freeway junction area of influence	D	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.374	
Space mean speed in ramp influence area, S_R	56.4	mph
Space mean speed in outer lanes, S_O	69.6	mph
Space mean speed for all vehicles, S	62.1	mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Inside Suisun Valley Interchange
Alternative	No Project (Baseline)
Time period	Existing Plus Approved AM

Flow Inputs and Adjustments

Volume, V	6,000	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	1,596	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	6,574	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,315	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.56	
Density, D	20.2	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Merge Segment

Merge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Suisun Valley on-ramp
Alternative	No Project (Baseline)
Time period	Existing Plus Approved AM

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	5	
Free-flow speed on freeway	65	mph
Volume on freeway	6,000	vph

On Ramp Data

Type of merge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	50	mph
Volume on ramp	640	vph
Length of acceleration lane(s)	100	ft

Adjacent Ramp Data

	Upstream		Downstream	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

Junction Components	Freeway	Ramp	Adj. Ramp	
Volume, V	6,000	640		vph
Peak-hour factor, PHF	0.94	0.94		
Peak 15-min volume, v_{15}	1,596	170		veh
Trucks and buses	6.0%	6.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.971	0.971		
Driver popoulation factor, f_p	1.00	1.00		
Flow rate, v_p	6,574	701		pcph

HCM 2010: Freeway Merge Segment

Merge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Suisun Valley on-ramp
Alternative	No Project (Baseline)
Time period	Existing Plus Approved AM

Estimation of Volume in Merge Area

L_{EQ} =		ft	(Equation 13-6 or 13-7)
P_{FM} =	0.130		(Equation 13-3, 13-4, or 13-5)
v_{12} =	625	pcph	

Capacity Checks

	Actual		Maximum		LOS F?
Entering freeway volume, v_{Fi}	6,574	pcph	11,750	pcph	No
Exiting freeway volume, v_{FO}	7,276	pcph	11,750	pcph	No
Ramp volume, v_R	701	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}	2,087	pcph	(Equation 13-14 or 13-17)		
Is v_3 or v_{av34} > 2,700 pcph?	No				
Is v_3 or v_{av34} > 1.5 v_{12} / 2?	Yes				
If yes, v_{12A} =	1,920	pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Merge Influence Area

	Actual		Maximum		Violation?
v_{R12}	2,621	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.57	
Density, D_R	25.0	pcpmpl
Level of service for ramp-freeway junction area of influence	C	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.365	
Space mean speed in ramp influence area, S_R	56.6	mph
Space mean speed in outer lanes, S_O	61.6	mph
Space mean speed for all vehicles, S	59.1	mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	East of Suisun Valley on-ramp
Alternative	No Project (Baseline)
Time period	Existing Plus Approved AM

Flow Inputs and Adjustments

Volume, V	6,614	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	1,759	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	7,247	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,449	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.62	
Density, D	22.3	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	West of I-680
Alternative	No Project (Baseline)
Time period	Existing Plus Approved PM

Flow Inputs and Adjustments

Volume, V	4,563	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	1,164	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	4,796	pcph
Number of lanes, N	4	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,199	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.51	
Density, D	18.4	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	NB I-680/Green Valley on-ramp
Alternative	No Project (Baseline)
Time period	Existing Plus Approved PM

Flow Inputs and Adjustments

Volume, V	9,233	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	2,355	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	9,704	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume	4,796	pcph	9,400	pcph	No
Exiting freeway volume		pcph		pcph	
On-ramp volume	4,908	pcph	4,700	pcph	Yes
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,941	pcphpl
Average passenger-car speed, S	60.9	mph
Volume-to-capacity ratio, v/c	0.83	
Density, D	31.9	pcpmpl
Level of service, LOS	D	

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Suisun Valley off-ramp
Alternative	No Project (Baseline)
Time period	Existing Plus Approved PM

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	5	
Free-flow speed on freeway	65	mph
Volume on freeway	8,766	vph

Off Ramp Data

Type of diverge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45	mph
Volume on ramp	620	vph
Length of deceleration lane(s)	100	ft

Adjacent Ramp Data

	Upstream		Downstream	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

Junction Components	Freeway	Ramp	Adj. Ramp	
Volume, V	8,766	620		vph
Peak-hour factor, PHF	0.98	0.95		
Peak 15-min volume, v_{15}	2,236	163		veh
Trucks and buses	6.0%	6.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.971	0.971		
Driver popoulation factor, f_p	1.00	1.00		
Flow rate, v_p	9,213	672		pcph

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Suisun Valley off-ramp
Alternative	No Project (Baseline)
Time period	Existing Plus Approved PM

Estimation of Volume in Diverge Area

L_{EQ} =		ft	(Equation 13-12 or 13-13)
P_{FM} =	0.436		(Equation 13-9, 13-10, or 13-11)
v_{12} =	3,593	pcph	

Capacity Checks

	Actual		Maximum		LOS F?
Entering freeway volume, v_{Fi}	9,213	pcph	11,750	pcph	No
Exiting freeway volume, v_{FO}	8,541	pcph	11,750	pcph	No
Ramp volume, v_R	672	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}	1,889	pcph	(Equation 13-14 or 13-17)		
Is v_3 or v_{av34} > 2,700 pcph?	No				
Is v_3 or v_{av34} > 1.5 v_{12} / 2?	No				
If yes, v_{12A} =		pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Diverge Influence Area

	Actual		Maximum		Violation?
v_{12A}	3,593	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.82	
Density, D_R	34.2	pcpmpl
Level of service for ramp-freeway junction area of influence	D	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.358	
Space mean speed in ramp influence area, S_R	56.8	mph
Space mean speed in outer lanes, S_O	67.8	mph
Space mean speed for all vehicles, S	61.9	mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Inside Suisun Valley Interchange
Alternative	No Project (Baseline)
Time period	Existing Plus Approved PM

Flow Inputs and Adjustments

Volume, V	8,208	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	2,094	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	8,627	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,725	pcphpl
Average passenger-car speed, S	63.5	mph
Volume-to-capacity ratio, v/c	0.73	
Density, D	27.2	pcpmpl
Level of service, LOS	D	

HCM 2010: Freeway Merge Segment

Merge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Suisun Valley on-ramp
Alternative	No Project (Baseline)
Time period	Existing Plus Approved PM

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	5	
Free-flow speed on freeway	65	mph
Volume on freeway	8,208	vph

On Ramp Data

Type of merge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	50	mph
Volume on ramp	940	vph
Length of acceleration lane(s)	100	ft

Adjacent Ramp Data

	Upstream		Downstream	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

Junction Components	Freeway	Ramp	Adj. Ramp	
Volume, V	8,208	940		vph
Peak-hour factor, PHF	0.98	0.98		
Peak 15-min volume, v_{15}	2,094	240		veh
Trucks and buses	6.0%	6.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.971	0.971		
Driver popoulation factor, f_p	1.00	1.00		
Flow rate, v_p	8,627	988		pcph

HCM 2010: Freeway Merge Segment

Merge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Suisun Valley on-ramp
Alternative	No Project (Baseline)
Time period	Existing Plus Approved PM

Estimation of Volume in Merge Area

L_{EQ} =		ft	(Equation 13-6 or 13-7)
P_{FM} =	0.094		(Equation 13-3, 13-4, or 13-5)
v_{12} =	578	pcph	

Capacity Checks

	Actual		Maximum		LOS F?
Entering freeway volume, v_{Fi}	8,627	pcph	11,750	pcph	No
Exiting freeway volume, v_{FO}	9,615	pcph	11,750	pcph	No
Ramp volume, v_R	988	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}	2,774	pcph	(Equation 13-14 or 13-17)		
Is v_3 or v_{av34} > 2,700 pcph?	Yes				
Is v_3 or v_{av34} > 1.5 v_{12} / 2?	Yes				
If yes, v_{12A} =	2,451	pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Merge Influence Area

	Actual		Maximum		Violation?
v_{R12}	3,439	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.75	
Density, D_R	31.2	pcpmpl
Level of service for ramp-freeway junction area of influence	D	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.432	
Space mean speed in ramp influence area, S_R	55.1	mph
Space mean speed in outer lanes, S_O	60.2	mph
Space mean speed for all vehicles, S	57.6	mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	East of Suisun Valley on-ramp
Alternative	No Project (Baseline)
Time period	Existing Plus Approved PM

Flow Inputs and Adjustments

Volume, V	9,054	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	2,310	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	9,516	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,903	pcphpl
Average passenger-car speed, S	61.4	mph
Volume-to-capacity ratio, v/c	0.81	
Density, D	31.0	pcpmpl
Level of service, LOS	D	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Far Term)
Segment	West of I-680 on-ramp
Alternative	No Project (Baseline)
Time period	Cumulative NP AM

Flow Inputs and Adjustments

Volume, V	4,349	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	1,157	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	4,765	pcph
Number of lanes, N	6	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	794	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.34	
Density, D	12.2	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Far Term)
Segment	I-680 on-ramp
Alternative	No Project (Baseline)
Time period	Cumulative NP AM

Flow Inputs and Adjustments

Volume, V	7,839	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	2,085	veh
Trucks and buses	4.7%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.977	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	8,534	pcph
Number of lanes, N	8	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume	4,765	pcph	14,100	pcph	No
Exiting freeway volume		pcph		pcph	
On-ramp volume	3,768	pcph	4,700	pcph	No
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,067	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.45	
Density, D	16.4	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Far Term)
Segment	Green Valley Road on-ramp
Alternative	No Project (Baseline)
Time period	Cumulative NP AM

Flow Inputs and Adjustments

Volume, V	8,799	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	2,340	veh
Trucks and buses	5.6%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.973	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	9,624	pcph
Number of lanes, N	9	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume	8,436	pcph	18,800	pcph	No
Exiting freeway volume		pcph		pcph	
On-ramp volume	1,188	pcph	2,100	pcph	No
Off-ramp volume		pcph	0	pcph	

LOS and Performance Measures

Flow rate, v_p	1,069	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.46	
Density, D	16.5	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Far Term)
Segment	Suisun Valley Road off-ramp
Alternative	No Project (Baseline)
Time period	Cumulative NP AM

Flow Inputs and Adjustments

Volume, V	8,755	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	2,328	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	9,593	pcph
Number of lanes, N	9	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume	8,362	pcph	18,800	pcph	No
On-ramp volume		pcph		pcph	
Off-ramp volume	1,231	pcph	2,100	pcph	No

LOS and Performance Measures

Flow rate, v_p	1,066	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.45	
Density, D	16.4	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Far Term)
Segment	Inside Suisun Valley Interchange
Alternative	No Project (Baseline)
Time period	Cumulative NP AM

Flow Inputs and Adjustments

Volume, V	7,661	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	2,038	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	8,395	pcph
Number of lanes, N	8	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,049	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.45	
Density, D	16.1	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Far Term)
Segment	Suisun Valley on-ramp
Alternative	No Project (Baseline)
Time period	Cumulative NP AM

Flow Inputs and Adjustments

Volume, V	8,411	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	2,237	veh
Trucks and buses	5.7%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.972	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	9,204	pcph
Number of lanes, N	9	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume	8,395	pcph	18,800	pcph	No
Exiting freeway volume		pcph		pcph	
On-ramp volume	810	pcph	2,100	pcph	No
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,023	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.44	
Density, D	15.7	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Far Term)
Segment	East of Suisun Valley on-ramp
Alternative	No Project (Baseline)
Time period	Cumulative NP AM

Flow Inputs and Adjustments

Volume, V	8,381	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	2,229	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	9,183	pcph
Number of lanes, N	9	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,020	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.43	
Density, D	15.7	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Far Term)
Segment	West of I-680 on-ramp
Alternative	No Project (Baseline)
Time period	Cumulative NP PM

