KITTELSON & ASSOCIATES

SAN MATEO NAZARETH VISTA TIA REPORT

616 SOUTH B STREET, SAN MATEO, CA

September 2023

Inside front cover

Page Intentionally blank

San Mateo Nazareth Vista's Traffic Impact Analysis

616 South B Street, San Mateo, CA

Prepared for:
City of San Mateo
330 West 20th Avenue
San Mateo, CA 94403

Prepared by:
Kittelson & Associates, Inc.
155 Grand Avenue, Suite 505
Oakland, CA 94612
510.839.1742

Project Manager:
Anusha Musunuru, PhD
Senior Engineering Associate

Project Principal:
Damian Stefanakis
Senior Principal Planner

Project Analysts:
Dhawal Kataria, AICP
Karen Phan

Project Number 28461

September 2023

Page Intentionally blank

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

APPENDICES

Appendix A: Existing Conditions Worksheets
Appendix B: Baseline (Opening Year) Conditions Worksheets
Appendix C: Project Travel Demand Memorandum
Appendix D: Baseline (Opening Year) Plus Project Conditions Worksheets
Appendix E: Cumulative Conditions Worksheets
Appendix F: Cumulative Plus Project Conditions Worksheets
Appendix G: 95th Percentile Queue Length Worksheets

EXECUTIVE SUMMARY

PROJECT DESCRIPTION

This report documents the California Environmental Quality Act (CEQA) analysis findings and the local transportation analysis conducted for the proposed Nazareth Vista mixed-use development to be located at 616 South B Street, San Mateo, California ("project"). Nazareth Vista LLC is proposing to redevelop the Kelly Moore paint store and TAP Plastics shop to construct a 5-story mixed-use building.

PROJECT TRIP GENERATION

The proposed project is estimated to generate 35 vehicle trips (16 inbound, 19 outbound) during the weekday AM peak hour and 69 vehicle trips (38 inbound, 31 outbound) during the weekday PM peak hour. The existing land-uses (Kelly Moore paint store and TAP Plastics shop) are estimated to generate 11 vehicle trips (6 inbound, 5 outbound) during the weekday AM peak hour and 26 vehicle trips (12 inbound, 14 outbound) during the weekday PM peak hour. The pass-by trips generated by the existing land uses at the project site are factored into these estimates. The proposed project is estimated to generate 474 net new weekday daily trips of which 24 will occur during the AM peak hour and 43 during the PM peak hour.

Trip generation rates were based on the site plan received in October 2022 prior to this draft submittal. Since then, the site plan has been revised with a slight decrease in the overall square footage, resulting in a small reduction in the net new project trips (1 trip in the AM peak hour and 3 in the PM peak hour). Therefore, this project assessment with the October 2022 site plan should not negatively affect traffic analysis and is considered more conservative.

CEQA ANALYSIS

This project is located within a half mile of the San Mateo Downtown Caltrain station, and it meets the detailed screening criteria requirements to be considered within a High-Quality Transit Area (HQTA) per the City Transportation Impact Analysis (TIA) Guidelines.[1] In meeting at least one of the five screening criteria, the proposed project can be presumed to result in a less than significant VMT impact and therefore is exempted from the detailed VMT analysis.

LOCAL TRANSPORTATION ANALYSIS

Kittelson conducted the intersection Level of Service (LOS) analysis at nine (9) study intersections for Existing, Baseline (Opening Year), Baseline (Opening Year) Plus Project, Cumulative, and Cumulative Plus Project Conditions for weekday AM and PM peak hour traffic conditions. Kittelson reviewed the site access and on-site circulation based on the proposed site plan and the changes in the 95th percentile queue lengths caused by the proposed project at the study intersections. The results for all scenarios are presented in the report below.

The proposed project would not cause any study intersections to exceed the level of service standard as specified in the City of San Mateo TIA guidelines. Storage capacity is exceeded for the EB and NB approaches at B Street and 5th Avenue in the AM and PM in the Cumulative and Cumulative Plus Project scenarios, the NB and SB approaches at B Street and 9th Avenue in the AM in the Cumulative and

[1] City of San Mateo Transportation Impact Analysis Guidelines, 2020.

Cumulative Plus Project scenarios, and the SB approach at B Street and 9th Avenue in the PM in the Cumulative and Cumulative Plus Project scenarios. Although storage capacity is exceeded in these scenarios, queue lengths do not increase with respect to plus project scenarios when compared to no project scenarios. Thus, the proposed project does not impact the status quo.

Section 1
Introduction

INTRODUCTION

This report documents the California Environmental Quality Act (CEQA) analysis findings and the local transportation analysis conducted for the proposed Nazareth Vista mixed-use development to be located at 616 South B Street, San Mateo, California ("project"), see Figure 1.

PROJECT DESCRIPTION

PROJECT LOCATION

The proposed project is located at 616 South B Street and is approximately 0.5 miles from the San Mateo Downtown Caltrain station. Vehicular access to the site is proposed on 6th Avenue and 7th Avenue, where the garage entry/exit is provided for retail and residential land use, respectively. In addition, the primary residential entry for pedestrians is provided on 7th Avenue and pedestrian retail entries are provided at the corners of 6th Avenue/B Street and 7th Avenue/B Street, as well as along South B Street. The residential lobby is provided midblock on the south by 7th Avenue. Nearby land uses include residential, commercial, and mixed-use (commercial/residential). San Mateo Central Park is located to the west of the site. The project site is in downtown San Mateo and is zoned as C1-3/R5 – Neighborhood Commercial/Residential Overlay – Mixed Use.

EXISTING AND PROPOSED USES

Nazareth Vista LLC is proposing to redevelop the 0.64-acre (27,921 square feet) land area, bounded by South B Street to the east, 6th Avenue to the north, and 7th Avenue to the south. The applicant is proposing to construct a 5-story mixed-use building of approximately 84,132 square feet (floor plans, as shown in Figure 2). The project will replace the existing 7,500 square feet Kelly Moore paint store and 4,500 square feet TAP Plastics shop.

The building would consist of one level below-grade parking structure with 72 covered parking stalls, approximately 9,199 square feet of ground floor retail level, and four levels of residential space, totaling 48 units with approximately 64,257 square feet of residential space. The retail space would be located on the ground floor, and the residential space would be split between the ground floor, second level, third level, fourth level, and fifth levels. The ground floor would also include 9,214 square feet of parking area and a 1,462 square feet parking ramp. Table 1 summarizes the proposed mixed-use project characteristics.

Table 1: Existing and Proposed Land Uses

Existing Land-Uses To Be Removed	Units	Size (GFA)
Kelly-Moore Paint Store	1	7,500 SF
TAP Plastics	1	4,500 SF
Proposed Land Use	**Units**	**Size (GFA)**
Residential	48	
1-Bedroom	*35*	
2-Bedroom	*12*	
3-Bedroom	*1*	64,257 SF
Commercial/Retail	To Be Determined	9,199 SF

Notes: SF- Square Feet; Source: Nazareth Vista LLC, 2022

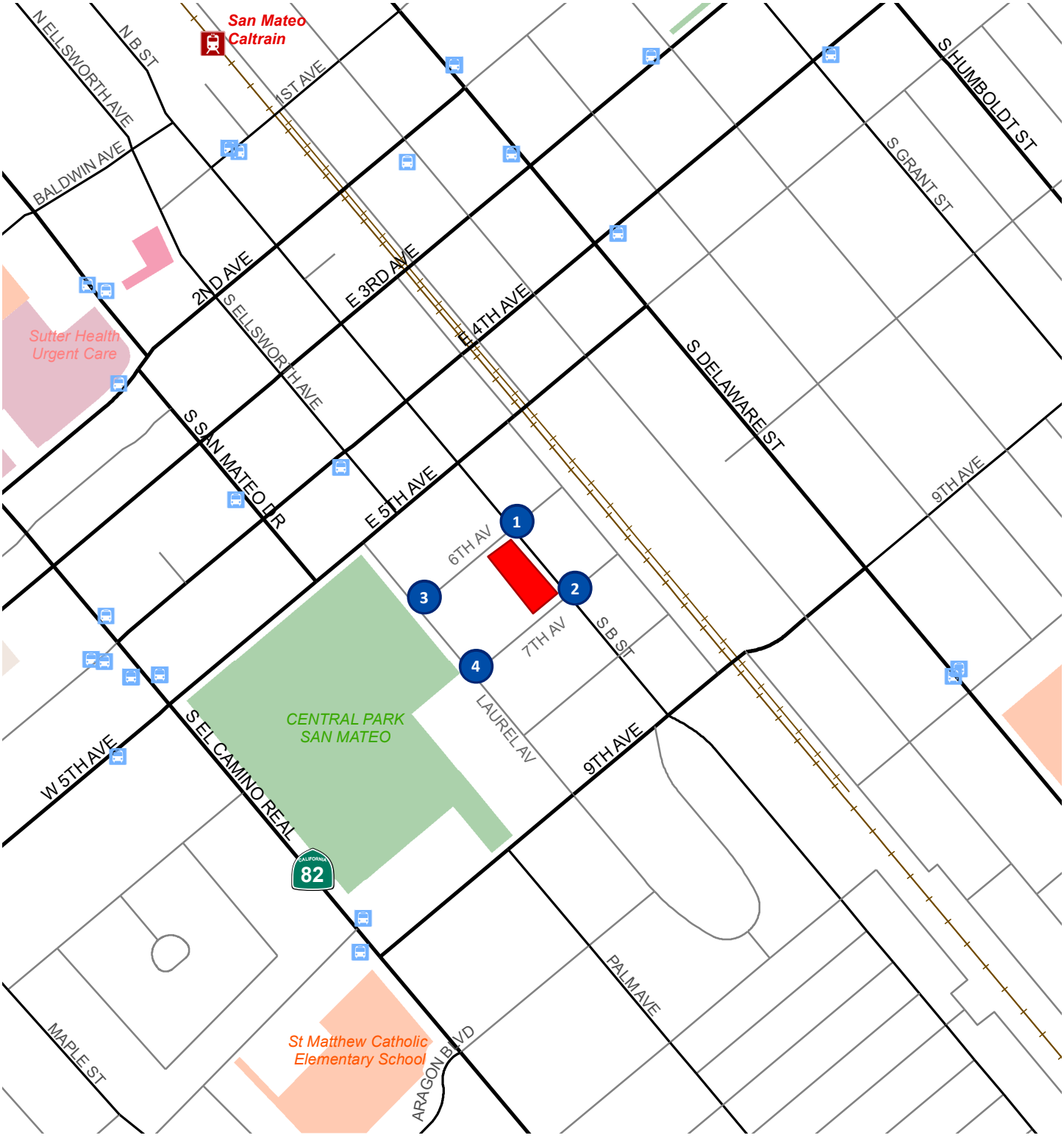


Figure 1. Project Location

LEGEND

- Project Location
- X — Study Intersection
- Caltrain Station
- SamTrans Bus Stop

Source: City of San Mateo, 2022

Miles

0 ¼

KITTELSON & ASSOCIATES

Figure 2: Proposed Mixed-Use project Floor Plans (First, Second, and Third Floors)

Source: Nazareth Vista LLC, 2022

TRANSPORTATION DEMAND MANAGEMENT PLAN

The project would implement a Transportation Demand Management (TDM) Plan to encourage sustainable modes of transportation and reduce vehicle trips to and from the site. The TDM Plan is being developed by Steer Group as part of this project.

SCOPE OF STUDY

The purpose of this transportation analysis is to determine whether the proposed project would have transportation impacts, as defined by the City of San Mateo's Transportation Impact Analysis Guidelines, developed in accordance with the City of San Mateo 2030 General Plan and the Governor's Office of Planning and Research (OPR) requirements in July 2020. The analysis covers the following topics:

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) ANALYSIS

Senate Bill (SB) 743 updated the process of measuring transportation impacts for the California Environmental Quality Act (CEQA) purposes— based on the number of daily trips and the distance traveled by those trips to their destinations (VMT). The technical advisory provided by the OPR specifically addresses the requirements of California SB 743 which mandated specific types of CEQA analysis of land use development and transportation projects effective July 1, 2020. The quantitative methodology, significance thresholds, and mitigation measures for conducting transportation analysis are based on VMT metrics as identified in the City of San Mateo VMT and TIA Guidelines.

LOCAL TRANSPORTATION ANALYSIS

The City of San Mateo requires the analysis of unsignalized and signalized intersections, though it does not require the analysis of roadway segments, in compliance with the 2030 General Plan. Since a roadway segment's capacity is generally controlled by the downstream intersection, an intersection analysis is sufficient for assessing a project's impacts. Based on the discussions with City Staff and the approved scope of work, Kittelson evaluated the following items under the local transportation analysis section:

- Site Access and On-Site Circulation
    - Vehicular Access
    - Pedestrian Access
    - Bicyclist Access
    - Transit Access
    - Emergency Vehicle Access
- Intersection Operations
    - Level of Service
    - Vehicle Queueing

Section 2
CEQA Analysis

CEQA ANALYSIS

SCREENING CRITERIA

According to the technical advisory by OPR[2] and the more specific City TIA guidelines[3], a project would require a detailed VMT analysis unless it meets at least one of the City's five screening criteria:

1. *Small Projects* – As per the OPR advisory and the City's TIA guidelines, projects that generate or attract fewer than 110 vehicle trips per day are classified as 'small projects'. This proposed project has 48 residential units covering 64,257 square feet of residential space; 9,199 square feet of retail space and generates 474 vehicle trips per day (Detailed trip generation is described in a technical memo from Kittelson, dated January 23, 2023). – **The project does not meet this criterion.**
2. *Affordable Housing* – As per the TIA guidelines, residential projects that consist entirely of 100 percent deed-restricted affordable housing are presumed to have a less than significant impact. This is a mixed use project which is not 100 percent deed-restricted affordable housing.– **The project does not meet this criterion**.
3. *Local-Serving Retail and Public Services* – As per the TIA guidelines, projects that are locally serving retail with 50,000 square feet gross floor area or less are presumed to have a less than significant impact. The proposed project is a mixed-use development which is not entirely comprised of locally serving retail. – **The project does not meet this criterion.**
4. *High-Quality Transit Area (HQTA)* – As per the TIA guidelines, projects located within a half-mile radius of high-quality transit do not require a detailed VMT analysis. The proposed project is located less than 0.5-mile radius from the San Mateo Caltrain station and 0.3 mile walk to El Camino Real bus service, and therefore is considered to be in a high-quality transit area as specified in the City's HQTA map (Attachment A of the City's TIA guidelines) which is included in this report as Figure 3. This exemption from a detailed VMT analysis does not apply if any of the following are true about the project:
    a. Project has a floor area ratio (FAR) of less than 0.75 **– no**. The FAR for this proposed project development is 3.01.
    b. Project includes more parking for use by residents, customers, or employees of the project than required by the jurisdiction **– no**. For this project the off-street parking requirement without AB 2097 would be determined by the Downtown Area Plan and the Downtown Specific Planning Area and Central Parking and Improvement District (CPID). Table 2 shows the minimum amount of parking that would have been required for the proposed project.

[2] Technical Advisory on Evaluating Transportation Impacts in CEQA, Governor's Office of Planning and Research, December 2018.
[3] City of San Mateo Transportation Impact Analysis Guidelines, 2020.

The City would have required 108[4] parking stalls. The proposed mixed-use project is providing 72 parking stalls.

The proposed project would provide less parking than the City's standard minimum parking requirements based on the San Mateo Municipal Code, so it satisfies the essence of the OPR guidelines.

c. Project is inconsistent with the applicable Metropolitan Transportation Commission's (MTC) Sustainable Communities Strategy (SCS), as determined by the city - **no.** The City has not indicated that this project is out of alignment with the MTC SCS.

d. Project replaces affordable residential units with a smaller number of moderate- or high-income residential units – **no.** This project is not replacing any affordable residential units.

The proposed project meets the HQTA criterion and does not exhibit any of the characteristics which would prevent it from satisfying this screening.

Table 2: City of San Mateo Parking Requirements and Proposed Project Parking Spaces Calculation

	San Mateo Off-Street Parking Requirements (per 1,000 Gross Square Feet (SF) of Floor Area			Proposed Project Parking Calculation	
Land Use Type	Employee/ Resident	Visitor/ Customer	Total	Total Units/Area	Parking Spaces
Retail	1.4	0.5	1.9	9,199 SF	18
Residential					
Three-bedrooms	2.0	0.2	2.2	1	3
Two-bedrooms	1.8	0.2	2.0	12	24
Studio and One-bedrooms	1.6	0.2	1.8	35	63
				Total	***108***

Source: San Mateo Municipal Code

5. *Project Located in Low VMT Areas* – Projects that are proposed in areas that generate VMT below adopted City thresholds are presumed to have a less than significant VMT impact and thus can be screened out. The thresholds and project types that may be screened out are:

[4] Per Kittelson review of the San Mateo municipal code, the required parking spaces for the project is 108. Retail parking was determined from 27.64.100 and residential parking was determined from 27.64.160 (https://law.cityofsanmateo.org/us/ca/cities/san-mateo/code/27.64.160). However, the planning application used different rates for the required parking (0.5 stall per unit with client request for developer to provide 1 stall per unit), which resulted in 73 spaces. A new California law AB-2097 was approved by the Governor on September 22, 2022 (effective January 1, 2023) that prohibits a public agency from imposing any minimum parking requirement on any residential, commercial, or other development projects, which is located within a half mile of a major transit stop. The proposed project is located within a half mile of San Mateo Caltrain Station.

a. Residential projects proposed in TAZs with total daily resident based VMT per capita that is 15% less than the existing regional average for the County of San Mateo – **no, this is a mixed-use project and does not meet this criterion**.

b. Office or employment portions of other non-residential uses with total daily employee based VMT per employee that is 15% less than the existing regional average for the County of San Mateo **– no.** The proposed mixed-use project is in Transportation Analysis Zone (TAZ) 3038 with VMT per employee 17.9 (Figure 4). San Mateo County has a regional average of 18.0 VMT per Employee with an impact threshold of 15.3 VMT per Employee (15% below regional average) for this mixed-use project. **- The proposed project does not meet this criterion.**

Screening Criteria Results

Based on screening criteria, the proposed project meets one of the VMT screening criteria and therefore does not require a detailed VMT analysis. Table 3 provides a VMT screening summary for the project.

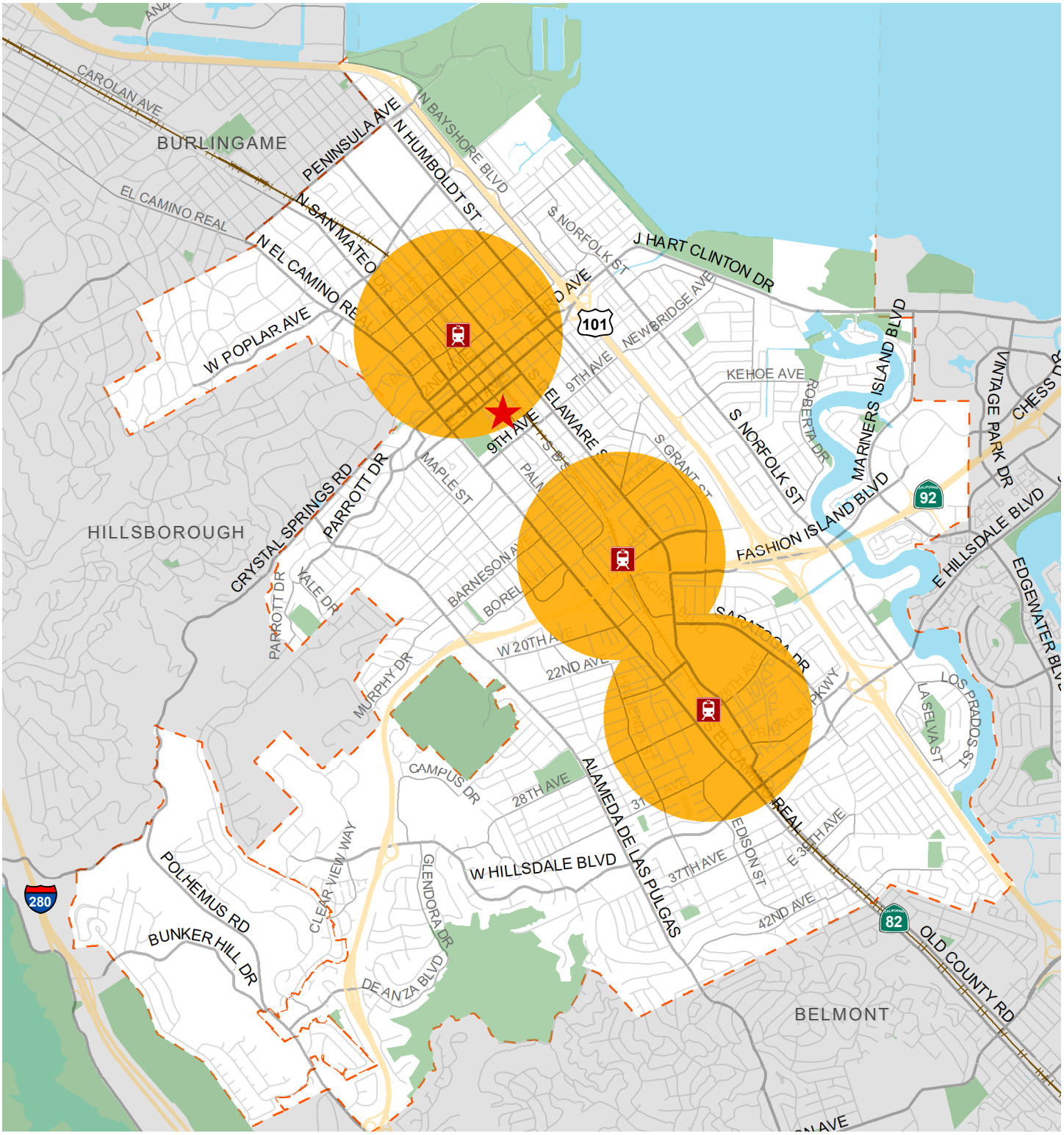
Table 3: VMT Screening Summary

VMT Screening Criteria	Criterion Met?
Small Project	No
Affordable Housing	No
Local-serving Retail	No
High Quality Transit Area	**Yes**
Low VMT Area	No

Source: Kittelson & Associates, Inc., 2023

VMT IMPACT DISCUSSION

A review of the OPR Technical Advisory and City's TIA guidelines has determined that the project meets the minimum of one of the five VMT screening criteria — it is in a High-Quality Transit Area. Therefore, the project is presumed to have a *less than significant impact* on VMT and is exempt from detailed VMT analysis.



High-quality transit areas are within 1/2 mile of an existing major transit stop or an existing stop along a high-qualiity transit corridor

LEGEND

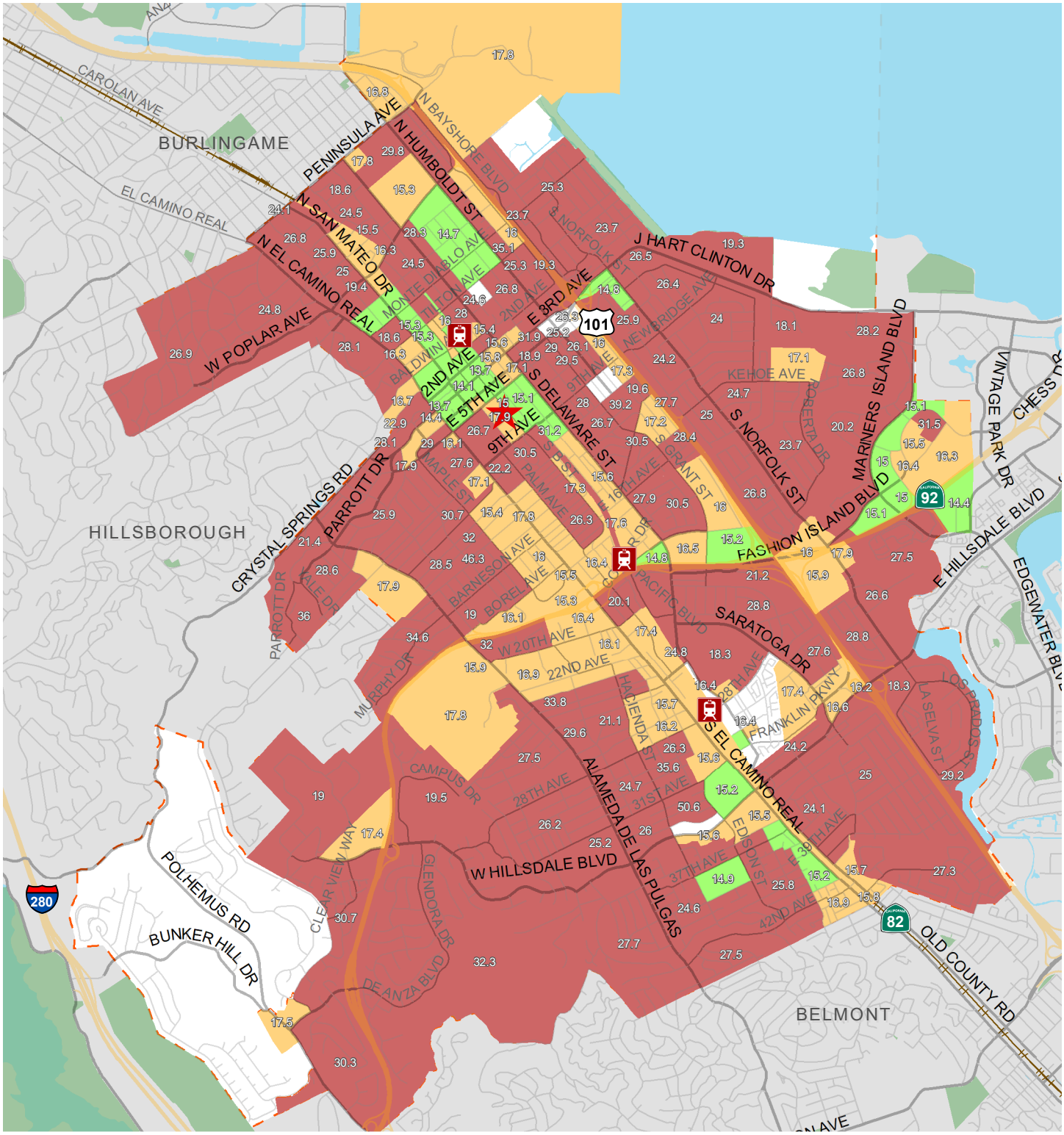
- Project (616 South B St)
- Caltrain Station
- High Quality Transit Area
- City Boundary

Source: City of San Mateo, Transportation Impact Analysis Guidelines, 2020

Figure 3. High Quality Transit Areas

Miles

0 1



Project TAZ - 3038, VMT per Employee = 17.9, VMT Threshold = 15.3

LEGEND

- Project (616 South B St)
- < 15.3 - Below Target VMT (County Average - 15%)
- 15.3 - 18.0 - Target VMT (County Average- 15%) to County Average
- > 18.0 - Above County Average

Source: City of San Mateo, Transportation Impact Analysis Guidelines, 2020

Figure 4. Average VMT Per Employee by TAZ - VMT per Employee Labelled

Miles

0 1

Section 3
Local Transportation Analysis

LOCAL TRANSPORTATION ANALYSIS

SCOPE OF STUDY

TIME PERIODS

Traffic conditions at the study intersections are analyzed for the weekday a.m. (7-9 am) and p.m. peak (4-6 pm) hours of adjacent street traffic. These periods represent the traditional peak commute periods when the traffic demand on the roadway system is the greatest.

Kittelson obtained the multimodal intersection turning movement counts at two of the nine study intersections from the City for the weekday AM (7-9) and PM (4-6) peak periods when the existing project site was in operation and generating trips. These intersections included: 5th Avenue/B Street and 9th Avenue/B Street. The multimodal intersection turning movement counts for the remaining study intersections were collected by Kittelson in 2022 and used for analyzing traffic conditions as part of this project. The traffic counts were collected when the Kelly Moore paint store and TAP plastics shop were in operation. Traffic Counts are provided in the appendices for the scenarios.

Transportation conditions are evaluated for the following scenarios:

- ***Existing Conditions***: This scenario describes existing transportation conditions in the study area based on the current roadway and sidewalk network characteristics, transit service and intersection counts.
- ***Baseline (Opening Year) Conditions*:** This scenario describes the projected peak hour traffic operations based on the net change to travel patterns anticipated from approved (but not yet constructed) or fully/partially occupied developments in the vicinity of study area at the time of the Existing Conditions assessment. This includes additional trips that would be generated if the approved developments were to operate at full occupancy.
- ***Baseline (Opening Year) Plus Project Conditions*:** This scenario is like Baseline (Opening Year) Conditions but with the inclusion of vehicle trips that would be generated by the project. Baseline (Opening Year) Plus Project Conditions were evaluated relative to Baseline (Opening Year) Conditions to determine the effects the proposed project would have on the Baseline (Opening Year) roadway network.
- ***Cumulative Conditions*:** This scenario represents the future traffic volumes on the roadway network. This scenario was estimated by adding a regional growth to existing traffic volumes between the existing year and future year (2040).
- ***Cumulative Plus Project Conditions*:** This scenario is like Cumulative Conditions but with the addition of vehicle trips generated by the project. Cumulative Plus Project Conditions were evaluated relative to Cumulative Conditions to determine the effects the proposed project would have on the future roadway network.

STUDY INTERSECTIONS

The following nine study intersections were selected for analysis and are shown in Figure 5.

1. B Street & 5th Avenue (Traffic Signal)
2. B Street & 6th Avenue (TWSC)
3. B Street & 7th Avenue (TWSC)
4. B Street & 8th Avenue (TWSC)
5. B Street & 9th Avenue (Traffic Signal)
6. Laurel Avenue & 9th Avenue (TWSC)
7. Laurel Avenue & 7th Avenue (TWSC)
8. Laurel Avenue & 6th Avenue (AWSC)
9. Laurel Avenue & 5th Avenue (TWSC)

(TWSC = Two Way Stop Control)

INTERSECTION LEVEL OF SERVICE (LOS) CRITERIA

Level of service (LOS) describes the operating conditions experienced by motorists. LOS is a qualitative measure of the effect of a number of factors, including speed and travel time, traffic interruptions and delay, freedom to maneuver, driving comfort, and convenience. The operational LOS are given letter designations from A to F, with A representing the free-flow (underutilized) operating conditions and F representing the severely congested flow (overutilized) with high delays. Typically, LOS C/D is considered as an ideal condition as it represents stable flow and efficient use of transportation facility.

Intersection analyses for the nine study intersections are conducted using the operational methodologies outlined in the Highway Capacity Manual 6th Edition (HCM 6th Edition) methodology (Transportation Research Board, Washington, D.C., 2016), calculated with Synchro 11 software.

Signalized Intersections

The HCM procedure calculates a weighted average control delay in seconds per vehicle at a signalized intersection and assigns a level of service designation based upon the delay. The City of San Mateo level of service standard is mid-LOS D (delay of 45 seconds) or better for all signalized study intersections.

Unsignalized Intersections

The HCM methodology calculates a weighted average control delay in seconds per vehicle for each controlled intersection leg and for the intersection. For two-way stop-controlled intersections, the LOS for the worst approach is used as the LOS performance measure. The City of San Mateo does not have a LOS standard for unsignalized intersections as specified in the 2030 General Plan. The City adopted Transportation Impact Analysis (TIA) Guidelines in August 2020 to include LOS standards for unsignalized intersections. According to the City of San Mateo standard, unsignalized intersections should maintain a LOS no worse than LOS E.

Table 4 presents the relationship of average delay to level of service for both signalized and unsignalized intersections.

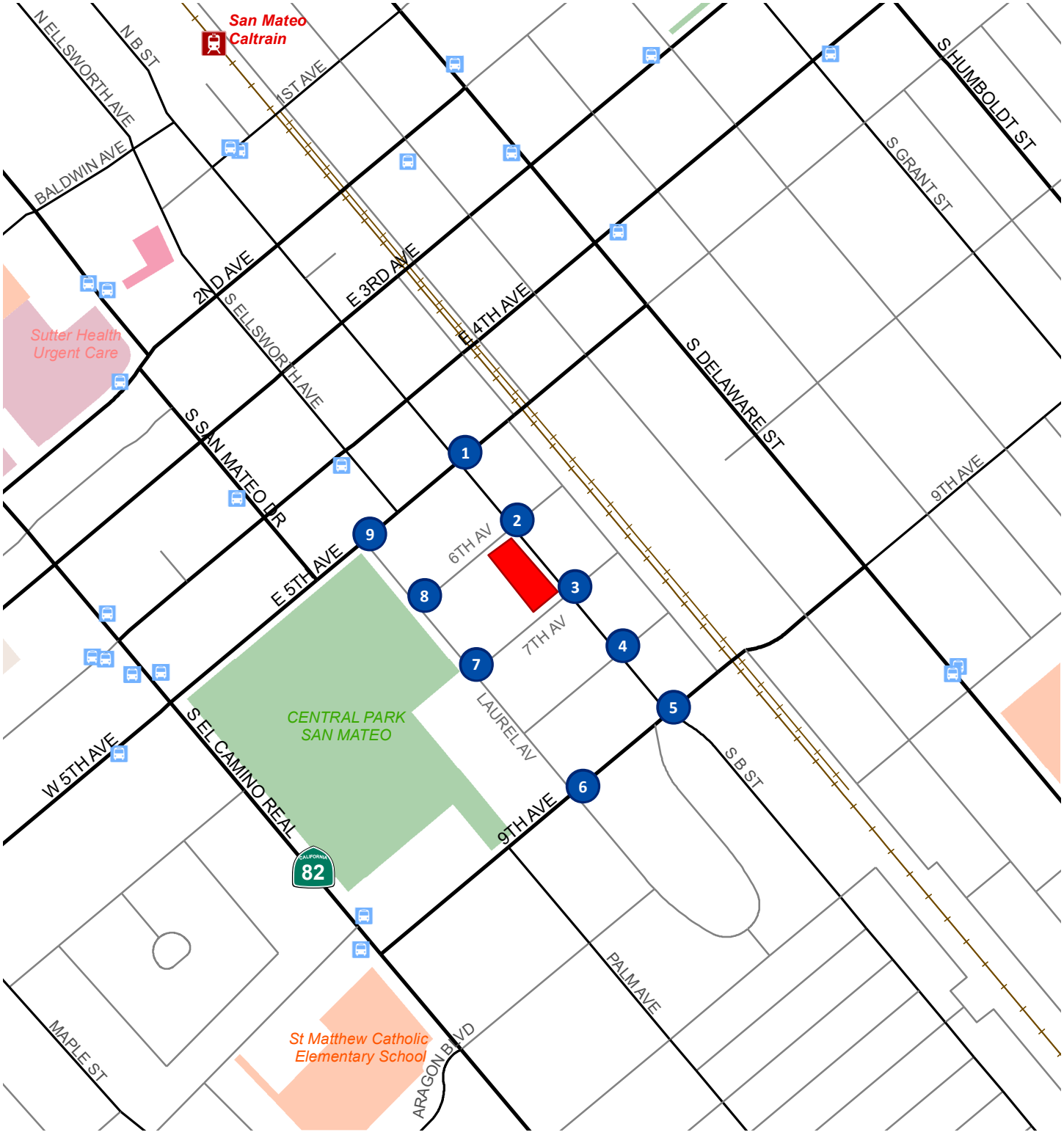


Figure 5. Study Intersections

LEGEND

- Project Location
- Study Intersection
- Caltrain Station
- SamTrans Bus Stop

Miles

0 ¼

Source: City of San Mateo, 2022

Table 4: Level of Service Definition for Intersections

Signalized Intersection			Unsignalized Intersection
Average Delay Per Vehicle (Seconds)	LOS	Description of Traffic Conditions	Average Delay Per Vehicle (Seconds)
≤10.0	A	Free flowing. Most vehicles do not have to stop.	≤10.0
>10.0 and ≤20.0	B	Minimal delays. Some vehicles have to stop, although waits are not bothersome.	>10.0 and ≤15.0
>20.0 and ≤35.0	C	Acceptable delays. Significant numbers of vehicles have to stop because of steady, high traffic volumes. Still, many pass without stopping.	>15.0 and ≤25.0
>35.0 and ≤55.0	D	Tolerable delays. Many vehicles have to stop. Drivers are aware of heavier traffic. Cars may have to wait through more than one red light. Queues begin to form, often on more than one approach.	>25.0 and ≤35.0
>55.0 and ≤80.0	E	Significant delays. Cars may have to wait through more than one red light. Long queues form, sometimes on several approaches.	>35.0 and ≤50.0
>80.0	F	Excessive delays. Intersection is jammed. Many cars have to wait through more than one red light, or more than 60 seconds. Traffic may back up into "up-stream" intersections.	>50.0