Flow Inputs and Adjustments

Volume, V	5,634	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	1,437	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	5,921	pcph
Number of lanes, N	6	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	987	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.42	
Density, D	15.2	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Far Term)
Segment	I-680 on-ramp
Alternative	No Project (Baseline)
Time period	Cumulative NP PM

Flow Inputs and Adjustments

Volume, V	10,664	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	2,720	veh
Trucks and buses	4.6%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.978	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	11,131	pcph
Number of lanes, N	8	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume	5,921	pcph	14,100	pcph	No
Exiting freeway volume		pcph		pcph	
On-ramp volume	5,210	pcph	4,700	pcph	Yes
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,391	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.59	
Density, D	21.4	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Far Term)
Segment	Green Valley Road on-ramp
Alternative	No Project (Baseline)
Time period	Cumulative NP PM

Flow Inputs and Adjustments

Volume, V	11,681	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	2,980	veh
Trucks and buses	5.6%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.973	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	12,254	pcph
Number of lanes, N	9	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume	10,679	pcph	18,800	pcph	No
Exiting freeway volume		pcph		pcph	
On-ramp volume	1,574	pcph	2,100	pcph	No
Off-ramp volume		pcph	0	pcph	

LOS and Performance Measures

Flow rate, v_p	1,362	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.58	
Density, D	20.9	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Far Term)
Segment	Suisun Valley Road off-ramp
Alternative	No Project (Baseline)
Time period	Cumulative NP PM

Flow Inputs and Adjustments

Volume, V	11,529	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	2,941	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	12,117	pcph
Number of lanes, N	9	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume	10,905	pcph	18,800	pcph	No
On-ramp volume		pcph		pcph	
Off-ramp volume	1,212	pcph	2,100	pcph	No

LOS and Performance Measures

Flow rate, v_p	1,346	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.57	
Density, D	20.7	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Far Term)
Segment	Inside Suisun Valley Interchange
Alternative	No Project (Baseline)
Time period	Cumulative NP PM

Flow Inputs and Adjustments

Volume, V	10,476	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	2,672	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	11,010	pcph
Number of lanes, N	8	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,376	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.59	
Density, D	21.2	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Far Term)
Segment	Suisun Valley on-ramp
Alternative	No Project (Baseline)
Time period	Cumulative NP PM

Flow Inputs and Adjustments

Volume, V	11,726	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	2,991	veh
Trucks and buses	5.7%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.972	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	12,305	pcph
Number of lanes, N	9	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume	11,010	pcph	18,800	pcph	No
Exiting freeway volume		pcph		pcph	
On-ramp volume	1,295	pcph	2,100	pcph	No
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,367	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.58	
Density, D	21.0	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Far Term)
Segment	East of Suisun Valley on-ramp
Alternative	No Project (Baseline)
Time period	Cumulative NP PM

Flow Inputs and Adjustments

Volume, V	11,601	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	2,959	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	12,193	pcph
Number of lanes, N	9	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,355	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.58	
Density, D	20.8	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	West of I-680
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	Existing + Project AM

Flow Inputs and Adjustments

Volume, V	3,490	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	928	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	3,824	pcph
Number of lanes, N	4	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	956	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.41	
Density, D	14.7	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	NB I-680/Green Valley on-ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	Existing + Project AM

Flow Inputs and Adjustments

Volume, V	6,507	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	1,731	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	7,130	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume	3,824	pcph	9,400	pcph	No
Exiting freeway volume		pcph		pcph	
On-ramp volume	3,306	pcph	4,700	pcph	No
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,426	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.61	
Density, D	21.9	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Suisun Valley off-ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	Existing + Project AM

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	5	
Free-flow speed on freeway	65	mph
Volume on freeway	6,386	vph

Off Ramp Data

Type of diverge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45	mph
Volume on ramp	702	vph
Length of deceleration lane(s)	100	ft

Adjacent Ramp Data

	Upstream		Downstream	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

Junction Components	Freeway	Ramp	Adj. Ramp	
Volume, V	6,386	702		vph
Peak-hour factor, PHF	0.94	0.95		
Peak 15-min volume, v_{15}	1,698	185		veh
Trucks and buses	6.0%	6.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.971	0.971		
Driver popoulation factor, f_p	1.00	1.00		
Flow rate, v_p	6,997	761		pcph

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Suisun Valley off-ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	Existing + Project AM

Estimation of Volume in Diverge Area

L_{EQ} =		ft	(Equation 13-12 or 13-13)
P_{FM} =	0.436		(Equation 13-9, 13-10, or 13-11)
v_{12} =	3,023	pcph	

Capacity Checks

	Actual		Maximum		LOS F?
Entering freeway volume, v_{Fi}	6,997	pcph	11,750	pcph	No
Exiting freeway volume, v_{FO}	6,236	pcph	11,750	pcph	No
Ramp volume, v_R	761	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}	1,463	pcph	(Equation 13-14 or 13-17)		
Is v_3 or v_{av34} > 2,700 pcph?	No				
Is v_3 or v_{av34} > 1.5 v_{12} / 2?	No				
If yes, v_{12A} =		pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Diverge Influence Area

	Actual		Maximum		Violation?
v_{12A}	3,023	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.69	
Density, D_R	29.3	pcpmpl
Level of service for ramp-freeway junction area of influence	D	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.367	
Space mean speed in ramp influence area, S_R	56.6	mph
Space mean speed in outer lanes, S_O	69.5	mph
Space mean speed for all vehicles, S	62.3	mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Inside Suisun Valley Interchange
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	Existing + Project AM

Flow Inputs and Adjustments

Volume, V	5,712	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	1,519	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	6,259	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,252	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.53	
Density, D	19.3	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Merge Segment

Merge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Suisun Valley on-ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	Existing + Project AM

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	5	
Free-flow speed on freeway	65	mph
Volume on freeway	5,712	vph

On Ramp Data

Type of merge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	50	mph
Volume on ramp	586	vph
Length of acceleration lane(s)	100	ft

Adjacent Ramp Data

	Upstream		Downstream	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

Junction Components	Freeway	Ramp	Adj. Ramp	
Volume, V	5,712	586		vph
Peak-hour factor, PHF	0.94	0.94		
Peak 15-min volume, v_{15}	1,519	156		veh
Trucks and buses	6.0%	6.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.971	0.971		
Driver popoulation factor, f_p	1.00	1.00		
Flow rate, v_p	6,259	642		pcph

HCM 2010: Freeway Merge Segment

Merge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Suisun Valley on-ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	Existing + Project AM

Estimation of Volume in Merge Area

L_{EQ} =		ft	(Equation 13-6 or 13-7)
P_{FM} =	0.138		(Equation 13-3, 13-4, or 13-5)
v_{12} =	654	pcph	

Capacity Checks

	Actual		Maximum		LOS F?
Entering freeway volume, v_{Fi}	6,259	pcph	11,750	pcph	No
Exiting freeway volume, v_{FO}	6,901	pcph	11,750	pcph	No
Ramp volume, v_R	642	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}	2,051	pcph	(Equation 13-14 or 13-17)		
Is v_3 or v_{av34} > 2,700 pcph?	No				
Is v_3 or v_{av34} > 1.5 v_{12} / 2?	Yes				
If yes, v_{12A} =	1,903	pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Merge Influence Area

	Actual		Maximum		Violation?
v_{R12}	2,545	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.55	
Density, D_R	24.4	pcpmpl
Level of service for ramp-freeway junction area of influence	C	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.361	
Space mean speed in ramp influence area, S_R	56.7	mph
Space mean speed in outer lanes, S_O	61.7	mph
Space mean speed for all vehicles, S	59.2	mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	East of Suisun Valley on-ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	Existing + Project AM

Flow Inputs and Adjustments

Volume, V	6,275	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	1,669	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	6,876	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,375	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.59	
Density, D	21.2	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	West of I-680
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	Existing + Project PM

Flow Inputs and Adjustments

Volume, V	4,384	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	1,118	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	4,608	pcph
Number of lanes, N	4	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,152	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.49	
Density, D	17.7	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	NB I-680/Green Valley on-ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	Existing + Project PM

Flow Inputs and Adjustments

Volume, V	8,753	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	2,233	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	9,200	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume	4,608	pcph	9,400	pcph	No
Exiting freeway volume		pcph		pcph	
On-ramp volume	4,592	pcph	4,700	pcph	No
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,840	pcphpl
Average passenger-car speed, S	62.3	mph
Volume-to-capacity ratio, v/c	0.78	
Density, D	29.6	pcpmpl
Level of service, LOS	D	

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Suisun Valley off-ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	Existing + Project PM

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	5	
Free-flow speed on freeway	65	mph
Volume on freeway	8,316	vph

Off Ramp Data

Type of diverge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45	mph
Volume on ramp	560	vph
Length of deceleration lane(s)	100	ft

Adjacent Ramp Data

	Upstream		Downstream	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

Junction Components	Freeway	Ramp	Adj. Ramp	
Volume, V	8,316	560		vph
Peak-hour factor, PHF	0.98	0.95		
Peak 15-min volume, v_{15}	2,121	147		veh
Trucks and buses	6.0%	6.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.971	0.971		
Driver popoulation factor, f_p	1.00	1.00		
Flow rate, v_p	8,740	607		pcph

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Suisun Valley off-ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	Existing + Project PM

Estimation of Volume in Diverge Area

L_{EQ} =		ft	(Equation 13-12 or 13-13)
P_{FM} =	0.436		(Equation 13-9, 13-10, or 13-11)
v_{12} =	3,391	pcph	

Capacity Checks

	Actual		Maximum		LOS F?
Entering freeway volume, v_{Fi}	8,740	pcph	11,750	pcph	No
Exiting freeway volume, v_{FO}	8,133	pcph	11,750	pcph	No
Ramp volume, v_R	607	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}	1,801	pcph	(Equation 13-14 or 13-17)		
Is v_3 or v_{av34} > 2,700 pcph?	No				
Is v_3 or v_{av34} > 1.5 v_{12} / 2?	No				
If yes, v_{12A} =		pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Diverge Influence Area

	Actual		Maximum		Violation?
v_{12A}	3,391	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.77	
Density, D_R	32.5	pcpmpl
Level of service for ramp-freeway junction area of influence	D	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.353	
Space mean speed in ramp influence area, S_R	56.9	mph
Space mean speed in outer lanes, S_O	68.2	mph
Space mean speed for all vehicles, S	62.2	mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Inside Suisun Valley Interchange
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	Existing + Project PM

Flow Inputs and Adjustments

Volume, V	7,812	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	1,993	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	8,211	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,642	pcphpl
Average passenger-car speed, S	64.2	mph
Volume-to-capacity ratio, v/c	0.70	
Density, D	25.6	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Merge Segment

Merge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Suisun Valley on-ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	Existing + Project PM

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	5	
Free-flow speed on freeway	65	mph
Volume on freeway	7,812	vph

On Ramp Data

Type of merge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	50	mph
Volume on ramp	847	vph
Length of acceleration lane(s)	100	ft

Adjacent Ramp Data

	Upstream		Downstream	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

Junction Components	Freeway	Ramp	Adj. Ramp	
Volume, V	7,812	847		vph
Peak-hour factor, PHF	0.98	0.98		
Peak 15-min volume, v_{15}	1,993	216		veh
Trucks and buses	6.0%	6.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.971	0.971		
Driver popoulation factor, f_p	1.00	1.00		
Flow rate, v_p	8,211	890		pcph

HCM 2010: Freeway Merge Segment

Merge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Suisun Valley on-ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	Existing + Project PM

Estimation of Volume in Merge Area

L_{EQ} =		ft	(Equation 13-6 or 13-7)
P_{FM} =	0.107		(Equation 13-3, 13-4, or 13-5)
v_{12} =	625	pcph	