Source: Transportation Research Board, Highway Capacity Manual 6th Edition (Washington D.C., 2016)

GENERAL PLAN LOS POLICY STANDARD

Per the City's General Plan Circulation Element Policy C 2.7 (Section E), all projects are required, at a minimum, to pay a transportation mitigation fee. The transportation mitigation fee is used to fund planned transportation improvements that are identified in the City of San Mateo Traffic Mitigation Program. The cost of the off-site improvements may be reimbursed by the City if a reimbursement program is established through the timeframe of the City of San Mateo's current Traffic Mitigation Program or at the time when the improvement was initially scheduled. In addition to paying the transportation impact fee, a development project may be required to fund off-site circulation improvements which are needed as a result of project generated traffic if:

Signalized Intersections

An adverse traffic operations issue is identified if the addition of the traffic generated from the proposed project results in any one of the following:

a) The level of service of the intersection drops below mid-level LOS D (average delay of more than 45 seconds) when the project traffic is added, **or**
b) The average delay for a study intersection under the base year conditions that is already operating at unacceptable LOS experiences an increase in delay of four or more seconds.

Unsignalized Intersections

An adverse traffic operations issue is identified if the addition of the traffic generated from the proposed project results in any one of the following:

a) The level of service at the intersection drops from LOS E or better to LOS F (average delay of more than 50 seconds) when the project traffic is added, **or**
b) An intersection that operates below its level of service standard under the base year conditions experiences an increase in delay of four or more seconds.

Additionally, an adverse traffic operations issue is identified if the addition of the traffic generated from the proposed project is determined to be a needed improvement of the signalized or unsignalized intersection(s) but is not funded in the applicable five-year City Capital Improvement Program from the date of application approval.

Transportation studies typically evaluate whether unsignalized intersections are functioning adequately and whether signalization is warranted using the peak-hour volume signal warrant described in the California MUTCD.

EXISTING CONDITIONS

ROADWAY NETWORK

The project site can be accessed via US 101, SR 82 (El Camino Real), 5th Avenue and 9th Avenue. Key roadways adjacent to the project site are described below:

State Route 82 (El Camino Real) is a four-to six lane state highway in California, serving as a major north-south regional corridor that connects major cities in the San Francisco Peninsula. It extends from Interstate 880 in San Jose at the south end to Interstate 280 in San Francisco at the north end. It runs parallel to the Caltrain line along much of the route. Access to and from the project study area is provided via signalized intersections at B Street/5th Avenue and B Street/9th Avenue. The posted speed limit near the project is 35 mph.

US 101 is an eight-to ten lane state highway in California, with managed toll lanes serving as the primary coastal route providing access to the San Francisco Bay Area. It is also the primary commuting route between San Francisco and San Jose. Access to and from the project study area is provided via interchanges at 3rd Avenue and 4th Avenue to the northeast of the project site. The posted speed limit is 65 mph.

5th Avenue is a two-lane east-west downtown arterial street that connects the Baywood-Aragon community in the west with US 101. Arterial roads link residential and commercial districts and serve shorter through traffic needs. In the vicinity of the project site, 5th Avenue has two lanes. The project access is provided via signalized intersection at B Street. The posted speed limit near the project is 25 mph.

9th Avenue is a two-lane east-west downtown arterial street that connects EL Camino Real (SR 82) and S. Amphlett Boulevard. Arterial roads link residential and commercial districts and serve shorter through traffic needs. In the vicinity of the project site, 9th Avenue has two lanes. The project access is provided via signalized intersection at B Street. The posted speed limit near the project is 25 mph.

B Street is a north-south downtown collector street that runs through the downtown San Mateo and provides access to major commercial destinations. Collector roads link arterial roads to local roads and

serve some through traffic needs. In the vicinity of the project site, B Street has two lanes. The City is in the process of creating a permanent Pedestrian Mall along B Street between 1st and 3rd Avenue. Some segments of B street were temporarily closed during the COVID-19 pandemic, and the City Council moved to permanently close the street to traffic[5]. B Street provides direct access to the project. The posted speed limit near the project is 25 mph.

Laurel Avenue is a north-south, two-lane local street extending from 5th Avenue in the north to Rosewood Drive in the south. This street runs parallel to B Street and provides primary access to residential neighborhoods, commercial areas, and Central Park. The street is in the vicinity of project site and provides direct access to the project via 6th and 7th Avenue. The posted speed limit near the project is 25 mph.

PEDESTRIAN FACILITIES AND AMENITIES

Pedestrian facilities consist of sidewalks, crosswalks, and pedestrian signals at signalized intersections. There are sidewalks on both sides of the road along B Street, Laurel Avenue, 6th Avenue, and 7th Avenue near the vicinity of the project, providing pedestrian access to and from the project site. The typical sidewalk width is 4-6 feet and is interrupted frequently by driveways. Marked crosswalks with pedestrian signal heads are present at B Street/5th Avenue and B Street/9th Avenue. All study intersections on Laurel Avenue and B Street/8th Avenue have high-visibility crosswalks. Intersections at B Street/6th Avenue, B Street/7th Avenue, B Street/8th Avenue, B Street/9th Avenue, Laurel Avenue/9th Avenue, Laurel Avenue/7th Avenue, and Laurel Avenue/5th Avenue have curb ramps with high-visibility truncated domes at the study intersections. The overall network of sidewalks and crosswalks in the study area has good connectivity and provides pedestrians with safe routes to maneuver.

BICYCLE FACILITIES AND AMENITIES

There are four classifications of bikeway facilities in California as defined by the California Department of Transportation (Caltrans) – Class I through Class IV.[6] More details on each of the following classes is shown below in Figure 6.

The existing and proposed bicycle routes within the study area are described below.[7] The existing bicycle network is shown in Figure 7. The City is considering changes to the proposed bicycle facilities on B Street due to the creation of the pedestrian mall on B Street between 1st and 3rd Avenues.

B Street- There is a Class III shared bike lane between 5th Avenue and 9th Avenue. The 2020 Bicycle Master Plan proposes a buffered bike lane (Class II) along B Street from 5th Avenue south until the road transitions into South Boulevard.

5th Avenue- There is a Class III shared bike lane between San Mateo Drive and Humboldt Street. The 2020 Bicycle Master Plan proposes upgrading the corridor from Edinburgh Street to Delaware Street to a bike lane (Class II) and Delaware Street to Amphlett Boulevard to a bicycle boulevard (Class III).

9th Avenue- There are Class II bike lanes east of B Street and Class III shared bike lane west of B Street to Laurel Avenue. The 2020 Bicycle Master Plan proposes upgrading 9th Avenue between El Camino Real and B Street to a bike lane (Class II).

Laurel Avenue – There is currently a Class II bike lane between 5th Avenue and 9th Avenue. The 2020 Bicycle Master Plan does not propose any upgrades or changes to the existing configuration.

[5] Downtown B Street Closures, accessed from https://www.cityofsanmateo.org/4448/Downtown-B-Street-Closures

[6] As detailed in Chapter 1000 of the Highway Design Manual (Caltrans, 2015).
[7] As proposed in City of San Mateo Bicycle Master Plan, 2020.

There is no on-street bicycle parking facility near the vicinity of the project. There are sidewalk benches available near the San Mateo Central Park, located west of the project site.

Figure 6: Bike Lane Facility Classifications

Multi-Use Paths (Class I Bikeways)

A path physically separated from motor vehicle traffic by an open space or barrier, used by bicyclistes, pedestrians, joggers, skaters, and other non-motorized travelers. Because the availability of uninterrupted rights-of-way is limited, this type of facilities may be difficult to locate and expensive to build relative to other types of bicycle and pedestrian facilities, but inexpensive compared to new roadways. Prime locations for bike paths are areas such as power-line easements, utility easements, canal banks, river levees, drainage easements, railroad or highway rights-of-way, or regional community parks.

Bicycle Lanes (Class II Bikeways)

A travel lane on a roadway that has been set aside by striping and pavement markings for the preferential or exclusive use of bicyclists. Bicycle lanes are intended to promote an orderly flow of bicycle and motor vehicle traffic. This type of facility is established by using the appropriate striping, legends, and signs.

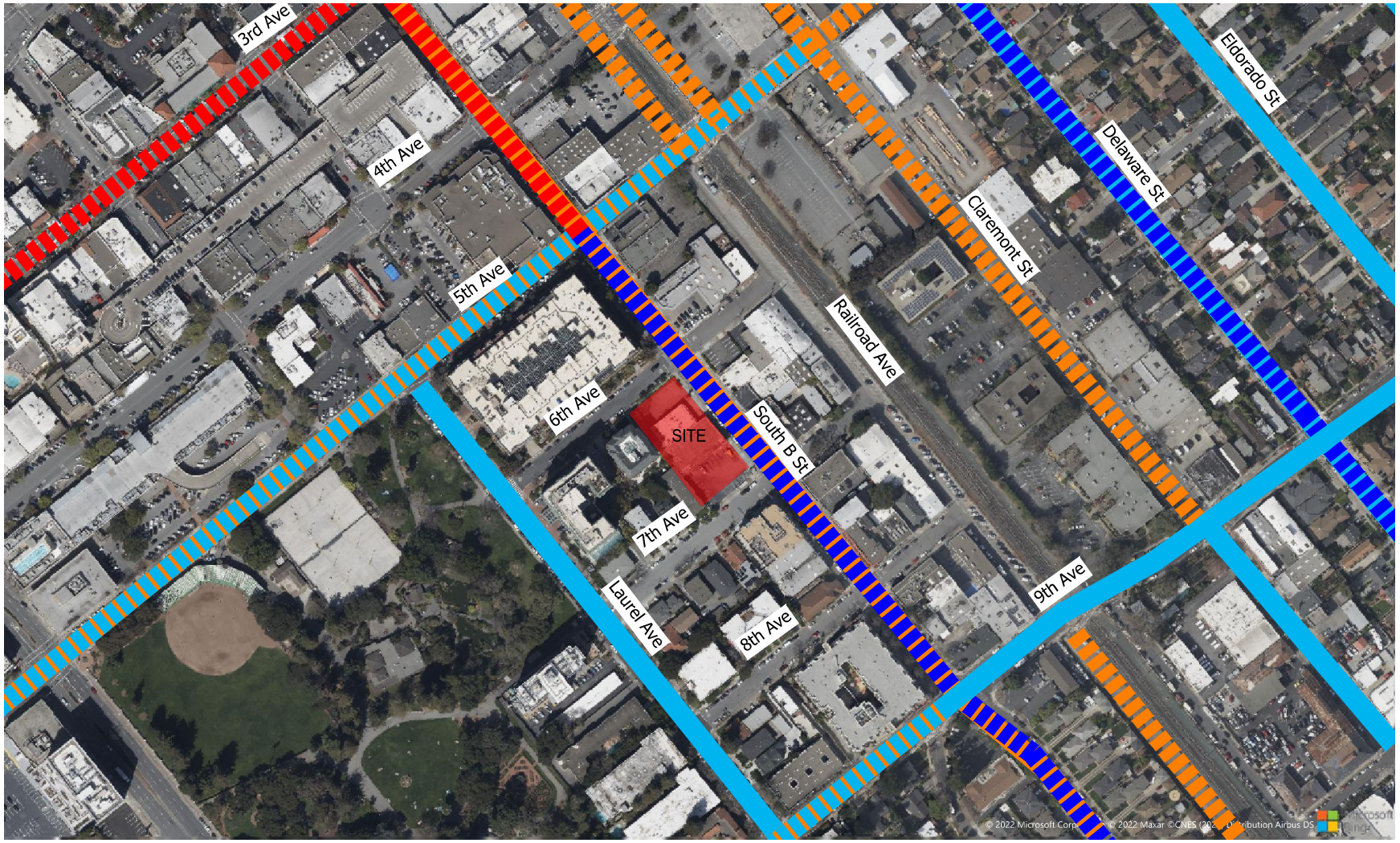
Bicycle Routes (Class III Bikeways)

Bicycle routes designated by signage where bicyclists share travel lanes with motor vehicle traffic. Bicycle routes must be of benefit to the bicyclists and offer a higher degree of service than adjacent streets. Class III bikeways are often designated on low-volume local residential streets. Additionally, many cities have installed an enhanced type of Class III Bicycle Route, referred to as a "Bicycle Boulevard." Bicycle Boulevard are generally installed on relatively low-volume streets and often include elements to facilitate bicycle travel, such as reorienting stop signs to reduce delays to cyclists, and/or discouraging use by motorists making through trips, such as through the inclusion of traffic calming measures.

Separated Bikeway (Class IV Bikeways)

A class IV Bikeway is for the exclusive use of bicycles and includes a separation between the bikeways and adjacent vehicle traffic. The physical separation may include flexible posts, grade separation, inflexible physical barriers or on-street parking. Separated bikeways generally operate in the same direction as vehicle traffic on the same side of the roadway. However, two-way separation bikeways can also be used, usually in lower speed environments (35 miles per hour or less).

Source: Caltrans



Legend:

- Existing Bike Lane (Class II)
- Existing Bicycle Boulevard (Class III)
- Proposed Separated Bike Lane (Class I)
- Proposed Buffered Bike Lane (Class II)
- Proposed Bike Lane (Class II)
- Proposed Bicycle Boulevard (Class III)

Existing and Proposed Bicycle Network

Figure 7

TRANSIT SERVICE

The existing transit service to the study area is provided by the San Mateo County Transit District (SamTrans) and Caltrain. The Project is located near the El Camino Real transit corridor and the nearest bus stop is located near the intersection of 5th Avenue and El Camino Real. The ECR runs every 15 minutes on weekdays and every 20 minutes on weekends between Daly City and Palo Alto, between about 5 a.m. and 1 a.m. the next morning. Caltrain commuter rail facility serves the San Francisco Peninsula and Santa Clara Valley.

SamTrans Service

The project site has five bus routes nearby (Route 250, 251, 292, 397, and ECR), operated by SamTrans with the nearest bus stops located at the intersections of 4th Avenue/Ellsworth Avenue, 4th Avenue/San Mateo Drive, and 5th Avenue/El Camino Real. Three additional bus routes (school-day only) Route 53, and 59 operate in the vicinity of the project site. The bus routes that provide the peak-hour services near the project site are described in Table 5 and are shown in Figure 8. Access to transit facilities will not change with the proposed site plan.