Capacity Checks

	Actual		Maximum		LOS F?
Entering freeway volume, v_{Fi}	8,211	pcph	11,750	pcph	No
Exiting freeway volume, v_{FO}	9,101	pcph	11,750	pcph	No
Ramp volume, v_R	890	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}	2,623	pcph	(Equation 13-14 or 13-17)		
Is v_3 or v_{av34} > 2,700 pcph?	No				
Is v_3 or v_{av34} > 1.5 v_{12} / 2?	Yes				
If yes, v_{12A} =	2,348	pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Merge Influence Area

	Actual		Maximum		Violation?
v_{R12}	3,238	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.70	
Density, D_R	29.7	pcpmpl
Level of service for ramp-freeway junction area of influence	D	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.410	
Space mean speed in ramp influence area, S_R	55.6	mph
Space mean speed in outer lanes, S_O	60.5	mph
Space mean speed for all vehicles, S	58.0	mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	East of Suisun Valley on-ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	Existing + Project PM

Flow Inputs and Adjustments

Volume, V	8,574	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	2,187	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	9,011	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,802	pcphpl
Average passenger-car speed, S	62.7	mph
Volume-to-capacity ratio, v/c	0.77	
Density, D	28.7	pcpmpl
Level of service, LOS	D	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	West of I-680
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	EPAP+P AM

Flow Inputs and Adjustments

Volume, V	3,658	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	973	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	4,008	pcph
Number of lanes, N	4	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,002	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.43	
Density, D	15.4	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	NB I-680/Green Valley on-ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	EPAP+P AM

Flow Inputs and Adjustments

Volume, V	6,885	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	1,831	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	7,544	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume	4,008	pcph	9,400	pcph	No
Exiting freeway volume		pcph		pcph	
On-ramp volume	3,536	pcph	4,700	pcph	No
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,509	pcphpl
Average passenger-car speed, S	64.8	mph
Volume-to-capacity ratio, v/c	0.64	
Density, D	23.3	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Suisun Valley off-ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	EPAP+P AM

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	5	
Free-flow speed on freeway	65	mph
Volume on freeway	6,756	vph

Off Ramp Data

Type of diverge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45	mph
Volume on ramp	787	vph
Length of deceleration lane(s)	100	ft

Adjacent Ramp Data

	Upstream		Downstream	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

Junction Components	Freeway	Ramp	Adj. Ramp	
Volume, V	6,756	787		vph
Peak-hour factor, PHF	0.94	0.95		
Peak 15-min volume, v_{15}	1,797	207		veh
Trucks and buses	6.0%	6.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.971	0.971		
Driver popoulation factor, f_p	1.00	1.00		
Flow rate, v_p	7,403	853		pcph

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Suisun Valley off-ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	EPAP+P AM

Estimation of Volume in Diverge Area

L_{EQ} =		ft	(Equation 13-12 or 13-13)
P_{FM} =	0.436		(Equation 13-9, 13-10, or 13-11)
v_{12} =	3,063	pcph	

Capacity Checks

	Actual		Maximum		LOS F?
Entering freeway volume, v_{Fi}	7,403	pcph	11,750	pcph	No
Exiting freeway volume, v_{FO}	6,550	pcph	11,750	pcph	No
Ramp volume, v_R	853	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}	1,429	pcph	(Equation 13-14 or 13-17)		
Is v_3 or v_{av34} > 2,700 pcph?	No				
Is v_3 or v_{av34} > 1.5 v_{12} / 2?	No				
If yes, v_{12A} =		pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Diverge Influence Area

	Actual		Maximum		Violation?
v_{12A}	3,063	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.70	
Density, D_R	29.7	pcpmpl
Level of service for ramp-freeway junction area of influence	D	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.375	
Space mean speed in ramp influence area, S_R	56.4	mph
Space mean speed in outer lanes, S_O	69.6	mph
Space mean speed for all vehicles, S	62.1	mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Inside Suisun Valley Interchange
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	EPAP+P AM

Flow Inputs and Adjustments

Volume, V	6,000	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	1,596	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	6,574	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,315	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.56	
Density, D	20.2	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Merge Segment

Merge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Suisun Valley on-ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	EPAP+P AM

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	5	
Free-flow speed on freeway	65	mph
Volume on freeway	6,000	vph

On Ramp Data

Type of merge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	50	mph
Volume on ramp	686	vph
Length of acceleration lane(s)	100	ft

Adjacent Ramp Data

	Upstream		Downstream	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

Junction Components	Freeway	Ramp	Adj. Ramp	
Volume, V	6,000	686		vph
Peak-hour factor, PHF	0.94	0.94		
Peak 15-min volume, v_{15}	1,596	182		veh
Trucks and buses	6.0%	6.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.971	0.971		
Driver popoulation factor, f_P	1.00	1.00		
Flow rate, v_p	6,574	752		pcph

HCM 2010: Freeway Merge Segment

Merge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Suisun Valley on-ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	EPAP+P AM

Estimation of Volume in Merge Area

L_{EQ} =		ft	(Equation 13-6 or 13-7)
P_{FM} =	0.124		(Equation 13-3, 13-4, or 13-5)
v_{12} =	594	pcph	

Capacity Checks

	Actual		Maximum		LOS F?
Entering freeway volume, v_{Fi}	6,574	pcph	11,750	pcph	No
Exiting freeway volume, v_{FO}	7,326	pcph	11,750	pcph	No
Ramp volume, v_R	752	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}	2,103	pcph	(Equation 13-14 or 13-17)		
Is v_3 or v_{av34} > 2,700 pcph?	No				
Is v_3 or v_{av34} > 1.5 v_{12} / 2?	Yes				
If yes, v_{12A} =	1,920	pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Merge Influence Area

	Actual		Maximum		Violation?
v_{R12}	2,671	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.58	
Density, D_R	25.3	pcpmpl
Level of service for ramp-freeway junction area of influence	C	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.367	
Space mean speed in ramp influence area, S_R	56.5	mph
Space mean speed in outer lanes, S_O	61.6	mph
Space mean speed for all vehicles, S	59.1	mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	East of Suisun Valley on-ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	EPAP+P AM

Flow Inputs and Adjustments

Volume, V	6,659	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	1,771	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	7,297	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,459	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.62	
Density, D	22.5	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	West of I-680
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	EPAP+P PM

Flow Inputs and Adjustments

Volume, V	4,560	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	1,163	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	4,793	pcph
Number of lanes, N	4	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,198	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.51	
Density, D	18.4	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	NB I-680/Green Valley on-ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	EPAP+P PM

Flow Inputs and Adjustments

Volume, V	9,249	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	2,359	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	9,721	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume	4,793	pcph	9,400	pcph	No
Exiting freeway volume		pcph		pcph	
On-ramp volume	4,928	pcph	4,700	pcph	Yes
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,944	pcphpl
Average passenger-car speed, S	60.8	mph
Volume-to-capacity ratio, v/c	0.83	
Density, D	32.0	pcpmpl
Level of service, LOS	D	

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Suisun Valley off-ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	EPAP+P PM

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	5	
Free-flow speed on freeway	65	mph
Volume on freeway	8,780	vph

Off Ramp Data

Type of diverge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45	mph
Volume on ramp	636	vph
Length of deceleration lane(s)	100	ft

Adjacent Ramp Data

	Upstream		Downstream	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

Junction Components	Freeway	Ramp	Adj. Ramp	
Volume, V	8,780	636		vph
Peak-hour factor, PHF	0.98	0.95		
Peak 15-min volume, v_{15}	2,240	167		veh
Trucks and buses	6.0%	6.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.971	0.971		
Driver popoulation factor, f_p	1.00	1.00		
Flow rate, v_p	9,228	690		pcph

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Suisun Valley off-ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	EPAP+P PM

Estimation of Volume in Diverge Area

L_{EQ} =		ft	(Equation 13-12 or 13-13)
P_{FM} =	0.436		(Equation 13-9, 13-10, or 13-11)
v_{12} =	3,608	pcph	

Capacity Checks

	Actual		Maximum		LOS F?
Entering freeway volume, v_{Fi}	9,228	pcph	11,750	pcph	No
Exiting freeway volume, v_{FO}	8,538	pcph	11,750	pcph	No
Ramp volume, v_R	690	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}	1,887	pcph	(Equation 13-14 or 13-17)		
Is v_3 or v_{av34} > 2,700 pcph?	No				
Is v_3 or v_{av34} > 1.5 v_{12} / 2?	No				
If yes, v_{12A} =		pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Diverge Influence Area

	Actual		Maximum		Violation?
v_{12A}	3,608	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.82	
Density, D_R	34.4	pcpmpl
Level of service for ramp-freeway junction area of influence	D	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.360	
Space mean speed in ramp influence area, S_R	56.7	mph
Space mean speed in outer lanes, S_O	67.8	mph
Space mean speed for all vehicles, S	61.9	mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Inside Suisun Valley Interchange
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	EPAP+P PM

Flow Inputs and Adjustments

Volume, V	8,208	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	2,094	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	8,627	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,725	pcphpl
Average passenger-car speed, S	63.5	mph
Volume-to-capacity ratio, v/c	0.73	
Density, D	27.2	pcpmpl
Level of service, LOS	D	

HCM 2010: Freeway Merge Segment

Merge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Suisun Valley on-ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	EPAP+P PM

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	5	
Free-flow speed on freeway	65	mph
Volume on freeway	8,208	vph

On Ramp Data

Type of merge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	50	mph
Volume on ramp	967	vph
Length of acceleration lane(s)	100	ft

Adjacent Ramp Data

	Upstream		Downstream	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

Junction Components	Freeway	Ramp	Adj. Ramp	
Volume, V	8,208	967		vph
Peak-hour factor, PHF	0.98	0.98		
Peak 15-min volume, v_{15}	2,094	247		veh
Trucks and buses	6.0%	6.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.971	0.971		
Driver popoulation factor, f_P	1.00	1.00		
Flow rate, v_p	8,627	1,016		pcph

HCM 2010: Freeway Merge Segment

Merge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Suisun Valley on-ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	EPAP+P PM

Estimation of Volume in Merge Area

L_{EQ} =		ft	(Equation 13-6 or 13-7)
P_{FM} =	0.091		(Equation 13-3, 13-4, or 13-5)
v_{12} =	556	pcph	

Capacity Checks

	Actual		Maximum		LOS F?
Entering freeway volume, v_{Fi}	8,627	pcph	11,750	pcph	No
Exiting freeway volume, v_{FO}	9,643	pcph	11,750	pcph	No
Ramp volume, v_R	1,016	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}	2,785	pcph	(Equation 13-14 or 13-17)		
Is v_3 or v_{av34} > 2,700 pcph?	Yes				
Is v_3 or v_{av34} > 1.5 v_{12} / 2?	Yes				
If yes, v_{12A} =	2,451	pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Merge Influence Area

	Actual		Maximum		Violation?
v_{R12}	3,467	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.75	
Density, D_R	31.4	pcpmpl
Level of service for ramp-freeway junction area of influence	D	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.436	
Space mean speed in ramp influence area, S_R	55.0	mph
Space mean speed in outer lanes, S_O	60.2	mph
Space mean speed for all vehicles, S	57.5	mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	East of Suisun Valley on-ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	EPAP+P PM

Flow Inputs and Adjustments

Volume, V	9,078	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	2,316	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	9,541	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,908	pcphpl
Average passenger-car speed, S	61.3	mph
Volume-to-capacity ratio, v/c	0.81	
Density, D	31.1	pcpmpl
Level of service, LOS	D	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Far Term)
Segment	West of I-680 on-ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	C+P AM

Flow Inputs and Adjustments

Volume, V	4,356	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	1,159	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	4,773	pcph
Number of lanes, N	6	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	796	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.34	
Density, D	12.2	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Far Term)
Segment	I-680 on-ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	C+P AM

Flow Inputs and Adjustments

Volume, V	7,853	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	2,089	veh
Trucks and buses	4.7%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.977	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	8,549	pcph
Number of lanes, N	8	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume	4,773	pcph	14,100	pcph	No
Exiting freeway volume		pcph		pcph	
On-ramp volume	3,776	pcph	4,700	pcph	No
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,069	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.45	
Density, D	16.4	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Far Term)
Segment	Green Valley Road on-ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	C+P AM

Flow Inputs and Adjustments

Volume, V	8,814	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	2,344	veh
Trucks and buses	5.6%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.973	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	9,640	pcph
Number of lanes, N	9	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume	8,453	pcph	18,800	pcph	No
Exiting freeway volume		pcph		pcph	
On-ramp volume	1,188	pcph	2,100	pcph	No
Off-ramp volume		pcph	0	pcph	

LOS and Performance Measures

Flow rate, v_p	1,071	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.46	
Density, D	16.5	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Far Term)
Segment	Suisun Valley Road off-ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	C+P AM

Flow Inputs and Adjustments

Volume, V	8,770	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	2,332	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	9,610	pcph
Number of lanes, N	9	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume	8,363	pcph	18,800	pcph	No
On-ramp volume		pcph		pcph	
Off-ramp volume	1,247	pcph	2,100	pcph	No

LOS and Performance Measures

Flow rate, v_p	1,068	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.45	
Density, D	16.4	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Far Term)
Segment	Inside Suisun Valley Interchange
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	C+P AM

Flow Inputs and Adjustments

Volume, V	7,661	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	2,038	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	8,395	pcph
Number of lanes, N	8	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,049	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.45	
Density, D	16.1	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Far Term)
Segment	Suisun Valley on-ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	C+P AM

Flow Inputs and Adjustments

Volume, V	8,457	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	2,249	veh
Trucks and buses	5.7%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.972	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	9,254	pcph
Number of lanes, N	9	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume	8,395	pcph	18,800	pcph	No
Exiting freeway volume		pcph		pcph	
On-ramp volume	860	pcph	2,100	pcph	No
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,028	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.44	
Density, D	15.8	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Far Term)
Segment	East of Suisun Valley on-ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	C+P AM

Flow Inputs and Adjustments

Volume, V	8,425	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	2,241	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	9,232	pcph
Number of lanes, N	9	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,026	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.44	
Density, D	15.8	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Far Term)
Segment	West of I-680 on-ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	C+P PM

Flow Inputs and Adjustments

Volume, V	5,651	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	1,442	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	5,939	pcph
Number of lanes, N	6	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	990	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.42	
Density, D	15.2	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Far Term)
Segment	I-680 on-ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	C+P PM

Flow Inputs and Adjustments

Volume, V	10,700	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	2,730	veh
Trucks and buses	4.6%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.978	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	11,169	pcph
Number of lanes, N	8	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume	5,939	pcph	14,100	pcph	No
Exiting freeway volume		pcph		pcph	
On-ramp volume	5,229	pcph	4,700	pcph	Yes
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,396	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.59	
Density, D	21.5	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Far Term)
Segment	Green Valley Road on-ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	C+P PM

Flow Inputs and Adjustments

Volume, V	11,715	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	2,989	veh
Trucks and buses	5.6%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.973	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	12,289	pcph
Number of lanes, N	9	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume	10,715	pcph	18,800	pcph	No
Exiting freeway volume		pcph		pcph	
On-ramp volume	1,574	pcph	2,100	pcph	No
Off-ramp volume		pcph	0	pcph	

LOS and Performance Measures

Flow rate, v_p	1,365	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.58	
Density, D	21.0	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Far Term)
Segment	Suisun Valley Road off-ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	C+P PM

Flow Inputs and Adjustments

Volume, V	11,563	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	2,950	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	12,153	pcph
Number of lanes, N	9	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume	10,902	pcph	18,800	pcph	No
On-ramp volume		pcph		pcph	
Off-ramp volume	1,251	pcph	2,100	pcph	No

LOS and Performance Measures

Flow rate, v_p	1,350	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.57	
Density, D	20.8	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Far Term)
Segment	Inside Suisun Valley Interchange
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	C+P PM

Flow Inputs and Adjustments

Volume, V	10,476	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	2,672	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	11,010	pcph
Number of lanes, N	8	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,376	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.59	
Density, D	21.2	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Far Term)
Segment	Suisun Valley on-ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	C+P PM

Flow Inputs and Adjustments

Volume, V	11,753	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	2,998	veh
Trucks and buses	5.7%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.972	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	12,333	pcph
Number of lanes, N	9	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume	11,010	pcph	18,800	pcph	No
Exiting freeway volume		pcph		pcph	
On-ramp volume	1,323	pcph	2,100	pcph	No
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,370	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.58	
Density, D	21.1	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Far Term)
Segment	East of Suisun Valley on-ramp
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	C+P PM

Flow Inputs and Adjustments

Volume, V	11,625	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	2,966	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	12,218	pcph
Number of lanes, N	9	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,358	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.58	
Density, D	20.9	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	West of I-680
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	Existing + Project AM

Flow Inputs and Adjustments

Volume, V	3,491	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	928	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	3,825	pcph
Number of lanes, N	4	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	956	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.41	
Density, D	14.7	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	NB I-680/Green Valley on-ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	Existing + Project AM

Flow Inputs and Adjustments

Volume, V	6,509	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	1,731	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	7,132	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume	3,825	pcph	9,400	pcph	No
Exiting freeway volume		pcph		pcph	
On-ramp volume	3,307	pcph	4,700	pcph	No
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,426	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.61	
Density, D	21.9	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Suisun Valley off-ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	Existing + Project AM

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	5	
Free-flow speed on freeway	65	mph
Volume on freeway	6,388	vph

Off Ramp Data

Type of diverge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45	mph
Volume on ramp	704	vph
Length of deceleration lane(s)	100	ft

Adjacent Ramp Data

	Upstream		Downstream	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

Junction Components	Freeway	Ramp	Adj. Ramp	
Volume, V	6,388	704		vph
Peak-hour factor, PHF	0.94	0.95		
Peak 15-min volume, v_{15}	1,699	185		veh
Trucks and buses	6.0%	6.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.971	0.971		
Driver popoulation factor, f_p	1.00	1.00		
Flow rate, v_p	7,000	763		pcph

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Suisun Valley off-ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	Existing + Project AM

Estimation of Volume in Diverge Area

L_{EQ} =		ft	(Equation 13-12 or 13-13)
P_{FM} =	0.436		(Equation 13-9, 13-10, or 13-11)
v_{12} =	3,025	pcph	

Capacity Checks

	Actual		Maximum		LOS F?
Entering freeway volume, v_{Fi}	7,000	pcph	11,750	pcph	No
Exiting freeway volume, v_{FO}	6,236	pcph	11,750	pcph	No
Ramp volume, v_R	763	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}	1,463	pcph	(Equation 13-14 or 13-17)		
Is v_3 or v_{av34} > 2,700 pcph?	No				
Is v_3 or v_{av34} > 1.5 v_{12} / 2?	No				
If yes, v_{12A} =		pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Diverge Influence Area

	Actual		Maximum		Violation?
v_{12A}	3,025	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.69	
Density, D_R	29.4	pcpmpl
Level of service for ramp-freeway junction area of influence	D	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.367	
Space mean speed in ramp influence area, S_R	56.6	mph
Space mean speed in outer lanes, S_O	69.5	mph
Space mean speed for all vehicles, S	62.3	mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Inside Suisun Valley Interchange
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	Existing + Project AM

Flow Inputs and Adjustments

Volume, V	5,712	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	1,519	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	6,259	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,252	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.53	
Density, D	19.3	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Merge Segment

Merge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Suisun Valley on-ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	Existing + Project AM

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	5	
Free-flow speed on freeway	65	mph
Volume on freeway	5,712	vph

On Ramp Data

Type of merge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	50	mph
Volume on ramp	602	vph
Length of acceleration lane(s)	100	ft

Adjacent Ramp Data

	Upstream		Downstream	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

Junction Components	Freeway	Ramp	Adj. Ramp	
Volume, V	5,712	602		vph
Peak-hour factor, PHF	0.94	0.94		
Peak 15-min volume, v_{15}	1,519	160		veh
Trucks and buses	6.0%	6.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.971	0.971		
Driver popoulation factor, f_p	1.00	1.00		
Flow rate, v_p	6,259	660		pcph

HCM 2010: Freeway Merge Segment

Merge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Suisun Valley on-ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	Existing + Project AM

Estimation of Volume in Merge Area

L_{EQ} =		ft	(Equation 13-6 or 13-7)
P_{FM} =	0.135		(Equation 13-3, 13-4, or 13-5)
v_{12} =	644	pcph	

Capacity Checks

	Actual		Maximum		LOS F?
Entering freeway volume, v_{Fi}	6,259	pcph	11,750	pcph	No
Exiting freeway volume, v_{FO}	6,919	pcph	11,750	pcph	No
Ramp volume, v_R	660	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}	2,056	pcph	(Equation 13-14 or 13-17)		
Is v_3 or v_{av34} > 2,700 pcph?	No				
Is v_3 or v_{av34} > 1.5 v_{12} / 2?	Yes				
If yes, v_{12A} =	1,903	pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Merge Influence Area

	Actual		Maximum		Violation?
v_{R12}	2,562	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.56	
Density, D_R	24.5	pcpmpl
Level of service for ramp-freeway junction area of influence	C	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.362	
Space mean speed in ramp influence area, S_R	56.7	mph
Space mean speed in outer lanes, S_O	61.7	mph
Space mean speed for all vehicles, S	59.2	mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	East of Suisun Valley on-ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	Existing + Project AM

Flow Inputs and Adjustments

Volume, V	6,290	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	1,673	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	6,892	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,378	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.59	
Density, D	21.2	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	West of I-680
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	Existing + Project PM

Flow Inputs and Adjustments

Volume, V	4,387	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	1,119	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	4,611	pcph
Number of lanes, N	4	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,153	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.49	
Density, D	17.7	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	NB I-680/Green Valley on-ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	Existing + Project PM

Flow Inputs and Adjustments

Volume, V	8,753	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	2,233	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	9,200	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume	4,611	pcph	9,400	pcph	No
Exiting freeway volume		pcph		pcph	
On-ramp volume	4,589	pcph	4,700	pcph	No
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,840	pcphpl
Average passenger-car speed, S	62.3	mph
Volume-to-capacity ratio, v/c	0.78	
Density, D	29.6	pcpmpl
Level of service, LOS	D	

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Suisun Valley off-ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	Existing + Project PM

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	5	
Free-flow speed on freeway	65	mph
Volume on freeway	8,316	vph

Off Ramp Data

Type of diverge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45	mph
Volume on ramp	560	vph
Length of deceleration lane(s)	100	ft

Adjacent Ramp Data

	Upstream		Downstream	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

Junction Components	Freeway	Ramp	Adj. Ramp	
Volume, V	8,316	560		vph
Peak-hour factor, PHF	0.98	0.95		
Peak 15-min volume, v_{15}	2,121	147		veh
Trucks and buses	6.0%	6.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.971	0.971		
Driver popoulation factor, f_p	1.00	1.00		
Flow rate, v_p	8,740	607		pcph

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Suisun Valley off-ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	Existing + Project PM

Estimation of Volume in Diverge Area

L_{EQ} =		ft	(Equation 13-12 or 13-13)
P_{FM} =	0.436		(Equation 13-9, 13-10, or 13-11)
v_{12} =	3,391	pcph	

Capacity Checks

	Actual		Maximum		LOS F?
Entering freeway volume, v_{Fi}	8,740	pcph	11,750	pcph	No
Exiting freeway volume, v_{FO}	8,133	pcph	11,750	pcph	No
Ramp volume, v_R	607	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}	1,801	pcph	(Equation 13-14 or 13-17)		
Is v_3 or v_{av34} > 2,700 pcph?	No				
Is v_3 or v_{av34} > 1.5 v_{12} / 2?	No				
If yes, v_{12A} =		pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Diverge Influence Area