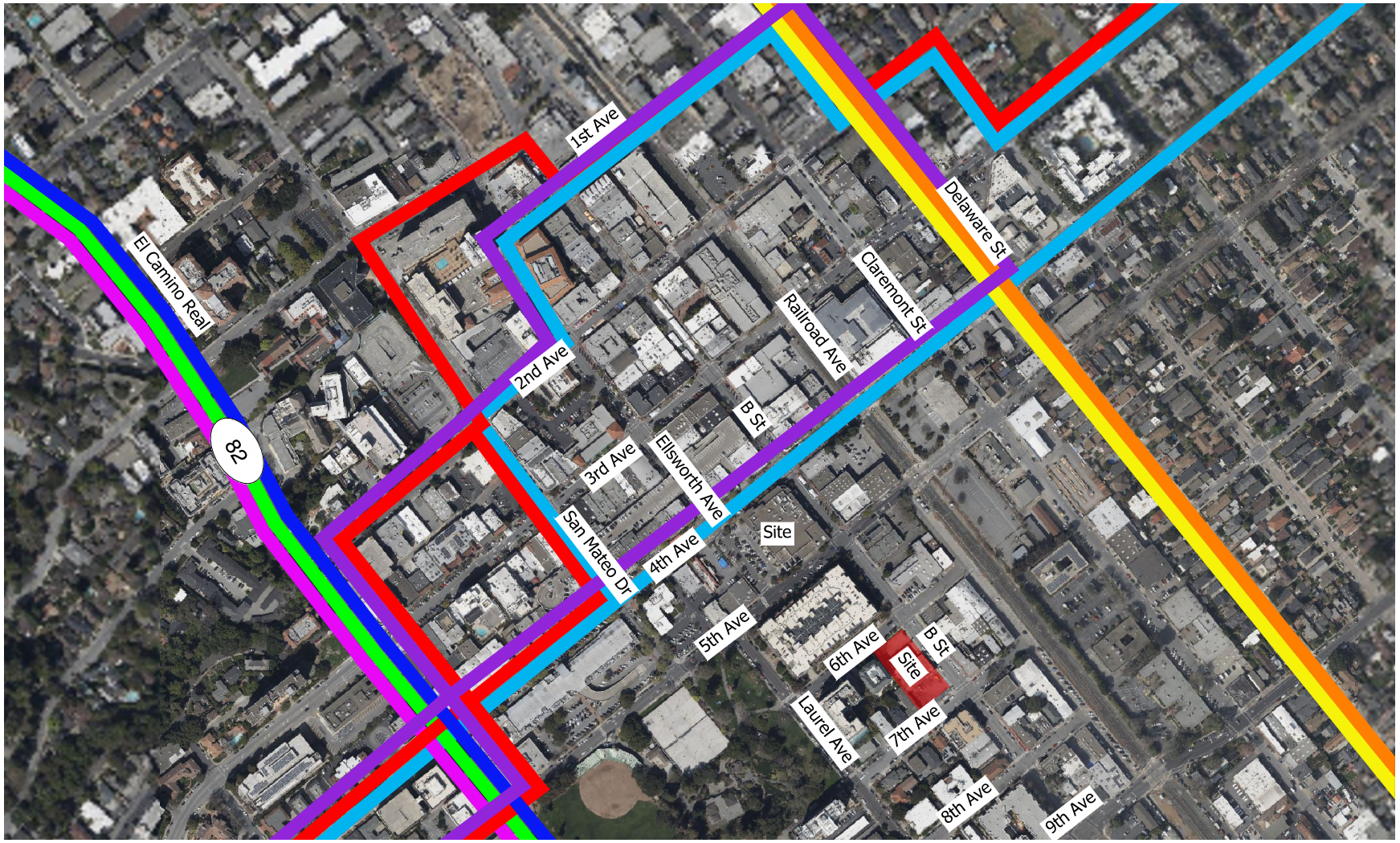
Caltrain Service

Commuter rail service between San Francisco and Gilroy is provided by Caltrain. The project site is located approximately 0.5 miles away from the San Mateo Downtown Caltrain Station. Currently, Caltrain provides northbound and southbound service at this station at a half-hour frequency during the weekday and weekend AM and PM commute hours, midday, and at nights. Future planned service is anticipated to increase this frequency to 15 minutes.

Table 5: Existing Transit Service

Operator	Route	Description	Operating Hours	Peak-Hour Headway	Closest Bus Stop
SamTrans	53/53P	Borel Middle School – Peninsula/ Humboldt (School-day only)	7:15 AM – 8:00 AM, 2:00 PM – 3:00 PM (W, F), 3:15 PM – 4:00 PM (M, T, TH)	N/A	3rd Avenue/Delaware Street
SamTrans	59	Aragon High School – Hillsdale/Norfolk (School-day only)	7:30 AM – 8:15 AM, 3:45 PM – 4:15 PM	N/A	4th Avenue/Ellsworth Avenue
SamTrans	250	San Mateo/2nd - College of San Mateo	6:15 AM – 11:00 PM (M, T, W, TH, F), 7:00 AM – 8:45 PM (Sat), 9:00 AM – 6:45 PM (Sun)	30 minutes	4th Avenue/San Mateo Drive
SamTrans	251	Hillsdale/Edison – Hillsdale/Edison (loop)	6:45 AM – 8:30 AM (M, T, W, TH, F), 7:30 AM – 7:15 PM (Sat, Sun)	60 minutes	4th Avenue/Ellsworth Avenue
SamTrans	292	San Francisco – Hillsdale Mall – Serves SF Airport	24 hours	30 minutes	3rd Avenue/Delaware Street
SamTrans	397	San Francisco – Palo Alto Transit Center – Serves SF Airport	12:45 AM – 6:30 AM	60 minutes	2nd Avenue/El Camino Real
SamTrans	ECR	El Camino Real – Palo Alto Transit Center to Daly City BART Station	24 hours	15 minutes	2nd Avenue/El Camino Real
Caltrain	-	Northbound: Gilroy to San Francisco	5:30 AM – 12:15 AM	30 minutes	San Mateo Station
Caltrain	-	Southbound: San Francisco to Gilroy	5:30 AM – 12:40 AM	30 minutes	San Mateo Station

Source: SamTrans, 2022



Legend:

- Route 53
- Route 397
- Route 250
- ECR
- Route 59
- Route 251
- Route 292

Existing Transit Services

Figure 8

KITTELSON & ASSOCIATES

EMERGENCY VEHICLE ACCESS

The nearest fire station (San Mateo Fire Department Station #21) is located approximately 0.4 miles north of the project site at 120 S Ellsworth Ave.

INTERSECTION LEVEL OF SERVICE

The collected traffic counts, lane configurations, and traffic controls for each study intersection were used to assess the Existing Conditions LOS and delay. Figure 9 shows the lane configurations and traffic control at the study intersections under existing and baseline conditions. The turning movement counts for each peak hour under Existing Conditions are provided in Figure 10. Detailed calculation worksheets for the Existing Conditions are provided in Appendix A**.** These delay and LOS values can be compared to the City of San Mateo thresholds outlined in the Circulation Element of the 2030 General Plan, discussed in the previous section.

As mentioned in the previous section, intersection analyses for the nine study intersections were conducted using the operational methodologies outlined in the Highway Capacity Manual (HCM)6th Edition methodology, calculated using Synchro 11 software.

Table 6 demonstrates that all intersections operate within the City's standards under existing conditions during both the AM and PM peak hours.

Table 6: Existing Conditions Intersection Operations Results

#	Intersection Name	Control Type	AM		PM	
			Delay	LOS	Delay	LOS
1	B Street & 5th Avenue	Traffic Signal	15.3	B	12.3	B
2	B Street & 6th Avenue	TWSC	10.9	B	10.4	B
3	B Street & 7th Avenue	TWSC	10.5	B	10.2	B
4	B Street & 8th Avenue	TWSC	9.9	A	10.7	B
5	B Street & 9th Avenue	Traffic Signal	13.8	B	13.2	B
6	Laurel Avenue & 9th Avenue	TWSC	14.2	B	12.3	B
7	Laurel Avenue & 7th Avenue	TWSC	9.6	A	9.4	A
8	Laurel Avenue & 6th Avenue	AWSC	7.8	A	7.7	A
9	Laurel Avenue & 5th Avenue	TWSC	14.8	B	14.7	B

Notes: Bold lettering indicates an intersection that does not meet the City's minimum acceptable design level of service (LOS D for Signalized intersections); TWSC = Two-Way Stop Control; AWSC = All-Way Stop Control; AM = weekday a.m. peak hour; PM = weekday p.m. peak hour; LOS = Level of Service; Delay reported in seconds per vehicle; # = intersection number.
Source: Highway Capacity Manual 6th Edition; Kittelson & Associates, 2023

Figure 9.

EXISTING AND BASELINE LANE CONFIGURATIONS AND TRAFFIC CONTROL AT STUDY INTERSECTIONS

PROJECT SITE

STOP SIGN

TRAFFIC SIGNAL

Figure 10.

EXISTING CONDITIONS PEAK HOUR MOVEMENT TURNING VOLUMES

PROJECT SITE

X (X) AM (PM)

STOP STOP SIGN

TRAFFIC SIGNAL

BASELINE (OPENING YEAR) CONDITIONS

This section presents Baseline (Opening Year) traffic conditions, which are defined as conditions just prior to the completion of the proposed project. Traffic volumes for the Baseline (Opening Year) Conditions comprise volumes from existing traffic counts and traffic generated by other approved developments in the project vicinity.

TRANSPORTATION NETWORK

The Baseline (Opening Year) Conditions analysis assumes the same lane configuration and traffic control at all the study intersections as the existing conditions, as shown in Figure 9.

INTERSECTION LEVEL OF SERVICE

Traffic volumes for the Baseline (Opening Year) Conditions were calculated using the existing estimated traffic volumes, shown in Figure 10, plus the traffic volumes generated by new developments within the site vicinity. Through conversations with the city, the new developments added to the existing volumes are as follows:

- Kiku Crossing and 5th Avenue Garage (residential development and parking garage)
- 222 E 4th Avenue (office & residential mixed-use development)

The projected turning movement volumes for each peak hour under Baseline (Opening Year) Conditions are provided in Figure 11. Table 7 shows the Baseline (Opening Year) intersection operations for the AM and PM peak hours, respectively. Detailed calculation worksheets for the Baseline (Opening Year) Conditions are provided in Appendix B. All intersections operate to the City's standards under Baseline (Opening Year) conditions during both the AM and PM peak hours.

Table 7: Baseline (Opening Year) Conditions Intersection Operations Results

#	Intersection Name	Control Type	AM		PM	
			Delay	LOS	Delay	LOS
1	B Street & 5th Avenue	Traffic Signal	16.8	B	13.2	B
2	B Street & 6th Avenue	TWSC	10.9	B	10.5	B
3	B Street & 7th Avenue	TWSC	10.5	B	10.1	B
4	B Street & 8th Avenue	TWSC	9.9	A	10.7	B
5	B Street & 9th Avenue	Traffic Signal	13.7	B	13.2	B
6	Laurel Avenue & 9th Avenue	TWSC	14.1	B	12.3	B
7	Laurel Avenue & 7th Avenue	TWSC	9.5	A	9.3	A
8	Laurel Avenue & 6th Avenue	AWSC	7.6	A	7.7	A
9	Laurel Avenue & 5th Avenue	TWSC	16.1	C	16.2	C

Notes: Bold lettering indicates an intersection that does not meet the City's minimum acceptable design level of service (LOS D for Signalized intersections); TWSC = Two-Way Stop Control; AWSC = All-Way Stop Control; AM = weekday a.m. peak hour; PM = weekday p.m. peak hour; LOS = Level of Service; Delay reported in seconds per vehicle; # = intersection number. Source: Highway Capacity Manual 6th Edition; Kittelson & Associates, 2023

Figure 11.

BASELINE (OPENING YEAR) CONDITIONS PEAK HOUR TURNING MOVEMENT VOLUMES

PROJECT SITE

X (X) AM (PM)

STOP STOP SIGN

TRAFFIC SIGNAL

PROJECT TRAVEL DEMAND

TRIP GENERATION

Trip generation is a key consideration for determining the local effects of the project on the transportation network. Trip generation rates published by the Institute of Transportation Engineers (ITE) Trip Generation Manual 11th Edition were used to estimate the number of trips the proposed mixed-use project would generate. ITE trip estimates are tied to specific land use codes. The ITE land use codes found to be most applicable to the project are listed below.

- Strip Retail Plaza <40K (ITE Land Use Code - 822)
- Mid-Rise Multi-family Housing (ITE Land Use Code - 221)

Kittelson did consider Mid-Rise Residential with Ground-Floor Commercial (ITE Land Use Code – 231) for the project. Presently, the ITE Trip Generation does not include vehicle trips for this land use, therefore Kittelson selected land use codes 822 and 221 for the proposed project trip estimates.

As mentioned in the previous section, the project will replace the existing Kelly Moore paint store and TAP Plastics shop (ITE land use code – 816 [Hardware/Paint Store]). Given the existing uses are still active, the trips generated by these uses were credited against the project trip generation.

The project is assumed to be in the 'Dense Multi-Use Urban' context, considered by ITE to be an area that has diverse and interacting complementary land uses with good multimodal connectivity and frequent transit service. Table 8 below shows the trip generation rates used for the analysis.

TRIP DISTRIBUTION AND ASSIGNMENT

Trip generation rates were based on the site plan received in October 2022 prior to this draft submittal. Since then, the site plan has been revised with a slight decrease in the overall square footage, resulting in a small reduction in the net new project trips (1 trip in the AM peak hour and 3 in the PM peak hour). Therefore, this project assessment with the October 2022 site plan should not negatively affect traffic analysis and is considered more conservative. As shown below, the proposed project would generate 24 net new trips in the morning peak hour and 43 net new trips in the evening peak hour. The driveways for the existing land use are situated on B Street, 6th Avenue, and 7th Avenue. The driveway for the proposed project site is situated on 7th Avenue for residential land use and on 6th Avenue for the retail/commercial land use portion of the project. There are also two residential parking stalls that are accessed on 6th Avenue. Vehicular traffic going to/from the existing and proposed project site are distributed at each intersection according to the turning movement proportions consistent with the existing counts and the vehicle trip distribution percentages are determined for AM and PM peak hour. The proposed trip distribution and assignment can be seen in Figure 12. The complete project travel demand memorandum submitted to the City is provided in Appendix C.

Table 8: Proposed Project Net Trip Generation Estimates

Land Use (ITE Code)	Unit	Size (KSF)	Weekday Daily	Weekday AM Peak Hour			Weekday PM Peak Hour		
				In	Out	Total	In	Out	Total
Proposed Project									
Ground Floor Retail (822)	GFA (KSF)	9.88	538	14	9	23	33	32	65
Mid Rise Multi-family Housing (221)	DU	48	96	2	10	12	9	3	12
Total			*634*	*16*	*19*	*35*	*42*	35	*77*
Internal Trip Capture (NCHRP 684)			*-63*	-	-	-	*-4*	*-4*	*-8*
Total Proposed Project Trips			***571***	***16***	***19***	***35***	***38***	***31***	***69***
Existing Project (Credits for Existing Land Use)									
Kelly Moore Paints (816)	GFA (KSF)	7.5	61	4	3	7	10	12	22
Pass-by rate (26%)			-	-	-	-	*3*	*3*	6
TAP Plastics (816)	GFA (KSF)	4.5	36	2	2	4	6	7	13
Pass-by rate (26%)			-	-	-	-	*2*	*2*	*3*
Existing Trip Credit			***-97***	***-6***	***-5***	***-11***	***-12***	***-14***	***-26***
Net New Project Trips			**474**	**10**	**14**	**24**	**26**	**17**	**43**

Notes: KSF- 1,000 Square Feet, DU - Dwelling Units, GFA - Gross Floor Area;
Trip generation rates were based on the site plan received in October 2022 prior to this draft submittal. Since then, the site plan has been revised with a slight decrease in the overall square footage, resulting in a small reduction in the net new project trips (1 trip in the AM peak hour and 3 in the PM peak hour). Therefore, this project assessment with the October 2022 site plan should not negatively affect traffic analysis and is considered more conservative.

Source: ITE Trip Generation Manual, 11th Edition; Kittelson & Associates, 2023.

Figure 12.

WEEKDAY AM (PM) PROPOSED PROJECT TRIP DISTRIBUTION

PROJECT SITE

AM (PM) IN

AM (PM) OUT

BASELINE PLUS PROJECT CONDITIONS

INTERSECTION LEVEL OF SERVICE

Traffic volumes for the Baseline (Opening Year) Plus Project Conditions were developed by combining the Baseline estimated traffic volumes with the project only volumes. The resulting Baseline Plus Project turning movement volumes are shown Figure 13.

Table 9 shows the Baseline Plus Project intersection operations for the AM and PM peak hours, respectively. Detailed calculation worksheets are provided in Appendix D. All intersections operate to the City's standards under Baseline Plus Project conditions during both the AM and PM peak hours.

Table 9: Baseline (Opening Year) Plus Project Conditions Intersection Operations Results

#	Intersection Name	Control Type	AM		PM		AM	PM
			Delay	LOS	Delay	LOS	Delay Increase	Delay Increase
1	B Street & 5th Avenue	Traffic Signal	16.8	B	13.1	B	0.0	-0.1
2	B Street & 6th Avenue	TWSC	10.8	B	10.4	B	-0.1	-0.1
3	B Street & 7th Avenue	TWSC	10.6	B	10.2	B	0.1	0.1
4	B Street & 8th Avenue	TWSC	9.9	A	10.8	B	0.0	0.1
5	B Street & 9th Avenue	Traffic Signal	13.7	B	13.2	B	0.0	0.0
6	Laurel Avenue & 9th Avenue	TWSC	14.3	B	12.4	B	0.2	0.1
7	Laurel Avenue & 7th Avenue	TWSC	9.7	A	9.4	A	0.2	0.1
8	Laurel Avenue & 6th Avenue	AWSC	7.7	A	7.8	A	0.1	0.1
9	Laurel Avenue & 5th Avenue	TWSC	16.6	C	17.2	C	0.5	1.0

Notes: Bold lettering indicates an intersection that does not meet the City's minimum acceptable design level of service (LOS D for Signalized intersections); TWSC = Two-Way Stop Control; AWSC = All-Way Stop Control; AM = weekday a.m. peak hour; PM = weekday p.m. peak hour; LOS = Level of Service; Delay reported in seconds per vehicle; # = intersection number. Source: Highway Capacity Manual 6th Edition; Kittelson & Associates, 2023.

Figure 13.

BASELINE (OPENING YEAR) PLUS PROJECT PEAK HOUR TURNING MOVEMENT VOLUMES

PROJECT SITE

X (X) AM (PM)

STOP SIGN

TRAFFIC SIGNAL

CUMULATIVE CONDITIONS

This section presents the anticipated Cumulative conditions in 2040 for the study intersections and the anticipated effect the addition of the project trips would have on them.

LAND USE DEVELOPMENT AND TRANSPORTATION NETWORK CHANGES

The San Mateo Citywide Travel Demand Model was used to develop the future volume forecast for Cumulative Conditions. The model includes future development throughout the region. The 2040 cumulative forecasts are consistent with regional growth totals projected by the Association of Bay Area Governments (ABAG) Plan Bay Area[8]. Therefore, the traffic forecasts project growth for the 616 South B Street mixed use project and increases in traffic volumes on State Route 82 and US 101 due to regional growth for 2040. Base year (Year 2019) and future year (Year 2040) forecasts were extracted from the model and linearly interpolated to develop an incremental growth between the estimated existing traffic counts (2019) and the cumulative model horizon year (2040). The intersection lane configurations under cumulative conditions were assumed to be the same as described under the existing conditions.

INTERSECTION LEVEL OF SERVICE

The projected turning movement volumes for each peak hour under Cumulative Conditions are provided in Figure 14. Based on these volumes and lane configurations, the cumulative operations at the study intersections are shown in Table 10. Detailed calculation worksheets for the Cumulative Conditions are provided in Appendix E. All intersections operate to the City's standards under Cumulative conditions during both the AM and PM peak hours.

Table 10: Cumulative Conditions Intersection Operations Results

#	Intersection Name	Control Type	AM		PM	
			Delay	LOS	Delay	LOS
1	B Street & 5th Avenue	Traffic Signal	34.4	C	24.5	C
2	B Street & 6th Avenue	TWSC	45.4	E	19.8	C
3	B Street & 7th Avenue	TWSC	21.2	C	16.4	C
4	B Street & 8th Avenue	TWSC	22.9	C	39.0	E
5	B Street & 9th Avenue	Traffic Signal	23.2	C	17.6	B
6	Laurel Avenue & 9th Avenue	TWSC	15.6	C	12.9	B
7	Laurel Avenue & 7th Avenue	TWSC	10.7	B	10.0	B
8	Laurel Avenue & 6th Avenue	AWSC	7.8	A	7.8	A
9	Laurel Avenue & 5th Avenue	TWSC	18.1	C	18.0	C

Notes: Bold lettering indicates an intersection that does not meet the City's minimum acceptable design level of service (LOS D for Signalized intersections); TWSC = Two-Way Stop Control; AWSC = All-Way Stop Control; AM = weekday a.m. peak hour; PM = weekday p.m. peak hour; LOS = Level of Service; Delay reported in seconds per vehicle; # = intersection number. Source: Highway Capacity Manual 6th Edition; Kittelson & Associates, 2023.

[8] https://mtc.ca.gov/our-work/plans-projects/plan-bay-area-2040

Figure 14.

CUMULATIVE CONDITIONS PEAK HOUR TURNING MOVEMENT VOLUMES

PROJECT SITE

X (X) AM (PM)

STOP STOP SIGN

TRAFFIC SIGNAL

CUMULATIVE PLUS PROJECT CONDITIONS

This section discusses the effect of proposed project on traffic operations under Cumulative Conditions. Traffic volumes for the Cumulative Plus Project Conditions were developed using the same additive approach used for the Baseline (Opening Year) Plus Project volumes.

INTERSECTION LEVEL OF SERVICE

Based on these volumes and lane configurations, the Cumulative Plus Project volumes are shown in Figure 15 and the operations at the study intersections are shown in Table 11. Detailed calculation worksheets for the Cumulative Plus Project Conditions are provided in Appendix F. All intersections operate to the City's standards under Cumulative Plus Project conditions during both the AM and PM peak hours.

Table 11: Cumulative Plus Project Intersection Operations Results

#	Intersection Name	Control Type	AM		PM		AM	PM
			Delay	LOS	Delay	LOS	Delay Increase	Delay Increase
1	B Street & 5th Avenue	Traffic Signal	35.5	D	25.0	C	1.1	0.5
2	B Street & 6th Avenue	TWSC	48.1	E	19.0	C	2.7	-0.8
3	B Street & 7th Avenue	TWSC	21.5	C	16.5	C	0.3	0.1
4	B Street & 8th Avenue	TWSC	23.2	C	41.0	E	0.3	2.0
5	B Street & 9th Avenue	Traffic Signal	23.7	C	17.8	B	0.5	0.2
6	Laurel Avenue & 9th Avenue	TWSC	16.0	C	13.1	B	0.4	0.2
7	Laurel Avenue & 7th Avenue	TWSC	10.8	B	10.1	B	0.1	0.1
8	Laurel Avenue & 6th Avenue	AWSC	7.9	A	8.0	A	0.1	0.2
9	Laurel Avenue & 5th Avenue	TWSC	18.7	C	19.2	C	0.6	1.2

Notes: Bold lettering indicates an intersection that does not meet the City's minimum acceptable design level of service (LOS D for Signalized intersections); TWSC = Two-Way Stop Control; AWSC = All-Way Stop Control; AM = weekday a.m. peak hour; PM = weekday p.m. peak hour; LOS = Level of Service; Delay reported in seconds per vehicle; # = intersection number. Source: Highway Capacity Manual 6th Edition; Kittelson & Associates, 2023.

Figure 15.

CUMULATIVE CONDITIONS PLUS PROJECT PEAK HOUR TURNING MOVEMENT VOLUMES

PROJECT SITE

X (X) AM (PM)

STOP SIGN

TRAFFIC SIGNAL

ADDITIONAL TRANSPORTATION ANALYSIS

This section describes additional transportation analysis related to site access and circulation of the proposed project based on a review of the proposed site plan. This section includes analysis of the following items:

- Vehicular access and on-site circulation
  - Vehicle parking
  - Driveway sight distance
- Pedestrian, Bicycle, and Transit access
- Loading zone and garbage truck circulation and access
- Emergency vehicle access
- 95th percentile queue analysis

The analysis in the following sections, while informed by adopted State and local standards, is driven by professional judgement. Citations are provided where applicable and available. References to the proposed project characteristics and geometric features are per the most recent site plan published in October 2022.[9]

VEHICULAR ACCESS AND ON-SITE CIRCULATION

Site access and on-site circulation were evaluated using commonly accepted transportation design, planning principles and professional judgment. The site access and circulation were evaluated to determine the adequacy of site driveways with regard to traffic volumes, delays, vehicle queues, geometric design, site distance, and truck access.

Access Driveway and Drive Aisles

The subsurface residential parking garage can be accessed through the entrance located on 7th Avenue, 80 feet from the intersection of South B Street and 7th Avenue. The retail/visitor parking garage access is located on 6th Avenue, 100 feet from the in the intersection of South B Street and 6th Avenue.

- Retail Parking Entrance
  - The proposed ramp to the residential parking garage is 22 feet wide, which is adequate for two-way circulation of compact vehicular traffic and complies with the width requirement for two-way turning aisles, as per the City of San Mateo Parking Standards.
  - The proposed maximum slope for the ramp is 20%, which is higher than the City's suggested maximum slope of 18%, as per the City of San Mateo Typical Driveway or Ramp Profile.[10]
- *Residential Parking Entrance*
  - The proposed two-way drive aisle is 24 feet wide, which is adequate for two-way circulation of standard vehicular traffic and complies with the width requirement for two-way turning aisles, as per the City of San Mateo Parking Standards.
- *Recommendations*
  - Kittelson recommends the project applicant consider revising the site plan to reduce the residential parking garage slope to 18%.

[9] Nazareth Vista Mixed Use Development, accessed from https://www.cityofsanmateo.org/4534/616-S-B-Street-Nazareth-Vista

[10] City of San Mateo Typical Driveway and Ramp Profile, accessed from https://www.cityofsanmateo.org/DocumentCenter/View/8007/PW_-Streets-Sidewalk_Typical-Driveway-or-Ramp-Pro?bidId=

- Kittelson recommends the applicant verify that the proposed trees will not be within the triangle of visibility. Due to the presence of the trees, Kittelson recommends that the project applicant install warning devices that are both visible and auditory to indicate that vehicles are existing the project site driveways to ensure safety of pedestrians on sidewalk.

Vehicle Parking

Nazareth Vista LLC is proposing to construct a below-grade residential parking structure with 51 covered parking stalls. The project also proposes 19 retail/visitor parking spaces on ground floor, along with two residential stalls as shown in the Site Plan. Vehicle parking will include a mix of compact, standard, accessible (standard), accessible (van), and EV charging stations. A review of City Standard Drawings for parking stalls[11] found that the project's proposed parking dimensions are in compliance with City specifications for accessible, compact, and standard stall types. As noted in a prior section in this report (see Screening Criteria), the project is proposing to provide fewer spaces (72) than minimally required by City parking regulations (108). A new California law AB-2097 was approved by the Governor on September 22, 2022 (effective January 1, 2023) that prohibits a public agency from imposing any minimum parking requirement on any residential, commercial, or other development projects, which is located within a half mile of a major transit stop. The proposed project is located within a half mile of San Mateo Caltrain Station.

Driveway Sight Distance

Sight distance is the continuous length of the roadway ahead, visible to the roadway user. Sight distance requirements vary depending on roadway speeds. The posted limit on 6th Avenue is 25 mph (i.e., design speed of 30 mph). Per the California Department of Transportation (Caltrans) Highway Design Manual 405.1 (2)(d), the corner sight distance requirements do not apply to urban driveways, unless they are signalized. Since this project proposes an unsignalized driveway, per the Caltrans Manual on Uniform Traffic Control Devices (CA MUTCD 2014, Revision 6), a clearance of 6 feet measured from the curb return should be provided at alleys and driveways (Section 3B.19). No on-street parking is proposed on 6th Avenue, leaving clear sight lines into and out of the driveway.

This project proposes project driveways that least interfere with traffic movements and vulnerable users per City off-street parking standards (Chapter 27.64). Any landscaping added by the project must be maintained properly to ensure it does not impede roadway visibility. SMMC 27.84.050 requires that no hedges or other growth between 3- and 7-feet tall block visibility within the triangular area of private property formed by the intersection right-of-way lines of two (2) streets. The current site plan (sheet L-5 and L.8) includes trees that may be within the triangle of visibility. No major conflicts and concerns pertaining to driveway access are evident in the proposed site plan.

PEDESTRIAN ACCESS

Pedestrians can access the site from entries on 7th Avenue (to the residential parking garage and lobby), on South B Street (retail use), and on 6th Avenue (retail use and retail/visitor parking garage entrance). The project site proposes sidewalks along all the parcel boundaries. The project would not generate activities that would interfere with access or circulation for people walking to, from, or passing by the site.

BICYCLE ACCESS

There are no existing bike lanes on 6th Avenue. The 2020 Bicycle Master Plan does not propose any upgrades or changes to the existing configuration. The City is considering changes to the proposed bicycle facilities on B Street due to the creation of the pedestrian mall on B Street between 1st and 3rd Avenues. The project would not generate activities that would interfere with access or circulation for people biking.

[11] Standard Drawings | San Mateo, CA - Official Website (cityofsanmateo.org)

BICYCLE PARKING

Residential bike storage is available on the subterranean level of the parking garage. Two bike lockers for commercial use are provided in the ground floor garage. The project proposes to provide a 478 square feet bicycle storage room on the below-grade floor. The bike room is accessible from the 7th Avenue entrance, separating cyclists from vehicular traffic in the garage and minimizing conflicts between the modes. Bike racks are proposed in the side yard setback, along the 6th Ave.

San Mateo Municipal Code 27.64.262 requires short-term and long-term bicycle parking spaces, as shown in Table 12. The project proposes 64 bicycle parking spaces which includes short- and long-term parking, while the required number of bicycle parking is 61 spaces.

Table 12: Required and Proposed Bicycle Parking

Land Use	Unit/Size	Minimum Bicycle Parking Requirement		Required Number of Spaces		Proposed Number of Spaces	
		Short-Term	Long-term	Short-Term	Long-term	Short-Term	Long-term
Residential (One-bedroom)	35 D.U.	0.05 per Unit	1 per Unit	1.75	35		
Residential (Two-bedroom)	12 D.U.	0.10 per Unit	1.25 per Unit	1.20	15		
Residential (Three-bedroom)	1 D.U.	0.15 per Unit	1.5 per Unit	0.15	1.5	3	54
Retail	9,880 S.F.	1 per 2,000 S.F.	1 per 12,000 S.F.	4.59	0.76	5	2
			Total	**8**	**53**	**8**	**56**

Notes: S.F.- Square Feet, D.U. – Dwelling Units; Source: Nazareth Vista LLC, 2022; SMMC 27.64.262

TRANSIT ACCESS

Access to transit facilities and services outlined in the Existing Conditions section will not change with the proposed site plan.

HAZARDS AND EMERGENCY VEHICLE ACCESS

Loading Zone and Garbage Trucks

The project proposes a 32 ft loading and trash staging zone on 6th Avenue (Sheet C-8). The project site plans show five trash rooms: a 568 SF trash room on the first level, 83 SF and 148 SF trash rooms on the second level, an 83 SF and 148 SF trash rooms on the third level, an 83 and 148 SF trash rooms on the fourth level, and 121 SF and 83 SF trash rooms on the fifth level. Garbage trucks would access trash collector areas via 6th Avenue.

- *Recommendations*
  - Kittelson recommends that the project applicant ensures that staging of the trash bins is restricted to within the loading zone and does not encroach on adjacent sidewalks and vehicle lanes. The trash bins should be removed from the public right-of-way immediately

after garbage pickup so as to not impact AM or PM peak hour traffic conditions and parking.

Emergency Vehicle Access

The nearest fire station (San Mateo Fire Department Station #21) is located approximately 0.4 miles north of the project site at 120 S Ellsworth Ave. The proposed plans indicate that the bulb outs at each intersection surrounding the project site can accommodate the turning radius of a City fire truck. Per City requirements, all driveways and drive aisles are at least 20 feet wide and would accommodate Emergency Vehicle access. Therefore, smaller emergency trucks and vans would also be able to access the parking garage.

95TH PERCENTILE QUEUE ANALYSIS

In addition to the operations analysis, Kittelson also reviewed the changes in 95th percentile queue lengths for the study intersections. Queue lengths are typically evaluated as part of the network-level or design-related considerations (i.e., to gauge interaction between nearby intersections). The 95th percentile queue lengths are reported to provide an appropriate storage for all but the worst 5% of traffic scenarios. This report provides queue lengths, which are derived from the outputs of the Synchro traffic analysis software and are representative of the 95th percentile traffic volumes[12]. The 95th percentile queue length worksheets are provided in Appendix G.

Table 10 through Table 12 show the 95th percentile queue lengths for the Existing, Baseline (Opening Year), Baseline (Opening Year) Plus Project, Cumulative, and Cumulative Plus Project conditions. Movements where the expected 95th percentile queue length exceeds storage capacity during the weekday peak hours are highlighted in grey in each of the tables shown below.

Storage capacity is exceeded for the following scenarios:

Cumulative Conditions

- B Street/5th Avenue, EB and NB approaches – (AM, PM)
- B Street/9th Avenue, NB and SB approaches – (AM)
- B Street/9th Avenue, SB approach – (PM)

Cumulative Plus Project Conditions

- B Street/5th Avenue, EB and NB approaches – (AM, PM)
- B Street/9th Avenue, NB and SB approaches – (AM)
- B Street/9th Avenue, SB approach – (PM)

Although storage capacity is exceeded in these scenarios, queue lengths do not increase with respect to plus project scenarios when compared to no project scenarios. Thus, the proposed project does not impact the status quo.

[12] Microsimulation of queues using SimTraffic, another analysis software package, was not performed because this model is typically used in the design phase of a project. For a planning level study, industry practice is to use the Synchro outputs.