	Actual		Maximum		Violation?
v_{12A}	3,391	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.77	
Density, D_R	32.5	pcpmpl
Level of service for ramp-freeway junction area of influence	D	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.353	
Space mean speed in ramp influence area, S_R	56.9	mph
Space mean speed in outer lanes, S_O	68.2	mph
Space mean speed for all vehicles, S	62.2	mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Inside Suisun Valley Interchange
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	Existing + Project PM

Flow Inputs and Adjustments

Volume, V	7,812	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	1,993	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	8,211	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,642	pcphpl
Average passenger-car speed, S	64.2	mph
Volume-to-capacity ratio, v/c	0.70	
Density, D	25.6	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Merge Segment

Merge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Suisun Valley on-ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	Existing + Project PM

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	5	
Free-flow speed on freeway	65	mph
Volume on freeway	7,812	vph

On Ramp Data

Type of merge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	50	mph
Volume on ramp	842	vph
Length of acceleration lane(s)	100	ft

Adjacent Ramp Data

	Upstream		Downstream	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

Junction Components	Freeway	Ramp	Adj. Ramp	
Volume, V	7,812	842		vph
Peak-hour factor, PHF	0.98	0.98		
Peak 15-min volume, v_{15}	1,993	215		veh
Trucks and buses	6.0%	6.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.971	0.971		
Driver popoulation factor, f_P	1.00	1.00		
Flow rate, v_p	8,211	885		pcph

HCM 2010: Freeway Merge Segment

Merge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Suisun Valley on-ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	Existing + Project PM

Estimation of Volume in Merge Area

L_{EQ} =		ft	(Equation 13-6 or 13-7)
P_{FM} =	0.107		(Equation 13-3, 13-4, or 13-5)
v_{12} =	629	pcph	

Capacity Checks

	Actual		Maximum		LOS F?
Entering freeway volume, v_{Fi}	8,211	pcph	11,750	pcph	No
Exiting freeway volume, v_{FO}	9,096	pcph	11,750	pcph	No
Ramp volume, v_R	885	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}	2,621	pcph	(Equation 13-14 or 13-17)		
Is v_3 or v_{av34} > 2,700 pcph?	No				
Is v_3 or v_{av34} > 1.5 v_{12} / 2?	Yes				
If yes, v_{12A} =	2,348	pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Merge Influence Area

	Actual		Maximum		Violation?
v_{R12}	3,233	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.70	
Density, D_R	29.7	pcpmpl
Level of service for ramp-freeway junction area of influence	D	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.410	
Space mean speed in ramp influence area, S_R	55.6	mph
Space mean speed in outer lanes, S_O	60.5	mph
Space mean speed for all vehicles, S	58.0	mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	East of Suisun Valley on-ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	Existing + Project PM

Flow Inputs and Adjustments

Volume, V	8,570	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	2,186	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	9,007	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,801	pcphpl
Average passenger-car speed, S	62.7	mph
Volume-to-capacity ratio, v/c	0.77	
Density, D	28.7	pcpmpl
Level of service, LOS	D	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	West of I-680
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	EPAP+P AM

Flow Inputs and Adjustments

Volume, V	3,659	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	973	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	4,009	pcph
Number of lanes, N	4	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,002	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.43	
Density, D	15.4	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	NB I-680/Green Valley on-ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	EPAP+P AM

Flow Inputs and Adjustments

Volume, V	6,887	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	1,832	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	7,546	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume	4,009	pcph	9,400	pcph	No
Exiting freeway volume		pcph		pcph	
On-ramp volume	3,537	pcph	4,700	pcph	No
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,509	pcphpl
Average passenger-car speed, S	64.8	mph
Volume-to-capacity ratio, v/c	0.64	
Density, D	23.3	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Suisun Valley off-ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	EPAP+P AM

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	5	
Free-flow speed on freeway	65	mph
Volume on freeway	6,757	vph

Off Ramp Data

Type of diverge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45	mph
Volume on ramp	789	vph
Length of deceleration lane(s)	100	ft

Adjacent Ramp Data

	Upstream		Downstream	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

Junction Components	Freeway	Ramp	Adj. Ramp	
Volume, V	6,757	789		vph
Peak-hour factor, PHF	0.94	0.95		
Peak 15-min volume, v_{15}	1,797	208		veh
Trucks and buses	6.0%	6.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.971	0.971		
Driver popoulation factor, f_p	1.00	1.00		
Flow rate, v_p	7,404	855		pcph

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Suisun Valley off-ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	EPAP+P AM

Estimation of Volume in Diverge Area

L_{EQ} =		ft	(Equation 13-12 or 13-13)
P_{FM} =	0.436		(Equation 13-9, 13-10, or 13-11)
v_{12} =	3,065	pcph	

Capacity Checks

	Actual		Maximum		LOS F?
Entering freeway volume, v_{Fi}	7,404	pcph	11,750	pcph	No
Exiting freeway volume, v_{FO}	6,549	pcph	11,750	pcph	No
Ramp volume, v_R	855	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}	1,429	pcph	(Equation 13-14 or 13-17)		
Is v_3 or v_{av34} > 2,700 pcph?	No				
Is v_3 or v_{av34} > 1.5 v_{12} / 2?	No				
If yes, v_{12A} =		pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Diverge Influence Area

	Actual		Maximum		Violation?
v_{12A}	3,065	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.70	
Density, D_R	29.7	pcpmpl
Level of service for ramp-freeway junction area of influence	D	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.375	
Space mean speed in ramp influence area, S_R	56.4	mph
Space mean speed in outer lanes, S_O	69.6	mph
Space mean speed for all vehicles, S	62.1	mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Inside Suisun Valley Interchange
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	EPAP+P AM

Flow Inputs and Adjustments

Volume, V	6,000	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	1,596	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	6,574	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,315	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.56	
Density, D	20.2	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Merge Segment

Merge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Suisun Valley on-ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	EPAP+P AM

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	5	
Free-flow speed on freeway	65	mph
Volume on freeway	6,000	vph

On Ramp Data

Type of merge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	50	mph
Volume on ramp	702	vph
Length of acceleration lane(s)	100	ft

Adjacent Ramp Data

	Upstream		Downstream	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

Junction Components	Freeway	Ramp	Adj. Ramp	
Volume, V	6,000	702		vph
Peak-hour factor, PHF	0.94	0.94		
Peak 15-min volume, v_{15}	1,596	187		veh
Trucks and buses	6.0%	6.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.971	0.971		
Driver popoulation factor, f_p	1.00	1.00		
Flow rate, v_p	6,574	769		pcph

HCM 2010: Freeway Merge Segment

Merge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Suisun Valley on-ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	EPAP+P AM

Estimation of Volume in Merge Area

L_{EQ} =		ft	(Equation 13-6 or 13-7)
P_{FM} =	0.122		(Equation 13-3, 13-4, or 13-5)
v_{12} =	584	pcph	

Capacity Checks

	Actual		Maximum		LOS F?
Entering freeway volume, v_{Fi}	6,574	pcph	11,750	pcph	No
Exiting freeway volume, v_{FO}	7,344	pcph	11,750	pcph	No
Ramp volume, v_R	769	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}	2,108	pcph	(Equation 13-14 or 13-17)		
Is v_3 or v_{av34} > 2,700 pcph?	No				
Is v_3 or v_{av34} > 1.5 v_{12} / 2?	Yes				
If yes, v_{12A} =	1,920	pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Merge Influence Area

	Actual		Maximum		Violation?
v_{R12}	2,689	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.58	
Density, D_R	25.5	pcpmpl
Level of service for ramp-freeway junction area of influence	C	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.368	
Space mean speed in ramp influence area, S_R	56.5	mph
Space mean speed in outer lanes, S_O	61.6	mph
Space mean speed for all vehicles, S	59.0	mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	East of Suisun Valley on-ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	EPAP+P AM

Flow Inputs and Adjustments

Volume, V	6,674	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	1,775	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	7,313	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,463	pcphpl
Average passenger-car speed, S	64.9	mph
Volume-to-capacity ratio, v/c	0.62	
Density, D	22.5	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	West of I-680
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	EPAP+P PM

Flow Inputs and Adjustments

Volume, V	4,563	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	1,164	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	4,796	pcph
Number of lanes, N	4	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,199	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.51	
Density, D	18.4	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	NB I-680/Green Valley on-ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	EPAP+P PM

Flow Inputs and Adjustments

Volume, V	9,249	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	2,359	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	9,721	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume	4,796	pcph	9,400	pcph	No
Exiting freeway volume		pcph		pcph	
On-ramp volume	4,925	pcph	4,700	pcph	Yes
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,944	pcphpl
Average passenger-car speed, S	60.8	mph
Volume-to-capacity ratio, v/c	0.83	
Density, D	32.0	pcpmpl
Level of service, LOS	D	

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Suisun Valley off-ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	EPAP+P PM

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	5	
Free-flow speed on freeway	65	mph
Volume on freeway	8,780	vph

Off Ramp Data

Type of diverge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45	mph
Volume on ramp	636	vph
Length of deceleration lane(s)	100	ft

Adjacent Ramp Data

	Upstream		Downstream	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

Junction Components	Freeway	Ramp	Adj. Ramp	
Volume, V	8,780	636		vph
Peak-hour factor, PHF	0.98	0.95		
Peak 15-min volume, v_{15}	2,240	167		veh
Trucks and buses	6.0%	6.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.971	0.971		
Driver popoulation factor, f_P	1.00	1.00		
Flow rate, v_p	9,228	690		pcph

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Suisun Valley off-ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	EPAP+P PM

Estimation of Volume in Diverge Area

L_{EQ} =		ft	(Equation 13-12 or 13-13)
P_{FM} =	0.436		(Equation 13-9, 13-10, or 13-11)
v_{12} =	3,608	pcph	

Capacity Checks

	Actual		Maximum		LOS F?
Entering freeway volume, v_{Fi}	9,228	pcph	11,750	pcph	No
Exiting freeway volume, v_{FO}	8,538	pcph	11,750	pcph	No
Ramp volume, v_R	690	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}	1,887	pcph	(Equation 13-14 or 13-17)		
Is v_3 or v_{av34} > 2,700 pcph?	No				
Is v_3 or v_{av34} > 1.5 v_{12} / 2?	No				
If yes, v_{12A} =		pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Diverge Influence Area

	Actual		Maximum		Violation?
v_{12A}	3,608	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.82	
Density, D_R	34.4	pcpmpl
Level of service for ramp-freeway junction area of influence	D	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.360	
Space mean speed in ramp influence area, S_R	56.7	mph
Space mean speed in outer lanes, S_O	67.8	mph
Space mean speed for all vehicles, S	61.9	mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Inside Suisun Valley Interchange
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	EPAP+P PM

Flow Inputs and Adjustments

Volume, V	8,208	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	2,094	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	8,627	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,725	pcphpl
Average passenger-car speed, S	63.5	mph
Volume-to-capacity ratio, v/c	0.73	
Density, D	27.2	pcpmpl
Level of service, LOS	D	

HCM 2010: Freeway Merge Segment

Merge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Suisun Valley on-ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	EPAP+P PM

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	5	
Free-flow speed on freeway	65	mph
Volume on freeway	8,208	vph

On Ramp Data

Type of merge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	50	mph
Volume on ramp	962	vph
Length of acceleration lane(s)	100	ft

Adjacent Ramp Data

	Upstream		Downstream	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

Junction Components	Freeway	Ramp	Adj. Ramp	
Volume, V	8,208	962		vph
Peak-hour factor, PHF	0.98	0.98		
Peak 15-min volume, v_{15}	2,094	245		veh
Trucks and buses	6.0%	6.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.971	0.971		
Driver popoulation factor, f_P	1.00	1.00		
Flow rate, v_p	8,627	1,011		pcph

HCM 2010: Freeway Merge Segment

Merge Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	Suisun Valley on-ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	EPAP+P PM

Estimation of Volume in Merge Area

L_{EQ} =		ft	(Equation 13-6 or 13-7)
P_{FM} =	0.091		(Equation 13-3, 13-4, or 13-5)
v_{12} =	560	pcph	

Capacity Checks

	Actual		Maximum		LOS F?
Entering freeway volume, v_{Fi}	8,627	pcph	11,750	pcph	No
Exiting freeway volume, v_{FO}	9,638	pcph	11,750	pcph	No
Ramp volume, v_R	1,011	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}	2,783	pcph	(Equation 13-14 or 13-17)		
Is v_3 or v_{av34} > 2,700 pcph?	Yes				
Is v_3 or v_{av34} > 1.5 v_{12} / 2?	Yes				
If yes, v_{12A} =	2,451	pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Merge Influence Area

	Actual		Maximum		Violation?
v_{R12}	3,462	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.75	
Density, D_R	31.4	pcpmpl
Level of service for ramp-freeway junction area of influence	D	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.435	
Space mean speed in ramp influence area, S_R	55.0	mph
Space mean speed in outer lanes, S_O	60.2	mph
Space mean speed for all vehicles, S	57.5	mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Near Term)
Segment	East of Suisun Valley on-ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	EPAP+P PM

Flow Inputs and Adjustments

Volume, V	9,074	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	2,315	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	9,537	pcph
Number of lanes, N	5	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,907	pcphpl
Average passenger-car speed, S	61.3	mph
Volume-to-capacity ratio, v/c	0.81	
Density, D	31.1	pcpmpl
Level of service, LOS	D	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Far Term)
Segment	West of I-680 on-ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	C+P AM

Flow Inputs and Adjustments

Volume, V	4,360	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	1,160	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	4,777	pcph
Number of lanes, N	6	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	796	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.34	
Density, D	12.2	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Far Term)
Segment	I-680 on-ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	C+P AM

Flow Inputs and Adjustments

Volume, V	7,858	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	2,090	veh
Trucks and buses	4.7%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.977	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	8,555	pcph
Number of lanes, N	8	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume	4,777	pcph	14,100	pcph	No
Exiting freeway volume		pcph		pcph	
On-ramp volume	3,777	pcph	4,700	pcph	No
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,069	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.46	
Density, D	16.5	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Far Term)
Segment	Green Valley Road on-ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	C+P AM

Flow Inputs and Adjustments

Volume, V	8,818	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	2,345	veh
Trucks and buses	5.6%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.973	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	9,645	pcph
Number of lanes, N	9	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume	8,457	pcph	18,800	pcph	No
Exiting freeway volume		pcph		pcph	
On-ramp volume	1,188	pcph	2,100	pcph	No
Off-ramp volume		pcph	0	pcph	

LOS and Performance Measures

Flow rate, v_p	1,072	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.46	
Density, D	16.5	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Far Term)
Segment	Suisun Valley Road off-ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	C+P AM

Flow Inputs and Adjustments

Volume, V	8,774	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	2,334	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	9,614	pcph
Number of lanes, N	9	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume	8,362	pcph	18,800	pcph	No
On-ramp volume		pcph		pcph	
Off-ramp volume	1,253	pcph	2,100	pcph	No

LOS and Performance Measures

Flow rate, v_p	1,068	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.45	
Density, D	16.4	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Far Term)
Segment	Inside Suisun Valley Interchange
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	C+P AM

Flow Inputs and Adjustments

Volume, V	7,661	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	2,038	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	8,395	pcph
Number of lanes, N	8	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,049	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.45	
Density, D	16.1	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Far Term)
Segment	Suisun Valley on-ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	C+P AM

Flow Inputs and Adjustments

Volume, V	8,473	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	2,253	veh
Trucks and buses	5.7%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.972	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	9,271	pcph
Number of lanes, N	9	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume	8,395	pcph	18,800	pcph	No
Exiting freeway volume		pcph		pcph	
On-ramp volume	877	pcph	2,100	pcph	No
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,030	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.44	
Density, D	15.8	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Far Term)
Segment	East of Suisun Valley on-ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	C+P AM

Flow Inputs and Adjustments

Volume, V	8,440	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	2,245	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	9,248	pcph
Number of lanes, N	9	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,028	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.44	
Density, D	15.8	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Far Term)
Segment	West of I-680 on-ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	C+P PM

Flow Inputs and Adjustments

Volume, V	5,654	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	1,442	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	5,942	pcph
Number of lanes, N	6	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	990	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.42	
Density, D	15.2	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Far Term)
Segment	I-680 on-ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	C+P PM

Flow Inputs and Adjustments

Volume, V	10,700	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	2,730	veh
Trucks and buses	4.6%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.978	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	11,169	pcph
Number of lanes, N	8	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume	5,942	pcph	14,100	pcph	No
Exiting freeway volume		pcph		pcph	
On-ramp volume	5,226	pcph	4,700	pcph	Yes
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,396	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.59	
Density, D	21.5	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Far Term)
Segment	Green Valley Road on-ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	C+P PM

Flow Inputs and Adjustments

Volume, V	11,715	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	2,989	veh
Trucks and buses	5.6%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.973	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	12,289	pcph
Number of lanes, N	9	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume	10,715	pcph	18,800	pcph	No
Exiting freeway volume		pcph		pcph	
On-ramp volume	1,574	pcph	2,100	pcph	No
Off-ramp volume		pcph	0	pcph	

LOS and Performance Measures

Flow rate, v_p	1,365	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.58	
Density, D	21.0	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Far Term)
Segment	Suisun Valley Road off-ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	C+P PM

Flow Inputs and Adjustments

Volume, V	11,563	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	2,950	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	12,153	pcph
Number of lanes, N	9	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume	10,902	pcph	18,800	pcph	No
On-ramp volume		pcph		pcph	
Off-ramp volume	1,251	pcph	2,100	pcph	No

LOS and Performance Measures

Flow rate, v_p	1,350	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.57	
Density, D	20.8	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Far Term)
Segment	Inside Suisun Valley Interchange
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	C+P PM

Flow Inputs and Adjustments

Volume, V	10,476	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	2,672	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	11,010	pcph
Number of lanes, N	8	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,376	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.59	
Density, D	21.2	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Far Term)
Segment	Suisun Valley on-ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	C+P PM

Flow Inputs and Adjustments

Volume, V	11,748	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	2,997	veh
Trucks and buses	5.7%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.972	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	12,328	pcph
Number of lanes, N	9	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume	11,010	pcph	18,800	pcph	No
Exiting freeway volume		pcph		pcph	
On-ramp volume	1,317	pcph	2,100	pcph	No
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,370	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.58	
Density, D	21.1	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Eastbound I-80 (Far Term)
Segment	East of Suisun Valley on-ramp
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	C+P PM

Flow Inputs and Adjustments

Volume, V	11,621	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	2,965	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	12,214	pcph
Number of lanes, N	9	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,357	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.58	
Density, D	20.9	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Northbound I-680 (Near Term)
Segment	South of Gold Hill Road
Alternative	No Project (Baseline)
Time period	Existing AM

Flow Inputs and Adjustments

Volume, V	2,050	vph
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v_{15}	557	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	2,295	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,148	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.49	
Density, D	17.7	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Northbound I-680 (Near Term)
Segment	South of I-80
Alternative	No Project (Baseline)
Time period	Existing AM

Flow Inputs and Adjustments

Volume, V	2,720	vph
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v_{15}	739	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	3,045	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,523	pcphpl
Average passenger-car speed, S	64.8	mph
Volume-to-capacity ratio, v/c	0.65	
Density, D	23.5	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Northbound I-680 (Near Term)
Segment	South of Gold Hill Road
Alternative	No Project (Baseline)
Time period	Existing PM

Flow Inputs and Adjustments

Volume, V	3,350	vph
Peak-hour factor, PHF	0.96	
Peak 15-min volume, v_{15}	872	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	3,594	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,797	pcphpl
Average passenger-car speed, S	62.8	mph
Volume-to-capacity ratio, v/c	0.76	
Density, D	28.6	pcpmpl
Level of service, LOS	D	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Northbound I-680 (Near Term)
Segment	South of I-80
Alternative	No Project (Baseline)
Time period	Existing PM

Flow Inputs and Adjustments

Volume, V	3,800	vph
Peak-hour factor, PHF	0.96	
Peak 15-min volume, v_{15}	990	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	4,077	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	2,039	pcphpl
Average passenger-car speed, S	59.2	mph
Volume-to-capacity ratio, v/c	0.87	
Density, D	34.4	pcpmpl
Level of service, LOS	D	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Northbound I-680 (Near Term)
Segment	South of Gold Hill Road
Alternative	No Project (Baseline)
Time period	Existing Plus Approved AM

Flow Inputs and Adjustments

Volume, V	2,160	vph
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v_{15}	587	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	2,418	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,209	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.51	
Density, D	18.6	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Northbound I-680 (Near Term)
Segment	South of I-80
Alternative	No Project (Baseline)
Time period	Existing Plus Approved AM

Flow Inputs and Adjustments

Volume, V	2,860	vph
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v_{15}	777	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	3,202	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,601	pcphpl
Average passenger-car speed, S	64.4	mph
Volume-to-capacity ratio, v/c	0.68	
Density, D	24.8	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Northbound I-680 (Near Term)
Segment	South of Gold Hill Road
Alternative	No Project (Baseline)
Time period	Existing Plus Approved PM

Flow Inputs and Adjustments

Volume, V	3,520	vph
Peak-hour factor, PHF	0.96	
Peak 15-min volume, v_{15}	917	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	3,777	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,888	pcphpl
Average passenger-car speed, S	61.6	mph
Volume-to-capacity ratio, v/c	0.80	
Density, D	30.6	pcpmpl
Level of service, LOS	D	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Northbound I-680 (Near Term)
Segment	South of I-80
Alternative	No Project (Baseline)
Time period	Existing Plus Approved PM

Flow Inputs and Adjustments

Volume, V	3,990	vph
Peak-hour factor, PHF	0.96	
Peak 15-min volume, v_{15}	1,039	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	4,281	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	2,140	pcphpl
Average passenger-car speed, S	57.2	mph
Volume-to-capacity ratio, v/c	0.91	
Density, D	37.4	pcpmpl
Level of service, LOS	E	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Northbound I-680 (Far Term)
Segment	South of Gold Hill Road
Alternative	No Project (Baseline)
Time period	Cumulative NP AM

Flow Inputs and Adjustments

Volume, V	2,750	vph
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v_{15}	747	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	3,079	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,539	pcphpl
Average passenger-car speed, S	64.7	mph
Volume-to-capacity ratio, v/c	0.66	
Density, D	23.8	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Northbound I-680 (Far Term)
Segment	South of I-80
Alternative	No Project (Baseline)
Time period	Cumulative NP AM

Flow Inputs and Adjustments

Volume, V	3,650	vph
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v_{15}	992	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	4,086	pcph
Number of lanes, N	3	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,362	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.58	
Density, D	21.0	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Northbound I-680 (Far Term)
Segment	South of Gold Hill Road
Alternative	Baseline (No Project)
Time period	Cumulative NP PM

Flow Inputs and Adjustments

Volume, V	4,490	vph
Peak-hour factor, PHF	0.96	
Peak 15-min volume, v_{15}	1,169	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	4,817	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	2,409	pcphpl
Average passenger-car speed, S	-	mph
Volume-to-capacity ratio, v/c	1.02	
Density, D	-	pcpmpl
Level of service, LOS	F	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Northbound I-680 (Far Term)
Segment	South of I-80
Alternative	Baseline (No Project)
Time period	Cumulative NP PM