Table 13: 95th Percentile Queue Lengths for Existing Conditions

#	Location	Scenario	95th Percentile Queue Length (number of vehicles)											
			EB Approach			WB Approach			NB Approach			SB Approach		
			EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Weekday AM Peak Hour														
1	B Street & 5th Avenue	No Project	-	7	-	-	6	-	-	5	-	-	3	-
2	B Street & 6th Avenue	No Project	-	1	-	-	0	-	-	0	-	-	0	-
3	B Street & 7th Avenue	No Project	-	1	-	-	1	-	-	0	-	-	0	-
4	B Street & 8th Avenue	No Project	-	1	-	-	0	-	-	0	-	-	0	-
5	B Street & 9th Avenue	No Project	-	5	-	3	7	-	1	3	-	2	2	-
6	Laurel Avenue & 9th Avenue	No Project	-	1	-	-	0	-	-	1	-	-	1	-
7	Lauren Avenue & 7th Avenue	No Project	-	0	-	-	1	-	-	0	-	-	0	-
8	Laurel Avenue & 6th Avenue	No Project	-	-	-	-	0	-	-	1	-	-	1	-
9	Laurel Avenue & 5th Avenue	No Project	-	0	-	-	1	-	-	1	-	-	-	-
Weekday PM Peak Hour														
1	B Street & 5th Avenue	No Project	-	7	-	-	4	-	-	5	-	-	4	-
2	B Street & 6th Avenue	No Project	-	1	-	-	1	-	-	0	-	-	0	-
3	B Street & 7th Avenue	No Project	-	1	-	-	1	-	-	0	-	-	0	-
4	B Street & 8th Avenue	No Project	-	1	-	-	1	-	-	0	-	-	0	-
5	B Street & 9th Avenue	No Project	-	5	-	3	5	-	1	3	-	2	2	-
6	Laurel Avenue & 9th Avenue	No Project	-	1	-	-	0	-	-	0	-	-	1	-
7	Lauren Avenue & 7th Avenue	No Project	-	0	-	-	1	-	-	0	-	-	0	-
8	Laurel Avenue & 6th Avenue	No Project	-	-	-	-	1	-	-	1	-	-	1	-
9	Laurel Avenue & 5th Avenue	No Project	-	0	-	-	1	-	-	1	-	-	-	-

Notes: EBL = Eastbound Left; EBT = Eastbound Through; EBR = Eastbound Right; similar for W = Westbound, N = Northbound, and S = Southbound movements; '-' = Particular movement is not relevant to the intersection, Bold cells are 95th percentile queue lengths greater than existing storage. Source: Highway Capacity Manual 6th Edition; Kittelson & Associates, 2022.

Table 14: 95th Percentile Queue Lengths for Baseline (Opening Year) and Baseline (Opening Year) Plus Project Conditions

#	Location (Control)	Scenario	95th Percentile Queue Length (number of vehicles)											
			EB Approach			WB Approach			NB Approach			SB Approach		
			EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Weekday AM Peak Hour														
1	B Street & 5th Avenue	No Project	-	8	-	-	8	-	-	6	-	-	3	-
		Plus Project	-	8	-	-	8	-	-	6	-	-	3	-
2	B Street & 6th Avenue	No Project	-	1	-	-	0	-	-	0	-	-	0	-
		Plus Project	-	1	-	-	0	-	-	0	-	-	0	-
3	B Street & 7th Avenue	No Project	-	1	-	-	1	-	-	0	-	-	0	-
		Plus Project	-	1	-	-	1	-	-	0	-	-	0	-
4	B Street & 8th Avenue	No Project	-	1	-	-	0	-	-	0	-	-	0	-
		Plus Project	-	1	-	-	0	-	-	0	-	-	0	-
5	B Street & 9th Avenue	No Project	-	5	-	3	7	-	1	3	-	1	1	-
		Plus Project	-	5	-	3	7	-	1	3	-	1	2	-
6	Laurel Avenue & 9th Avenue	No Project	-	1	-	-	0	-	-	1	-	-	1	-
		Plus Project	-	1	-	-	0	-	-	1	-	-	1	-
7	Laurel Avenue & 7th Avenue	No Project	-	0	-	-	0	-	-	0	-	-	0	-
		Plus Project	-	0	-	-	1	-	-	0	-	-	0	-
8	Laurel Avenue & 6th Avenue	No Project	-	-	-	-	0	-	-	1	-	-	1	-
		Plus Project	-	-	-	-	1	-	-	1	-	-	1	-
9	Laurel Avenue & 5th Avenue	No Project	-	0	-	-	1	-	-	2	-	-	-	-
		Plus Project	-	0	-	-	1	-	-	2	-	-	-	-
Weekday PM Peak Hour														
1	B Street & 5th Avenue	No Project	-	10	-	-	6	-	-	5	-	-	4	-
		Plus Project	-	10	-	-	6	-	-	5	-	-	4	-
2	B Street & 6th Avenue	No Project	-	1	-	-	1	-	-	0	-	-	0	-
		Plus Project	-	1	-	-	1	-	-	0	-	-	0	-
3	B Street & 7th Avenue	No Project	-	1	-	-	1	-	-	0	-	-	0	-

		Plus Project	-	1	-	-	1	-	-	0	-	-	0	-
4	B Street & 8th Avenue	No Project	-	1	-	-	1	-	-	0	-	-	0	-
		Plus Project	-	1	-	-	1	-	-	0	-	-	0	-
5	B Street & 9th Avenue	No Project	-	5	-	3	5	-	1	3	-	2	2	-
		Plus Project	-	5	-	3	5	-	1	3	-	2	2	-
6	Laurel Avenue & 9th Avenue	No Project	-	1	-	-	0	-	-	0	-	-	1	-
		Plus Project	-	1	-	-	0	-	-	0	-	-	1	-
7	Laurel Avenue & 7th Avenue	No Project	-	0	-	-	1	-	-	0	-	-	0	-
		Plus Project	-	0	-	-	1	-	-	0	-	-	0	-
8	Laurel Avenue & 6th Avenue	No Project	-	-	-	-	0	-	-	1	-	-	1	-
		Plus Project	-	-	-	-	1	-	-	1	-	-	1	-
9	Laurel Avenue & 5th Avenue	No Project	-	0	-	-	1	-	-	1	-	-	-	-
		Plus Project	-	0	-	-	1	-	-	1	-	-	-	-

Notes: EBL = Eastbound Left; EBT = Eastbound Through; EBR = Eastbound Right; similar for W = Westbound, N = Northbound, and S = Southbound movements; '-' = Particular movement is not relevant to the intersection, Bold cells are 95th percentile queue lengths greater than existing storage. Source: Highway Capacity Manual 6th Edition; Kittelson & Associates, 2022.

Table 15: 95th Percentile Queue Lengths for Cumulative and Cumulative Plus Project Conditions

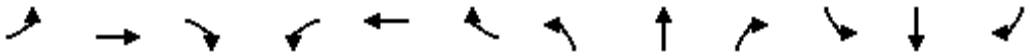
#	Location (Control)	Scenario	95th Percentile Queue Length (number of vehicles)											
			EB Approach			WB Approach			NB Approach			SB Approach		
			EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Weekday AM Peak Hour														
1	B Street & 5th Avenue	No Project	-	17	-	-	10	-	-	18	-	-	6	-
		Plus Project	-	17	-	-	10	-	-	18	-	-	6	-
2	B Street & 6th Avenue	No Project	-	4	-	-	1	-	-	1	-	-	0	-
		Plus Project	-	4	-	-	1	-	-	1	-	-	0	-
3	B Street & 7th Avenue	No Project	-	1	-	-	1	-	-	0	-	-	0	-
		Plus Project	-	1	-	-	1	-	-	0	-	-	0	-
4	B Street & 8th Avenue	No Project	-	1	-	-	1	-	-	1	-	-	0	-
		Plus Project	-	1	-	-	1	-	-	1	-	-	0	-
5	B Street & 9th Avenue	No Project	-	6	-	3	8	-	2	15	-	4	5	-
		Plus Project	-	6	-	3	8	-	2	16	-	4	5	-
6	Laurel Avenue & 9th Avenue	No Project	-	1	-	-	0	-	-	1	-	-	1	-
		Plus Project	-	1	-	-	0	-	-	1	-	-	1	-
7	Laurel Avenue & 7th Avenue	No Project	-	0	-	-	1	-	-	0	-	-	0	-
		Plus Project	-	0	-	-	1	-	-	0	-	-	0	-
8	Laurel Avenue & 6th Avenue	No Project	-	-	-	-	1	-	-	1	-	-	1	-
		Plus Project	-	-	-	-	1	-	-	1	-	-	1	-
9	Laurel Avenue & 5th Avenue	No Project	-	0	-	-	1	-	-	2	-	-	-	-
		Plus Project	-	0	-	-	1	-	-	2	-	-	-	-
Weekday PM Peak Hour														
1	B Street & 5th Avenue	No Project	-	19	-	-	6	-	-	15	-	-	7	-
		Plus Project	-	19	-	-	6	-	-	16	-	-	7	-
2	B Street & 6th Avenue	No Project	-	1	-	-	1	-	-	1	-	-	0	-
		Plus Project	-	1	-	-	1	-	-	1	-	-	0	-
3	B Street & 7th Avenue	No Project	-	1	-	-	1	-	-	0	-	-	0	-

		Plus Project	-	1	-	-	1	-	-	1	-	-	0	-
4	B Street & 8th Avenue	No Project	-	2	-	-	1	-	-	1	-	-	0	-
		Plus Project	-	2	-	-	2	-	-	1	-	-	0	-
5	B Street & 9th Avenue	No Project	-	7	-	4	6	-	1	9	-	5	9	-
		Plus Project	-	7	-	4	6	-	1	9	-	6	9	-
6	Laurel Avenue & 9th Avenue	No Project	-	1	-	-	0	-	-	0	-	-	1	-
		Plus Project	-	1	-	-	0	-	-	0	-	-	1	-
7	Laurel Avenue & 7th Avenue	No Project	-	0	-	-	1	-	-	0	-	-	0	-
		Plus Project	-	0	-	-	1	-	-	0	-	-	0	-
8	Laurel Avenue & 6th Avenue	No Project	-	-	-	-	1	-	-	1	-	-	1	-
		Plus Project	-	-	-	-	1	-	-	1	-	-	1	-
9	Laurel Avenue & 5th Avenue	No Project	-	0	-	-	1	-	-	1	-	-	-	-
		Plus Project	-	0	-	-	1	-	-	2	-	-	-	-

Notes: EBL = Eastbound Left; EBT = Eastbound Through; EBR = Eastbound Right; similar for W = Westbound, N = Northbound, and S = Southbound movements; '-' = Particular movement is not relevant to the intersection, Bold cells are 95th percentile queue lengths greater than existing storage. Source: Highway Capacity Manual 6th Edition; Kittelson & Associates, 2022.

TECHNICAL APPENDIX

APPENDIX A: EXISTING CONDITIONS WORKSHEETS



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	251	54	21	239	11	32	126	56	13	94	23
Future Volume (veh/h)	16	251	54	21	239	11	32	126	56	13	94	23
Initial Q (Qb), veh	0	0	0	0	0	0	0	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	0.90	1.00	1.00	0.90	1.00	1.00	0.90	1.00	1.00	0.90
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683
Adj Flow Rate, veh/h	19	292	63	24	278	13	37	147	65	15	109	27
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	70	365	76	78	418	19	156	547	226	113	679	159
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.63	0.63	0.63	0.63	0.63	0.63
Sat Flow, veh/h	37	1172	245	59	1345	60	147	872	360	84	1082	254
Grp Volume(v), veh/h	374	0	0	315	0	0	249	0	0	151	0	0
Grp Sat Flow(s),veh/h/ln	1454	0	0	1464	0	0	1378	0	0	1419	0	0
Q Serve(g_s), s	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	15.4	0.0	0.0	12.0	0.0	0.0	5.0	0.0	0.0	2.8	0.0	0.0
Prop In Lane	0.05		0.17	0.08		0.04	0.15		0.26	0.10		0.18
Lane Grp Cap(c), veh/h	510	0	0	515	0	0	928	0	0	951	0	0
V/C Ratio(X)	0.73	0.00	0.00	0.61	0.00	0.00	0.27	0.00	0.00	0.16	0.00	0.00
Avail Cap(c_a), veh/h	768	0	0	772	0	0	928	0	0	951	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	20.7	0.0	0.0	19.5	0.0	0.0	5.4	0.0	0.0	5.0	0.0	0.0
Incr Delay (d2), s/veh	0.8	0.0	0.0	0.4	0.0	0.0	0.7	0.0	0.0	0.4	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	5.0	0.0	0.0	4.0	0.0	0.0	1.4	0.0	0.0	0.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.5	0.0	0.0	20.0	0.0	0.0	6.2	0.0	0.0	5.4	0.0	0.0
LnGrp LOS	C	A	A	B	A	A	A	A	A	A	A	A
Approach Vol, veh/h		374			315			249			151	
Approach Delay, s/veh		21.5			20.0			6.2			5.4	
Approach LOS		C			B			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		42.8		22.2		42.8		22.2				
Change Period (Y+Rc), s		3.5		3.5		3.5		3.5				
Max Green Setting (Gmax), s		27.5		30.5		27.5		30.5				
Max Q Clear Time (g_c+I1), s		7.0		17.4		4.8		14.0				
Green Ext Time (p_c), s		1.0		1.4		0.6		1.2				

Intersection Summary												
HCM 6th Ctrl Delay			15.3									
HCM 6th LOS			B									

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	4	3	2	1	0	3	6	136	6	9	93	4
Future Vol, veh/h	4	3	2	1	0	3	6	136	6	9	93	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
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, %	0	0	50	0	0	0	0	2	0	0	3	0
Mvmt Flow	5	4	3	1	0	4	8	179	8	12	122	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	350	352	125	351	350	183	127	0	0	187	0	0
Stage 1	149	149	-	199	199	-	-	-	-	-	-	-
Stage 2	201	203	-	152	151	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.7	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.75	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	608	576	811	608	577	865	1472	-	-	1399	-	-
Stage 1	858	778	-	807	740	-	-	-	-	-	-	-
Stage 2	805	737	-	855	776	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	598	567	811	596	568	865	1472	-	-	1399	-	-
Mov Cap-2 Maneuver	598	567	-	596	568	-	-	-	-	-	-	-
Stage 1	853	771	-	802	736	-	-	-	-	-	-	-
Stage 2	797	733	-	840	769	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.9	9.7	0.3	0.6
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1472	-	-	623	777	1399	-	-
HCM Lane V/C Ratio	0.005	-	-	0.019	0.007	0.008	-	-
HCM Control Delay (s)	7.5	0	-	10.9	9.7	7.6	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-

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	12	0	4	9	3	1	2	125	6	2	82	4
Future Vol, veh/h	12	0	4	9	3	1	2	125	6	2	82	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	0	0	0	0	0	0	0	2	0	0	4	0
Mvmt Flow	15	0	5	11	4	1	3	158	8	3	104	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	284	285	107	283	283	162	109	0	0	166	0	0
Stage 1	113	113	-	168	168	-	-	-	-	-	-	-
Stage 2	171	172	-	115	115	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	672	628	953	673	629	888	1494	-	-	1424	-	-
Stage 1	897	806	-	839	763	-	-	-	-	-	-	-
Stage 2	836	760	-	895	804	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	666	625	953	668	626	888	1494	-	-	1424	-	-
Mov Cap-2 Maneuver	666	625	-	668	626	-	-	-	-	-	-	-
Stage 1	895	804	-	837	761	-	-	-	-	-	-	-
Stage 2	829	758	-	888	802	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.1	10.5	0.1	0.2
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1494	-	-	720	670	1424	-	-
HCM Lane V/C Ratio	0.002	-	-	0.028	0.025	0.002	-	-
HCM Control Delay (s)	7.4	0	-	10.1	10.5	7.5	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-

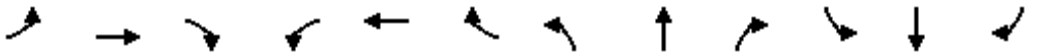
Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	7	0	5	4	0	4	6	127	5	1	87	1
Future Vol, veh/h	7	0	5	4	0	4	6	127	5	1	87	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	0	5	0	0	0	0	0	2	0	0	5	0
Mvmt Flow	9	0	6	5	0	5	8	161	6	1	110	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	296	296	111	296	293	164	111	0	0	167	0	0
Stage 1	113	113	-	180	180	-	-	-	-	-	-	-
Stage 2	183	183	-	116	113	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.55	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.55	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.55	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.045	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	660	611	948	660	621	886	1492	-	-	1423	-	-
Stage 1	897	796	-	826	754	-	-	-	-	-	-	-
Stage 2	823	743	-	894	806	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	653	607	948	652	617	886	1492	-	-	1423	-	-
Mov Cap-2 Maneuver	653	607	-	652	617	-	-	-	-	-	-	-
Stage 1	892	795	-	821	749	-	-	-	-	-	-	-
Stage 2	813	739	-	887	805	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.9	9.9	0.3	0.1
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1492	-	-	750	751	1423	-	-
HCM Lane V/C Ratio	0.005	-	-	0.02	0.013	0.001	-	-
HCM Control Delay (s)	7.4	0	-	9.9	9.9	7.5	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	212	5	88	268	64	11	61	144	47	45	16
Future Volume (vph)	22	212	5	88	268	64	11	61	144	47	45	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2		4.2	4.2		4.2	4.2		4.2	4.2	
Lane Util. Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt		1.00		1.00	0.97		1.00	0.89		1.00	0.96	
Flt Protected		1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1514		1448	1483		1462	1367		1419	1462	
Flt Permitted		0.95		0.58	1.00		0.71	1.00		0.59	1.00	
Satd. Flow (perm)		1452		883	1483		1097	1367		875	1462	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	24	236	6	98	298	71	12	68	160	52	50	18
RTOR Reduction (vph)	0	1	0	0	13	0	0	94	0	0	11	0
Lane Group Flow (vph)	0	265	0	98	356	0	12	134	0	52	57	0
Heavy Vehicles (%)	0%	1%	0%	1%	1%	0%	0%	0%	1%	3%	0%	4%
Parking (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		29.8		29.8	29.8		26.8	26.8		26.8	26.8	
Effective Green, g (s)		29.8		29.8	29.8		26.8	26.8		26.8	26.8	
Actuated g/C Ratio		0.46		0.46	0.46		0.41	0.41		0.41	0.41	
Clearance Time (s)		4.2		4.2	4.2		4.2	4.2		4.2	4.2	
Lane Grp Cap (vph)		665		404	679		452	563		360	602	
v/s Ratio Prot					c0.24			c0.10			0.04	
v/s Ratio Perm		0.18		0.11			0.01			0.06		
v/c Ratio		0.40		0.24	0.52		0.03	0.24		0.14	0.10	
Uniform Delay, d1		11.7		10.7	12.5		11.3	12.4		11.9	11.7	
Progression Factor		1.00		1.00	1.00		1.00	1.00		0.95	0.94	
Incremental Delay, d2		1.8		1.4	2.9		0.1	1.0		0.8	0.3	
Delay (s)		13.4		12.1	15.4		11.5	13.4		12.2	11.3	
Level of Service		B		B	B		B	B		B	B	
Approach Delay (s)		13.4			14.7			13.3			11.7	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	13.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	8.4
Intersection Capacity Utilization	66.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	74	211	3	12	253	2	3	2	5	5	1	68
Future Vol, veh/h	74	211	3	12	253	2	3	2	5	5	1	68
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	0	0	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	88	251	4	14	301	2	4	2	6	6	1	81