Flow Inputs and Adjustments

Volume, V	5,100	vph
Peak-hour factor, PHF	0.96	
Peak 15-min volume, v_{15}	1,328	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	5,472	pcph
Number of lanes, N	3	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,824	pcphpl
Average passenger-car speed, S	62.5	mph
Volume-to-capacity ratio, v/c	0.78	
Density, D	29.2	pcpmpl
Level of service, LOS	D	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Northbound I-680 (Near Term)
Segment	South of Gold Hill Road
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	Existing + Project AM

Flow Inputs and Adjustments

Volume, V	2,057	vph
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v_{15}	559	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	2,303	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,151	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.49	
Density, D	17.7	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Northbound I-680 (Near Term)
Segment	South of I-80
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	Existing + Project AM

Flow Inputs and Adjustments

Volume, V	2,727	vph
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v_{15}	741	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	3,053	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,527	pcphpl
Average passenger-car speed, S	64.8	mph
Volume-to-capacity ratio, v/c	0.65	
Density, D	23.6	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Northbound I-680 (Near Term)
Segment	South of Gold Hill Road
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	Existing + Project PM

Flow Inputs and Adjustments

Volume, V	3,369	vph
Peak-hour factor, PHF	0.96	
Peak 15-min volume, v_{15}	877	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	3,615	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,807	pcphpl
Average passenger-car speed, S	62.6	mph
Volume-to-capacity ratio, v/c	0.77	
Density, D	28.8	pcpmpl
Level of service, LOS	D	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Northbound I-680 (Near Term)
Segment	South of I-80
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	Existing + Project PM

Flow Inputs and Adjustments

Volume, V	3,819	vph
Peak-hour factor, PHF	0.96	
Peak 15-min volume, v_{15}	995	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	4,097	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	2,049	pcphpl
Average passenger-car speed, S	59.0	mph
Volume-to-capacity ratio, v/c	0.87	
Density, D	34.7	pcpmpl
Level of service, LOS	D	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Northbound I-680 (Near Term)
Segment	South of Gold Hill Road
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	EPAP+P AM

Flow Inputs and Adjustments

Volume, V	2,167	vph
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v_{15}	589	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	2,426	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,213	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.52	
Density, D	18.7	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Northbound I-680 (Near Term)
Segment	South of I-80
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	EPAP+P AM

Flow Inputs and Adjustments

Volume, V	2,867	vph
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v_{15}	779	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	3,210	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,605	pcphpl
Average passenger-car speed, S	64.4	mph
Volume-to-capacity ratio, v/c	0.68	
Density, D	24.9	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Northbound I-680 (Near Term)
Segment	South of Gold Hill Road
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	EPAP+P PM

Flow Inputs and Adjustments

Volume, V	3,539	vph
Peak-hour factor, PHF	0.96	
Peak 15-min volume, v_{15}	922	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	3,797	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,899	pcphpl
Average passenger-car speed, S	61.5	mph
Volume-to-capacity ratio, v/c	0.81	
Density, D	30.9	pcpmpl
Level of service, LOS	D	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Northbound I-680 (Near Term)
Segment	South of I-80
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	EPAP+P PM

Flow Inputs and Adjustments

Volume, V	4,009	vph
Peak-hour factor, PHF	0.96	
Peak 15-min volume, v_{15}	1,044	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	4,301	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	2,151	pcphpl
Average passenger-car speed, S	57.0	mph
Volume-to-capacity ratio, v/c	0.92	
Density, D	37.7	pcpmpl
Level of service, LOS	E	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Northbound I-680 (Far Term)
Segment	South of Gold Hill Road
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	C+P AM

Flow Inputs and Adjustments

Volume, V	2,757	vph
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v_{15}	749	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	3,087	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,543	pcphpl
Average passenger-car speed, S	64.7	mph
Volume-to-capacity ratio, v/c	0.66	
Density, D	23.9	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Northbound I-680 (Far Term)
Segment	South of I-80
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	C+P AM

Flow Inputs and Adjustments

Volume, V	3,657	vph
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v_{15}	994	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	4,094	pcph
Number of lanes, N	3	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,365	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.58	
Density, D	21.0	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Northbound I-680 (Far Term)
Segment	South of Gold Hill Road
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	C+P PM

Flow Inputs and Adjustments

Volume, V	4,509	vph
Peak-hour factor, PHF	0.96	
Peak 15-min volume, v_{15}	1,174	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	4,838	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	2,419	pcphpl
Average passenger-car speed, S	-	mph
Volume-to-capacity ratio, v/c	1.03	
Density, D	-	pcpmpl
Level of service, LOS	F	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Northbound I-680 (Far Term)
Segment	South of I-80
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	C+P PM

Flow Inputs and Adjustments

Volume, V	5,119	vph
Peak-hour factor, PHF	0.96	
Peak 15-min volume, v_{15}	1,333	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	5,492	pcph
Number of lanes, N	3	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,831	pcphpl
Average passenger-car speed, S	62.4	mph
Volume-to-capacity ratio, v/c	0.78	
Density, D	29.4	pcpmpl
Level of service, LOS	D	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Northbound I-680 (Near Term)
Segment	South of Gold Hill Road
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	Existing + Project AM

Flow Inputs and Adjustments

Volume, V	2,058	vph
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v_{15}	559	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	2,304	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,152	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.49	
Density, D	17.7	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Northbound I-680 (Near Term)
Segment	South of I-80
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	Existing + Project AM

Flow Inputs and Adjustments

Volume, V	2,728	vph
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v_{15}	741	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	3,054	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,527	pcphpl
Average passenger-car speed, S	64.8	mph
Volume-to-capacity ratio, v/c	0.65	
Density, D	23.6	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Northbound I-680 (Near Term)
Segment	South of Gold Hill Road
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	Existing + Project PM

Flow Inputs and Adjustments

Volume, V	3,366	vph
Peak-hour factor, PHF	0.96	
Peak 15-min volume, v_{15}	877	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	3,611	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,806	pcphpl
Average passenger-car speed, S	62.7	mph
Volume-to-capacity ratio, v/c	0.77	
Density, D	28.8	pcpmpl
Level of service, LOS	D	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Northbound I-680 (Near Term)
Segment	South of I-80
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	Existing + Project PM

Flow Inputs and Adjustments

Volume, V	3,816	vph
Peak-hour factor, PHF	0.96	
Peak 15-min volume, v_{15}	994	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	4,094	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	2,047	pcphpl
Average passenger-car speed, S	59.1	mph
Volume-to-capacity ratio, v/c	0.87	
Density, D	34.7	pcpmpl
Level of service, LOS	D	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Northbound I-680 (Near Term)
Segment	South of Gold Hill Road
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	EPAP+P AM

Flow Inputs and Adjustments

Volume, V	2,168	vph
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v_{15}	589	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	2,427	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,214	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.52	
Density, D	18.7	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Northbound I-680 (Near Term)
Segment	South of I-80
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	EPAP+P AM

Flow Inputs and Adjustments

Volume, V	2,868	vph
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v_{15}	779	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	3,211	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,605	pcphpl
Average passenger-car speed, S	64.4	mph
Volume-to-capacity ratio, v/c	0.68	
Density, D	24.9	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Northbound I-680 (Near Term)
Segment	South of Gold Hill Road
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	EPAP+P PM

Flow Inputs and Adjustments

Volume, V	3,536	vph
Peak-hour factor, PHF	0.96	
Peak 15-min volume, v_{15}	921	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	3,794	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,897	pcphpl
Average passenger-car speed, S	61.5	mph
Volume-to-capacity ratio, v/c	0.81	
Density, D	30.8	pcpmpl
Level of service, LOS	D	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Northbound I-680 (Near Term)
Segment	South of I-80
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	EPAP+P PM

Flow Inputs and Adjustments

Volume, V	4,006	vph
Peak-hour factor, PHF	0.96	
Peak 15-min volume, v_{15}	1,043	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	4,298	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	2,149	pcphpl
Average passenger-car speed, S	57.0	mph
Volume-to-capacity ratio, v/c	0.91	
Density, D	37.7	pcpmpl
Level of service, LOS	E	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Northbound I-680 (Far Term)
Segment	South of Gold Hill Road
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	C+P AM

Flow Inputs and Adjustments

Volume, V	2,758	vph
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v_{15}	749	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	3,088	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,544	pcphpl
Average passenger-car speed, S	64.7	mph
Volume-to-capacity ratio, v/c	0.66	
Density, D	23.9	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Northbound I-680 (Far Term)
Segment	South of I-80
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	C+P AM

Flow Inputs and Adjustments

Volume, V	3,658	vph
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v_{15}	994	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	4,095	pcph
Number of lanes, N	3	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,365	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.58	
Density, D	21.0	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Northbound I-680 (Far Term)
Segment	South of Gold Hill Road
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	C+P PM

Flow Inputs and Adjustments

Volume, V	4,506	vph
Peak-hour factor, PHF	0.96	
Peak 15-min volume, v_{15}	1,173	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	4,835	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	2,417	pcphpl
Average passenger-car speed, S	-	mph
Volume-to-capacity ratio, v/c	1.03	
Density, D	-	pcpmpl
Level of service, LOS	F	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Northbound I-680 (Far Term)
Segment	South of I-80
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	C+P PM

Flow Inputs and Adjustments

Volume, V	5,116	vph
Peak-hour factor, PHF	0.96	
Peak 15-min volume, v_{15}	1,332	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	5,489	pcph
Number of lanes, N	3	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,830	pcphpl
Average passenger-car speed, S	62.4	mph
Volume-to-capacity ratio, v/c	0.78	
Density, D	29.3	pcpmpl
Level of service, LOS	D	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Southbound I-680 (Near Term)
Segment	South of I-80
Alternative	No Project (Baseline)
Time period	Existing AM

Flow Inputs and Adjustments

Volume, V	3,360	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	894	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	3,682	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,841	pcphpl
Average passenger-car speed, S	62.2	mph
Volume-to-capacity ratio, v/c	0.78	
Density, D	29.6	pcpmpl
Level of service, LOS	D	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Southbound I-680 (Near Term)
Segment	South of Gold Hill Road
Alternative	No Project (Baseline)
Time period	Existing AM

Flow Inputs and Adjustments

Volume, V	2,990	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	795	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	3,276	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,638	pcphpl
Average passenger-car speed, S	64.2	mph
Volume-to-capacity ratio, v/c	0.70	
Density, D	25.5	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Southbound I-680 (Near Term)
Segment	South of I-80
Alternative	No Project (Baseline)
Time period	Existing PM

Flow Inputs and Adjustments

Volume, V	2,960	vph
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v_{15}	779	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	3,209	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,605	pcphpl
Average passenger-car speed, S	64.4	mph
Volume-to-capacity ratio, v/c	0.68	
Density, D	24.9	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Southbound I-680 (Near Term)
Segment	South of Gold Hill Road
Alternative	No Project (Baseline)
Time period	Existing PM

Flow Inputs and Adjustments

Volume, V	2,560	vph
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v_{15}	674	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	2,776	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,388	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.59	
Density, D	21.4	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Southbound I-680 (Near Term)
Segment	South of I-80
Alternative	No Project (Baseline)
Time period	Existing Plus Approved AM

Flow Inputs and Adjustments

Volume, V	3,530	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	939	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	3,868	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,934	pcphpl
Average passenger-car speed, S	61.0	mph
Volume-to-capacity ratio, v/c	0.82	
Density, D	31.7	pcpmpl
Level of service, LOS	D	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Southbound I-680 (Near Term)
Segment	South of Gold Hill Road
Alternative	No Project (Baseline)
Time period	Existing Plus Approved AM