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	303	0	0	255	0	0	800	760	253	763	761	302
Stage 1	-	-	-	-	-	-	429	429	-	330	330	-
Stage 2	-	-	-	-	-	-	371	331	-	433	431	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1269	-	-	1322	-	-	306	338	791	324	337	742
Stage 1	-	-	-	-	-	-	608	587	-	687	649	-
Stage 2	-	-	-	-	-	-	653	649	-	605	586	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1269	-	-	1322	-	-	252	307	791	297	306	742
Mov Cap-2 Maneuver	-	-	-	-	-	-	252	307	-	297	306	-
Stage 1	-	-	-	-	-	-	559	539	-	631	641	-
Stage 2	-	-	-	-	-	-	573	641	-	549	539	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.1	0.3	14.2	11.3
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	404	1269	-	-	1322	-	-	662
HCM Lane V/C Ratio	0.029	0.069	-	-	0.011	-	-	0.133
HCM Control Delay (s)	14.2	8	0	-	7.8	0	-	11.3
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.1	0.2	-	-	0	-	-	0.5

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	0	0	0	8	0	3	0	79	8	8	59	0
Future Vol, veh/h	0	0	0	8	0	3	0	79	8	8	59	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2	0	0	0	0	0	0
Mvmt Flow	0	0	0	10	0	4	0	101	10	10	76	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	204	207	76	202	202	106	76	0	0	111	0	0
Stage 1	96	96	-	106	106	-	-	-	-	-	-	-
Stage 2	108	111	-	96	96	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	754	690	985	756	694	948	1536	-	-	1492	-	-
Stage 1	911	815	-	900	807	-	-	-	-	-	-	-
Stage 2	897	804	-	911	815	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	747	685	985	752	689	948	1536	-	-	1492	-	-
Mov Cap-2 Maneuver	747	685	-	752	689	-	-	-	-	-	-	-
Stage 1	911	809	-	900	807	-	-	-	-	-	-	-
Stage 2	893	804	-	905	809	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	9.6	0	0.9
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1536	-	-	-	797	1492	-	-
HCM Lane V/C Ratio	-	-	-	-	0.018	0.007	-	-
HCM Control Delay (s)	0	-	-	0	9.6	7.4	0	-
HCM Lane LOS	A	-	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0	-	-

Intersection	
Intersection Delay, s/veh	7.6
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	6	77	13	7	70
Future Vol, veh/h	5	6	77	13	7	70
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles, %	0	0	0	0	14	1
Mvmt Flow	6	7	95	16	9	86
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	7.2	7.5	7.8
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	45%	9%
Vol Thru, %	86%	0%	91%
Vol Right, %	14%	55%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	90	11	77
LT Vol	0	5	7
Through Vol	77	0	70
RT Vol	13	6	0
Lane Flow Rate	111	14	95
Geometry Grp	1	1	1
Degree of Util (X)	0.121	0.015	0.113
Departure Headway (Hd)	3.907	4.015	4.263
Convergence, Y/N	Yes	Yes	Yes
Cap	916	876	841
Service Time	1.938	2.11	2.288
HCM Lane V/C Ratio	0.121	0.016	0.113
HCM Control Delay	7.5	7.2	7.8
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.4	0	0.4

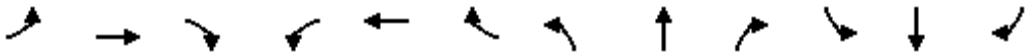
Intersection	
Int Delay, s/veh	3.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	228	51	42	243	81	45
Future Vol, veh/h	228	51	42	243	81	45
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	1	1	2	3	0
Mvmt Flow	248	55	46	264	88	49

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	303	0	632	276
Stage 1	-	-	-	-	276	-
Stage 2	-	-	-	-	356	-
Critical Hdwy	-	-	4.11	-	6.43	6.2
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.209	-	3.527	3.3
Pot Cap-1 Maneuver	-	-	1264	-	443	768
Stage 1	-	-	-	-	768	-
Stage 2	-	-	-	-	707	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1264	-	424	768
Mov Cap-2 Maneuver	-	-	-	-	424	-
Stage 1	-	-	-	-	768	-
Stage 2	-	-	-	-	677	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.2	14.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	505	-	-	1264	-
HCM Lane V/C Ratio	0.271	-	-	0.036	-
HCM Control Delay (s)	14.8	-	-	8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	1.1	-	-	0.1	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	321	55	25	223	30	38	137	72	18	117	34
Future Volume (veh/h)	38	321	55	25	223	30	38	137	72	18	117	34
Initial Q (Qb), veh	0	0	0	0	0	0	0	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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683
Adj Flow Rate, veh/h	41	345	59	27	240	32	41	147	77	19	126	37
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	102	444	73	98	468	59	167	538	258	124	678	186
Arrive On Green	0.34	0.34	0.34	0.34	0.34	0.34	0.58	0.58	0.58	0.58	0.58	0.58
Sat Flow, veh/h	89	1290	211	77	1361	172	157	922	442	89	1163	319
Grp Volume(v), veh/h	445	0	0	299	0	0	265	0	0	182	0	0
Grp Sat Flow(s),veh/h/ln	1590	0	0	1611	0	0	1521	0	0	1571	0	0
Q Serve(g_s), s	5.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	13.8	0.0	0.0	8.0	0.0	0.0	4.6	0.0	0.0	2.9	0.0	0.0
Prop In Lane	0.09		0.13	0.09		0.11	0.15		0.29	0.10		0.20
Lane Grp Cap(c), veh/h	618	0	0	625	0	0	963	0	0	989	0	0
V/C Ratio(X)	0.72	0.00	0.00	0.48	0.00	0.00	0.28	0.00	0.00	0.18	0.00	0.00
Avail Cap(c_a), veh/h	888	0	0	892	0	0	963	0	0	989	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	16.3	0.0	0.0	14.5	0.0	0.0	5.7	0.0	0.0	5.4	0.0	0.0
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.2	0.0	0.0	0.7	0.0	0.0	0.4	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	4.6	0.0	0.0	2.7	0.0	0.0	1.4	0.0	0.0	0.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.9	0.0	0.0	14.7	0.0	0.0	6.4	0.0	0.0	5.8	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	A	A	A	A	A	A
Approach Vol, veh/h		445			299			265			182	
Approach Delay, s/veh		16.9			14.7			6.4			5.8	
Approach LOS		B			B			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		34.1		20.9		34.1		20.9				
Change Period (Y+Rc), s		3.5		3.5		3.5		3.5				
Max Green Setting (Gmax), s		21.0		27.0		21.0		27.0				
Max Q Clear Time (g_c+I1), s		6.6		15.8		4.9		10.0				
Green Ext Time (p_c), s		0.9		1.6		0.6		1.2				

Intersection Summary		
HCM 6th Ctrl Delay		12.3
HCM 6th LOS		B

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	13	1	13	8	1	11	6	150	14	7	149	4
Future Vol, veh/h	13	1	13	8	1	11	6	150	14	7	149	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
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, %	0	0	0	0	0	0	16	3	0	0	1	0
Mvmt Flow	14	1	14	9	1	12	7	163	15	8	162	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	371	372	164	373	367	171	166	0	0	178	0	0
Stage 1	180	180	-	185	185	-	-	-	-	-	-	-
Stage 2	191	192	-	188	182	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.26	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.344	-	-	2.2	-	-
Pot Cap-1 Maneuver	589	561	886	588	565	878	1331	-	-	1410	-	-
Stage 1	826	754	-	821	751	-	-	-	-	-	-	-
Stage 2	815	745	-	818	753	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	575	554	886	573	558	878	1331	-	-	1410	-	-
Mov Cap-2 Maneuver	575	554	-	573	558	-	-	-	-	-	-	-
Stage 1	821	749	-	816	746	-	-	-	-	-	-	-
Stage 2	798	741	-	799	748	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.4	10.3	0.3	0.3
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1331	-	-	691	707	1410	-	-
HCM Lane V/C Ratio	0.005	-	-	0.042	0.031	0.005	-	-
HCM Control Delay (s)	7.7	0	-	10.4	10.3	7.6	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	2	13	4	1	14	14	149	11	4	153	9
Future Vol, veh/h	4	2	13	4	1	14	14	149	11	4	153	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	25	0	8	0	0	0	0	3	0	0	4	0
Mvmt Flow	4	2	14	4	1	15	15	160	12	4	165	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	382	380	170	382	379	166	175	0	0	172	0	0
Stage 1	178	178	-	196	196	-	-	-	-	-	-	-
Stage 2	204	202	-	186	183	-	-	-	-	-	-	-
Critical Hdwy	7.35	6.5	6.28	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.35	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.35	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.725	4	3.372	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	536	556	859	580	556	884	1414	-	-	1417	-	-
Stage 1	773	756	-	810	742	-	-	-	-	-	-	-
Stage 2	748	738	-	820	752	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	520	548	859	563	548	884	1414	-	-	1417	-	-
Mov Cap-2 Maneuver	520	548	-	563	548	-	-	-	-	-	-	-
Stage 1	764	754	-	800	733	-	-	-	-	-	-	-
Stage 2	725	729	-	802	750	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.2	9.8	0.6	0.2
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1414	-	-	718	767	1417	-	-
HCM Lane V/C Ratio	0.011	-	-	0.028	0.027	0.003	-	-
HCM Control Delay (s)	7.6	0	-	10.2	9.8	7.5	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-

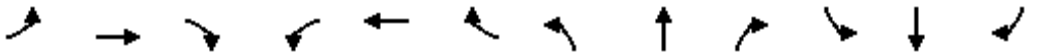
Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	16	1	14	8	1	12	2	156	10	5	145	9
Future Vol, veh/h	16	1	14	8	1	12	2	156	10	5	145	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	12	0	0	0	0	0	0	2	0	0	1	0
Mvmt Flow	18	1	16	9	1	14	2	177	11	6	165	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	376	374	170	378	374	183	175	0	0	188	0	0
Stage 1	182	182	-	187	187	-	-	-	-	-	-	-
Stage 2	194	192	-	191	187	-	-	-	-	-	-	-
Critical Hdwy	7.22	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.22	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.22	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.608	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	563	560	879	583	560	865	1414	-	-	1398	-	-
Stage 1	797	753	-	819	749	-	-	-	-	-	-	-
Stage 2	785	745	-	815	749	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	550	556	879	568	556	865	1414	-	-	1398	-	-
Mov Cap-2 Maneuver	550	556	-	568	556	-	-	-	-	-	-	-
Stage 1	795	749	-	817	748	-	-	-	-	-	-	-
Stage 2	770	744	-	795	745	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.7	10.3	0.1	0.2
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1414	-	-	662	706	1398	-	-
HCM Lane V/C Ratio	0.002	-	-	0.053	0.034	0.004	-	-
HCM Control Delay (s)	7.5	0	-	10.7	10.3	7.6	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.1	0	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	201	11	88	186	75	6	75	126	72	49	33
Future Volume (vph)	26	201	11	88	186	75	6	75	126	72	49	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt		0.99		1.00	0.96		1.00	0.91		1.00	0.94	
Flt Protected		0.99		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1690		1608	1620		1624	1549		1608	1591	
Flt Permitted		0.95		0.59	1.00		0.70	1.00		0.62	1.00	
Satd. Flow (perm)		1617		996	1620		1198	1549		1045	1591	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	27	212	12	93	196	79	6	79	133	76	52	35
RTOR Reduction (vph)	0	3	0	0	23	0	0	75	0	0	20	0
Lane Group Flow (vph)	0	248	0	93	253	0	6	137	0	76	67	0
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		27.5		27.5	27.5		28.5	28.5		28.5	28.5	
Effective Green, g (s)		27.5		27.5	27.5		28.5	28.5		28.5	28.5	
Actuated g/C Ratio		0.42		0.42	0.42		0.44	0.44		0.44	0.44	
Clearance Time (s)		4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)		684		421	685		525	679		458	697	
v/s Ratio Prot					c0.16			c0.09			0.04	
v/s Ratio Perm		0.15		0.09			0.01			0.07		
v/c Ratio		0.36		0.22	0.37		0.01	0.20		0.17	0.10	
Uniform Delay, d1		12.8		11.9	12.8		10.3	11.2		11.1	10.7	
Progression Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.5		1.2	1.5		0.0	0.7		0.8	0.3	
Delay (s)		14.3		13.1	14.3		10.3	11.9		11.8	11.0	
Level of Service		B		B	B		B	B		B	B	
Approach Delay (s)		14.3			14.0			11.9			11.4	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	13.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.28		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	66.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	72	250	3	4	194	17	0	1	2	22	7	78
Future Vol, veh/h	72	250	3	4	194	17	0	1	2	22	7	78
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	-	-	-	-	-	-	-	-	-	-	-	-
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, %	0	0	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	78	272	3	4	211	18	0	1	2	24	8	85

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	229	0	0	275	0	0	705	667	274	659	659	220
Stage 1	-	-	-	-	-	-	430	430	-	228	228	-
Stage 2	-	-	-	-	-	-	275	237	-	431	431	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1351	-	-	1300	-	-	354	382	770	380	386	825
Stage 1	-	-	-	-	-	-	607	587	-	779	719	-
Stage 2	-	-	-	-	-	-	736	713	-	607	586	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1351	-	-	1300	-	-	295	354	770	357	358	825
Mov Cap-2 Maneuver	-	-	-	-	-	-	295	354	-	357	358	-
Stage 1	-	-	-	-	-	-	566	547	-	726	716	-
Stage 2	-	-	-	-	-	-	651	710	-	563	546	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.7	0.1	11.5	12.3
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	553	1351	-	-	1300	-	-	609
HCM Lane V/C Ratio	0.006	0.058	-	-	0.003	-	-	0.191
HCM Control Delay (s)	11.5	7.8	0	-	7.8	0	-	12.3
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0	0.2	-	-	0	-	-	0.7

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	1	9	0	12	0	69	13	7	112	0
Future Vol, veh/h	0	0	1	9	0	12	0	69	13	7	112	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	0	0	0	0	1	8	14	2	0
Mvmt Flow	0	0	1	10	0	14	0	79	15	8	129	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	239	239	129	233	232	87	129	0	0	94	0	0
Stage 1	145	145	-	87	87	-	-	-	-	-	-	-
Stage 2	94	94	-	146	145	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.1	6.5	6.2	4.1	-	-	4.24	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.5	4	3.3	2.2	-	-	2.326	-	-
Pot Cap-1 Maneuver	715	662	921	726	672	977	1469	-	-	1428	-	-
Stage 1	858	777	-	926	827	-	-	-	-	-	-	-
Stage 2	913	817	-	861	781	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	701	658	921	722	668	977	1469	-	-	1428	-	-
Mov Cap-2 Maneuver	701	658	-	722	668	-	-	-	-	-	-	-
Stage 1	858	772	-	926	827	-	-	-	-	-	-	-
Stage 2	900	817	-	855	776	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.9	9.4	0	0.4
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1469	-	-	921	849	1428	-	-
HCM Lane V/C Ratio	-	-	-	0.001	0.028	0.006	-	-
HCM Control Delay (s)	0	-	-	8.9	9.4	7.5	0	-
HCM Lane LOS	A	-	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-

Intersection	
Intersection Delay, s/veh	7.7
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	10	75	8	13	114
Future Vol, veh/h	5	10	75	8	13	114
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	0	20	1	0	0	1
Mvmt Flow	6	12	88	9	15	134
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	7.2	7.5	7.9
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	33%	10%
Vol Thru, %	90%	0%	90%
Vol Right, %	10%	67%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	83	15	127
LT Vol	0	5	13
Through Vol	75	0	114
RT Vol	8	10	0
Lane Flow Rate	98	18	149
Geometry Grp	1	1	1
Degree of Util (X)	0.109	0.02	0.167
Departure Headway (Hd)	4.002	4.092	4.025
Convergence, Y/N	Yes	Yes	Yes
Cap	892	880	890
Service Time	2.039	2.092	2.052
HCM Lane V/C Ratio	0.11	0.02	0.167
HCM Control Delay	7.5	7.2	7.9
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.4	0.1	0.6

Intersection	
Int Delay, s/veh	2.5

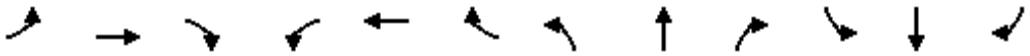
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	269	90	52	198	61	27
Future Vol, veh/h	269	90	52	198	61	27
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	1	1	2	3	0
Mvmt Flow	289	97	56	213	66	29