Flow Inputs and Adjustments

Volume, V	3,140	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	835	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	3,441	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,720	pcphpl
Average passenger-car speed, S	63.5	mph
Volume-to-capacity ratio, v/c	0.73	
Density, D	27.1	pcpmpl
Level of service, LOS	D	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Southbound I-680 (Near Term)
Segment	South of I-80
Alternative	No Project (Baseline)
Time period	Existing Plus Approved PM

Flow Inputs and Adjustments

Volume, V	3,110	vph
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v_{15}	818	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	3,372	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,686	pcphpl
Average passenger-car speed, S	63.8	mph
Volume-to-capacity ratio, v/c	0.72	
Density, D	26.4	pcpmpl
Level of service, LOS	D	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Southbound I-680 (Near Term)
Segment	South of Gold Hill Road
Alternative	No Project (Baseline)
Time period	Existing Plus Approved PM

Flow Inputs and Adjustments

Volume, V	2,690	vph
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v_{15}	708	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	2,917	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,458	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.62	
Density, D	22.5	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Southbound I-680 (Far Term)
Segment	South of I-80
Alternative	No Project (Baseline)
Time period	Cumulative NP AM

Flow Inputs and Adjustments

Volume, V	4,510	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	1,199	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	4,942	pcph
Number of lanes, N	3	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,647	pcphpl
Average passenger-car speed, S	64.1	mph
Volume-to-capacity ratio, v/c	0.70	
Density, D	25.7	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Southbound I-680 (Far Term)
Segment	South of Gold Hill Road
Alternative	No Project (Baseline)
Time period	Cumulative NP AM

Flow Inputs and Adjustments

Volume, V	4,010	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	1,066	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	4,394	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	2,197	pcphpl
Average passenger-car speed, S	56.0	mph
Volume-to-capacity ratio, v/c	0.93	
Density, D	39.2	pcpmpl
Level of service, LOS	E	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Southbound I-680 (Far Term)
Segment	South of I-80
Alternative	No Project (Baseline)
Time period	Cumulative NP PM

Flow Inputs and Adjustments

Volume, V	3,970	vph
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v_{15}	1,045	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	4,304	pcph
Number of lanes, N	3	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,435	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.61	
Density, D	22.1	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Southbound I-680 (Far Term)
Segment	South of Gold Hill Road
Alternative	No Project (Baseline)
Time period	Cumulative NP PM

Flow Inputs and Adjustments

Volume, V	3,440	vph
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v_{15}	905	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	3,730	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,865	pcphpl
Average passenger-car speed, S	61.9	mph
Volume-to-capacity ratio, v/c	0.79	
Density, D	30.1	pcpmpl
Level of service, LOS	D	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Southbound I-680 (Near Term)
Segment	South of I-80
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	Existing + Project AM

Flow Inputs and Adjustments

Volume, V	3,380	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	899	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	3,704	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,852	pcphpl
Average passenger-car speed, S	62.1	mph
Volume-to-capacity ratio, v/c	0.79	
Density, D	29.8	pcpmpl
Level of service, LOS	D	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Southbound I-680 (Near Term)
Segment	South of Gold Hill Road
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	Existing + Project AM

Flow Inputs and Adjustments

Volume, V	3,010	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	801	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	3,298	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,649	pcphpl
Average passenger-car speed, S	64.1	mph
Volume-to-capacity ratio, v/c	0.70	
Density, D	25.7	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Southbound I-680 (Near Term)
Segment	South of I-80
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	Existing + Project PM

Flow Inputs and Adjustments

Volume, V	2,975	vph
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v_{15}	783	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	3,226	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,613	pcphpl
Average passenger-car speed, S	64.4	mph
Volume-to-capacity ratio, v/c	0.69	
Density, D	25.1	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Southbound I-680 (Near Term)
Segment	South of Gold Hill Road
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	Existing + Project PM

Flow Inputs and Adjustments

Volume, V	2,575	vph
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v_{15}	678	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	2,792	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,396	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.59	
Density, D	21.5	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Southbound I-680 (Near Term)
Segment	South of I-80
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	EPAP+P AM

Flow Inputs and Adjustments

Volume, V	3,550	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	944	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	3,890	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,945	pcphpl
Average passenger-car speed, S	60.8	mph
Volume-to-capacity ratio, v/c	0.83	
Density, D	32.0	pcpmpl
Level of service, LOS	D	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Southbound I-680 (Near Term)
Segment	South of Gold Hill Road
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	EPAP+P AM

Flow Inputs and Adjustments

Volume, V	3,160	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	840	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	3,463	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,731	pcphpl
Average passenger-car speed, S	63.4	mph
Volume-to-capacity ratio, v/c	0.74	
Density, D	27.3	pcpmpl
Level of service, LOS	D	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Southbound I-680 (Near Term)
Segment	South of I-80
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	EPAP+P PM

Flow Inputs and Adjustments

Volume, V	3,125	vph
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v_{15}	822	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	3,388	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,694	pcphpl
Average passenger-car speed, S	63.8	mph
Volume-to-capacity ratio, v/c	0.72	
Density, D	26.6	pcpmpl
Level of service, LOS	D	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Southbound I-680 (Near Term)
Segment	South of Gold Hill Road
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	EPAP+P PM

Flow Inputs and Adjustments

Volume, V	2,705	vph
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v_{15}	712	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	2,933	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,466	pcphpl
Average passenger-car speed, S	64.9	mph
Volume-to-capacity ratio, v/c	0.62	
Density, D	22.6	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Southbound I-680 (Far Term)
Segment	South of I-80
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	C+P AM

Flow Inputs and Adjustments

Volume, V	4,530	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	1,205	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	4,964	pcph
Number of lanes, N	3	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,655	pcphpl
Average passenger-car speed, S	64.1	mph
Volume-to-capacity ratio, v/c	0.70	
Density, D	25.8	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Southbound I-680 (Far Term)
Segment	South of Gold Hill Road
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	C+P AM

Flow Inputs and Adjustments

Volume, V	4,030	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	1,072	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	4,416	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	2,208	pcphpl
Average passenger-car speed, S	55.7	mph
Volume-to-capacity ratio, v/c	0.94	
Density, D	39.6	pcpmpl
Level of service, LOS	E	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Southbound I-680 (Far Term)
Segment	South of I-80
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	C+P PM

Flow Inputs and Adjustments

Volume, V	3,985	vph
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v_{15}	1,049	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	4,321	pcph
Number of lanes, N	3	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,440	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.61	
Density, D	22.2	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Southbound I-680 (Far Term)
Segment	South of Gold Hill Road
Alternative	Project Alt. 1 (Apartments + Retail)
Time period	C+P PM

Flow Inputs and Adjustments

Volume, V	3,455	vph
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v_{15}	909	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	3,746	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,873	pcphpl
Average passenger-car speed, S	61.8	mph
Volume-to-capacity ratio, v/c	0.80	
Density, D	30.3	pcpmpl
Level of service, LOS	D	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Southbound I-680 (Near Term)
Segment	South of I-80
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	Existing + Project AM

Flow Inputs and Adjustments

Volume, V	3,387	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	901	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	3,711	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,856	pcphpl
Average passenger-car speed, S	62.1	mph
Volume-to-capacity ratio, v/c	0.79	
Density, D	29.9	pcpmpl
Level of service, LOS	D	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Southbound I-680 (Near Term)
Segment	South of Gold Hill Road
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	Existing + Project AM

Flow Inputs and Adjustments

Volume, V	3,017	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	802	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	3,306	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,653	pcphpl
Average passenger-car speed, S	64.1	mph
Volume-to-capacity ratio, v/c	0.70	
Density, D	25.8	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Southbound I-680 (Near Term)
Segment	South of I-80
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	Existing + Project PM

Flow Inputs and Adjustments

Volume, V	2,970	vph
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v_{15}	782	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	3,220	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,610	pcphpl
Average passenger-car speed, S	64.4	mph
Volume-to-capacity ratio, v/c	0.69	
Density, D	25.0	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Southbound I-680 (Near Term)
Segment	South of Gold Hill Road
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	Existing + Project PM

Flow Inputs and Adjustments

Volume, V	2,570	vph
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v_{15}	676	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	2,786	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,393	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.59	
Density, D	21.4	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Southbound I-680 (Near Term)
Segment	South of I-80
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	EPAP+P AM

Flow Inputs and Adjustments

Volume, V	3,557	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	946	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	3,898	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,949	pcphpl
Average passenger-car speed, S	60.7	mph
Volume-to-capacity ratio, v/c	0.83	
Density, D	32.1	pcpmpl
Level of service, LOS	D	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Southbound I-680 (Near Term)
Segment	South of Gold Hill Road
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	EPAP+P AM

Flow Inputs and Adjustments

Volume, V	3,167	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	842	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	3,470	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,735	pcphpl
Average passenger-car speed, S	63.4	mph
Volume-to-capacity ratio, v/c	0.74	
Density, D	27.4	pcpmpl
Level of service, LOS	D	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Southbound I-680 (Near Term)
Segment	South of I-80
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	EPAP+P PM

Flow Inputs and Adjustments

Volume, V	3,120	vph
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v_{15}	821	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	3,383	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,691	pcphpl
Average passenger-car speed, S	63.8	mph
Volume-to-capacity ratio, v/c	0.72	
Density, D	26.5	pcpmpl
Level of service, LOS	D	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Southbound I-680 (Near Term)
Segment	South of Gold Hill Road
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	EPAP+P PM

Flow Inputs and Adjustments

Volume, V	2,700	vph
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v_{15}	711	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	2,927	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,464	pcphpl
Average passenger-car speed, S	64.9	mph
Volume-to-capacity ratio, v/c	0.62	
Density, D	22.5	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Southbound I-680 (Far Term)
Segment	South of I-80
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	C+P AM

Flow Inputs and Adjustments

Volume, V	4,537	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	1,207	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	4,971	pcph
Number of lanes, N	3	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,657	pcphpl
Average passenger-car speed, S	64.1	mph
Volume-to-capacity ratio, v/c	0.71	
Density, D	25.9	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Southbound I-680 (Far Term)
Segment	South of Gold Hill Road
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	C+P AM

Flow Inputs and Adjustments

Volume, V	4,037	vph
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v_{15}	1,074	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	4,424	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	2,212	pcphpl
Average passenger-car speed, S	55.7	mph
Volume-to-capacity ratio, v/c	0.94	
Density, D	39.7	pcpmpl
Level of service, LOS	E	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Southbound I-680 (Far Term)
Segment	South of I-80
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	C+P PM

Flow Inputs and Adjustments

Volume, V	3,980	vph
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v_{15}	1,047	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	4,315	pcph
Number of lanes, N	3	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,438	pcphpl
Average passenger-car speed, S	65.0	mph
Volume-to-capacity ratio, v/c	0.61	
Density, D	22.1	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	Green Valley II Mixed-Use TIA
Freeway	Southbound I-680 (Far Term)
Segment	South of Gold Hill Road
Alternative	Project Alt. 2 (Apartments + Fire Station)
Time period	C+P PM

Flow Inputs and Adjustments

Volume, V	3,450	vph
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v_{15}	908	veh
Trucks and buses	6.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.971	
Driver popoulation factor, f_p	1.00	
Flow rate, v_p	3,741	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width		ft
Right-side lateral clearance		ft
Total ramp density, TRD		ramps/mi
Lane width adjustment, f_{LW}		mph
Lateral clearance adjustment, f_{LC}		mph
TRD adjustment		mph
Calculated free-flow speed, FFS		mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	65	mph

Capacity Checks for Segments with Ramps

	Actual		Maximum		Violation?
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,870	pcphpl
Average passenger-car speed, S	61.9	mph
Volume-to-capacity ratio, v/c	0.80	
Density, D	30.2	pcpmpl
Level of service, LOS	D	