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	386	0	663	338
Stage 1	-	-	-	-	338	-
Stage 2	-	-	-	-	325	-
Critical Hdwy	-	-	4.11	-	6.43	6.2
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.209	-	3.527	3.3
Pot Cap-1 Maneuver	-	-	1178	-	425	709
Stage 1	-	-	-	-	720	-
Stage 2	-	-	-	-	730	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1178	-	402	709
Mov Cap-2 Maneuver	-	-	-	-	402	-
Stage 1	-	-	-	-	720	-
Stage 2	-	-	-	-	691	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.7	14.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	464	-	-	1178	-
HCM Lane V/C Ratio	0.204	-	-	0.047	-
HCM Control Delay (s)	14.7	-	-	8.2	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.8	-	-	0.1	-

APPENDIX B: BASELINE (OPENING YEAR) CONDITIONS WORKSHEETS



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	309	58	21	344	11	37	123	55	13	91	28
Future Volume (veh/h)	17	309	58	21	344	11	37	123	55	13	91	28
Initial Q (Qb), veh	0	0	0	0	0	0	0	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	0.90	1.00	1.00	0.90	1.00	1.00	0.90	1.00	1.00	0.90
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683
Adj Flow Rate, veh/h	20	359	67	24	400	13	43	143	64	15	106	33
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	69	431	78	73	494	16	166	491	204	106	601	176
Arrive On Green	0.36	0.36	0.36	0.36	0.36	0.36	0.58	0.58	0.58	0.58	0.58	0.58
Sat Flow, veh/h	32	1210	220	41	1386	44	173	843	350	78	1033	303
Grp Volume(v), veh/h	446	0	0	437	0	0	250	0	0	154	0	0
Grp Sat Flow(s),veh/h/ln	1462	0	0	1471	0	0	1366	0	0	1414	0	0
Q Serve(g_s), s	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	18.2	0.0	0.0	17.5	0.0	0.0	5.7	0.0	0.0	3.2	0.0	0.0
Prop In Lane	0.04		0.15	0.05		0.03	0.17		0.26	0.10		0.21
Lane Grp Cap(c), veh/h	579	0	0	583	0	0	860	0	0	884	0	0
V/C Ratio(X)	0.77	0.00	0.00	0.75	0.00	0.00	0.29	0.00	0.00	0.17	0.00	0.00
Avail Cap(c_a), veh/h	772	0	0	777	0	0	860	0	0	884	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	19.3	0.0	0.0	19.0	0.0	0.0	6.9	0.0	0.0	6.3	0.0	0.0
Incr Delay (d2), s/veh	2.3	0.0	0.0	1.8	0.0	0.0	0.9	0.0	0.0	0.4	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	6.1	0.0	0.0	5.8	0.0	0.0	1.7	0.0	0.0	0.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.6	0.0	0.0	20.8	0.0	0.0	7.7	0.0	0.0	6.8	0.0	0.0
LnGrp LOS	C	A	A	C	A	A	A	A	A	A	A	A
Approach Vol, veh/h		446			437			250			154	
Approach Delay, s/veh		21.6			20.8			7.7			6.8	
Approach LOS		C			C			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		39.8		25.2		39.8		25.2				
Change Period (Y+Rc), s		3.5		3.5		3.5		3.5				
Max Green Setting (Gmax), s		27.5		30.5		27.5		30.5				
Max Q Clear Time (g_c+I1), s		7.7		20.2		5.2		19.5				
Green Ext Time (p_c), s		1.0		1.5		0.6		1.5				

Intersection Summary												
HCM 6th Ctrl Delay			16.8									
HCM 6th LOS			B									

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	3	2	1	0	3	5	135	6	9	93	3
Future Vol, veh/h	4	3	2	1	0	3	5	135	6	9	93	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
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, %	0	0	50	0	0	0	0	2	0	0	3	0
Mvmt Flow	5	4	3	1	0	4	7	178	8	12	122	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	346	348	124	348	346	182	126	0	0	186	0	0
Stage 1	148	148	-	196	196	-	-	-	-	-	-	-
Stage 2	198	200	-	152	150	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.7	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.75	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	612	579	812	610	580	866	1473	-	-	1401	-	-
Stage 1	859	779	-	810	742	-	-	-	-	-	-	-
Stage 2	808	739	-	855	777	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	603	571	812	598	572	866	1473	-	-	1401	-	-
Mov Cap-2 Maneuver	603	571	-	598	572	-	-	-	-	-	-	-
Stage 1	855	772	-	806	738	-	-	-	-	-	-	-
Stage 2	800	735	-	840	770	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.9	9.7	0.3	0.7
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1473	-	-	627	779	1401	-	-
HCM Lane V/C Ratio	0.004	-	-	0.019	0.007	0.008	-	-
HCM Control Delay (s)	7.5	0	-	10.9	9.7	7.6	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-

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	11	0	4	9	3	1	2	124	6	2	82	4
Future Vol, veh/h	11	0	4	9	3	1	2	124	6	2	82	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	0	0	0	0	0	0	0	2	0	0	4	0
Mvmt Flow	14	0	5	11	4	1	3	157	8	3	104	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	283	284	107	282	282	161	109	0	0	165	0	0
Stage 1	113	113	-	167	167	-	-	-	-	-	-	-
Stage 2	170	171	-	115	115	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	673	628	953	674	630	889	1494	-	-	1426	-	-
Stage 1	897	806	-	840	764	-	-	-	-	-	-	-
Stage 2	837	761	-	895	804	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	667	625	953	669	627	889	1494	-	-	1426	-	-
Mov Cap-2 Maneuver	667	625	-	669	627	-	-	-	-	-	-	-
Stage 1	895	804	-	838	762	-	-	-	-	-	-	-
Stage 2	830	759	-	888	802	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.1	10.5	0.1	0.2
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1494	-	-	725	671	1426	-	-
HCM Lane V/C Ratio	0.002	-	-	0.026	0.025	0.002	-	-
HCM Control Delay (s)	7.4	0	-	10.1	10.5	7.5	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-

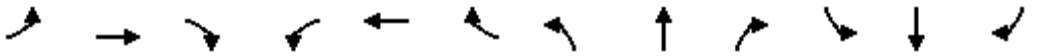
Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	7	0	5	4	0	4	6	126	5	1	86	1
Future Vol, veh/h	7	0	5	4	0	4	6	126	5	1	86	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	0	5	0	0	0	0	0	2	0	0	5	0
Mvmt Flow	9	0	6	5	0	5	8	159	6	1	109	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	293	293	110	293	290	162	110	0	0	165	0	0
Stage 1	112	112	-	178	178	-	-	-	-	-	-	-
Stage 2	181	181	-	115	112	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.55	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.55	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.55	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.045	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	663	613	949	663	624	888	1493	-	-	1426	-	-
Stage 1	898	797	-	828	756	-	-	-	-	-	-	-
Stage 2	825	744	-	895	807	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	656	609	949	655	620	888	1493	-	-	1426	-	-
Mov Cap-2 Maneuver	656	609	-	655	620	-	-	-	-	-	-	-
Stage 1	893	796	-	823	751	-	-	-	-	-	-	-
Stage 2	815	740	-	888	806	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.9	9.8	0.3	0.1
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1493	-	-	753	754	1426	-	-
HCM Lane V/C Ratio	0.005	-	-	0.02	0.013	0.001	-	-
HCM Control Delay (s)	7.4	0	-	9.9	9.8	7.5	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	212	5	88	268	62	11	60	144	44	45	16
Future Volume (vph)	22	212	5	88	268	62	11	60	144	44	45	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2		4.2	4.2		4.2	4.2		4.2	4.2	
Lane Util. Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt		1.00		1.00	0.97		1.00	0.89		1.00	0.96	
Flt Protected		1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1514		1448	1484		1462	1367		1419	1462	
Flt Permitted		0.95		0.58	1.00		0.71	1.00		0.59	1.00	
Satd. Flow (perm)		1452		883	1484		1097	1367		876	1462	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	24	236	6	98	298	69	12	67	160	49	50	18
RTOR Reduction (vph)	0	1	0	0	13	0	0	94	0	0	11	0
Lane Group Flow (vph)	0	265	0	98	354	0	12	133	0	49	57	0
Heavy Vehicles (%)	0%	1%	0%	1%	1%	0%	0%	0%	1%	3%	0%	4%
Parking (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		29.8		29.8	29.8		26.8	26.8		26.8	26.8	
Effective Green, g (s)		29.8		29.8	29.8		26.8	26.8		26.8	26.8	
Actuated g/C Ratio		0.46		0.46	0.46		0.41	0.41		0.41	0.41	
Clearance Time (s)		4.2		4.2	4.2		4.2	4.2		4.2	4.2	
Lane Grp Cap (vph)		665		404	680		452	563		361	602	
v/s Ratio Prot					c0.24			c0.10			0.04	
v/s Ratio Perm		0.18		0.11			0.01			0.06		
v/c Ratio		0.40		0.24	0.52		0.03	0.24		0.14	0.10	
Uniform Delay, d1		11.7		10.7	12.5		11.3	12.4		11.9	11.7	
Progression Factor		1.00		1.00	1.00		1.00	1.00		0.89	0.87	
Incremental Delay, d2		1.8		1.4	2.8		0.1	1.0		0.8	0.3	
Delay (s)		13.4		12.1	15.4		11.5	13.4		11.4	10.5	
Level of Service		B		B	B		B	B		B	B	
Approach Delay (s)		13.4			14.7			13.3			10.9	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	13.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	8.4
Intersection Capacity Utilization	66.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	71	211	3	12	253	2	3	2	5	5	1	67
Future Vol, veh/h	71	211	3	12	253	2	3	2	5	5	1	67
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	0	0	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	85	251	4	14	301	2	4	2	6	6	1	80

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	303	0	0	255	0	0	794	754	253	757	755	302
Stage 1	-	-	-	-	-	-	423	423	-	330	330	-
Stage 2	-	-	-	-	-	-	371	331	-	427	425	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1269	-	-	1322	-	-	308	341	791	327	340	742
Stage 1	-	-	-	-	-	-	613	591	-	687	649	-
Stage 2	-	-	-	-	-	-	653	649	-	610	590	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1269	-	-	1322	-	-	255	310	791	301	309	742
Mov Cap-2 Maneuver	-	-	-	-	-	-	255	310	-	301	309	-
Stage 1	-	-	-	-	-	-	565	545	-	633	641	-
Stage 2	-	-	-	-	-	-	574	641	-	556	544	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2	0.3	14.1	11.2
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	408	1269	-	-	1322	-	-	663
HCM Lane V/C Ratio	0.029	0.067	-	-	0.011	-	-	0.131
HCM Control Delay (s)	14.1	8	0	-	7.8	0	-	11.2
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.1	0.2	-	-	0	-	-	0.5

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	0	0	0	7	0	3	0	77	8	8	58	0
Future Vol, veh/h	0	0	0	7	0	3	0	77	8	8	58	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2	0	0	0	0	0	0
Mvmt Flow	0	0	0	9	0	4	0	99	10	10	74	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	200	203	74	198	198	104	74	0	0	109	0	0
Stage 1	94	94	-	104	104	-	-	-	-	-	-	-
Stage 2	106	109	-	94	94	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	759	693	988	761	698	951	1538	-	-	1494	-	-
Stage 1	913	817	-	902	809	-	-	-	-	-	-	-
Stage 2	900	805	-	913	817	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	752	688	988	757	693	951	1538	-	-	1494	-	-
Mov Cap-2 Maneuver	752	688	-	757	693	-	-	-	-	-	-	-
Stage 1	913	811	-	902	809	-	-	-	-	-	-	-
Stage 2	896	805	-	907	811	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	9.5	0	0.9
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1538	-	-	-	806	1494	-	-
HCM Lane V/C Ratio	-	-	-	-	0.016	0.007	-	-
HCM Control Delay (s)	0	-	-	0	9.5	7.4	0	-
HCM Lane LOS	A	-	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	0	0	-	-

Intersection	
Intersection Delay, s/veh	7.6
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	6	77	12	5	70
Future Vol, veh/h	4	6	77	12	5	70
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles, %	0	0	0	0	14	1
Mvmt Flow	5	7	95	15	6	86
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	7.1	7.5	7.8
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	40%	7%
Vol Thru, %	87%	0%	93%
Vol Right, %	13%	60%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	89	10	75
LT Vol	0	4	5
Through Vol	77	0	70
RT Vol	12	6	0
Lane Flow Rate	110	12	93
Geometry Grp	1	1	1
Degree of Util (X)	0.119	0.014	0.109
Departure Headway (Hd)	3.909	3.965	4.255
Convergence, Y/N	Yes	Yes	Yes
Cap	915	888	843
Service Time	1.938	2.055	2.279
HCM Lane V/C Ratio	0.12	0.014	0.11
HCM Control Delay	7.5	7.1	7.8
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.4	0	0.4

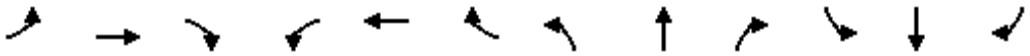
Intersection	
Int Delay, s/veh	3.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	263	50	58	250	79	69
Future Vol, veh/h	263	50	58	250	79	69
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	1	1	2	3	0
Mvmt Flow	286	54	63	272	86	75

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	340	0	711	313
Stage 1	-	-	-	-	313	-
Stage 2	-	-	-	-	398	-
Critical Hdwy	-	-	4.11	-	6.43	6.2
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.209	-	3.527	3.3
Pot Cap-1 Maneuver	-	-	1225	-	398	732
Stage 1	-	-	-	-	739	-
Stage 2	-	-	-	-	676	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1225	-	374	732
Mov Cap-2 Maneuver	-	-	-	-	374	-
Stage 1	-	-	-	-	739	-
Stage 2	-	-	-	-	635	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.5	16.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	484	-	-	1225	-
HCM Lane V/C Ratio	0.332	-	-	0.051	-
HCM Control Delay (s)	16.1	-	-	8.1	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	1.4	-	-	0.2	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	46	425	66	25	303	30	42	134	71	18	113	38
Future Volume (veh/h)	46	425	66	25	303	30	42	134	71	18	113	38
Initial Q (Qb), veh	0	0	0	0	0	0	0	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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683
Adj Flow Rate, veh/h	49	457	71	27	326	32	45	144	76	19	122	41
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	106	551	82	94	599	56	162	462	220	114	574	179
Arrive On Green	0.42	0.42	0.42	0.42	0.42	0.42	0.51	0.51	0.51	0.51	0.51	0.51
Sat Flow, veh/h	83	1308	195	57	1422	134	169	912	435	82	1134	354
Grp Volume(v), veh/h	577	0	0	385	0	0	265	0	0	182	0	0
Grp Sat Flow(s),veh/h/ln	1586	0	0	1613	0	0	1516	0	0	1569	0	0
Q Serve(g_s), s	8.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	18.0	0.0	0.0	9.6	0.0	0.0	5.4	0.0	0.0	3.4	0.0	0.0
Prop In Lane	0.08		0.12	0.07		0.08	0.17		0.29	0.10		0.23
Lane Grp Cap(c), veh/h	739	0	0	749	0	0	844	0	0	867	0	0
V/C Ratio(X)	0.78	0.00	0.00	0.51	0.00	0.00	0.31	0.00	0.00	0.21	0.00	0.00
Avail Cap(c_a), veh/h	889	0	0	898	0	0	844	0	0	867	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	14.3	0.0	0.0	12.0	0.0	0.0	8.0	0.0	0.0	7.6	0.0	0.0
Incr Delay (d2), s/veh	3.0	0.0	0.0	0.2	0.0	0.0	1.0	0.0	0.0	0.6	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.1	0.0	0.0	3.1	0.0	0.0	1.8	0.0	0.0	1.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.3	0.0	0.0	12.2	0.0	0.0	9.0	0.0	0.0	8.1	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	A	A	A	A	A	A
Approach Vol, veh/h		577			385			265			182	
Approach Delay, s/veh		17.3			12.2			9.0			8.1	
Approach LOS		B			B			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		29.8		25.2		29.8		25.2				
Change Period (Y+Rc), s		3.5		3.5		3.5		3.5				
Max Green Setting (Gmax), s		21.0		27.0		21.0		27.0				
Max Q Clear Time (g_c+I1), s		7.4		20.0		5.4		11.6				
Green Ext Time (p_c), s		0.9		1.7		0.6		1.5				

Intersection Summary												
HCM 6th Ctrl Delay			13.2									
HCM 6th LOS			B									

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	13	1	10	8	1	11	4	150	14	7	149	3
Future Vol, veh/h	13	1	10	8	1	11	4	150	14	7	149	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
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, %	0	0	0	0	0	0	16	3	0	0	1	0
Mvmt Flow	14	1	11	9	1	12	4	163	15	8	162	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	365	366	164	365	360	171	165	0	0	178	0	0
Stage 1	180	180	-	179	179	-	-	-	-	-	-	-
Stage 2	185	186	-	186	181	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.26	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.344	-	-	2.2	-	-
Pot Cap-1 Maneuver	595	566	886	595	570	878	1333	-	-	1410	-	-
Stage 1	826	754	-	827	755	-	-	-	-	-	-	-
Stage 2	821	750	-	820	754	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	582	561	886	583	565	878	1333	-	-	1410	-	-
Mov Cap-2 Maneuver	582	561	-	583	565	-	-	-	-	-	-	-
Stage 1	824	749	-	825	753	-	-	-	-	-	-	-
Stage 2	806	748	-	804	749	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.5	10.2	0.2	0.3
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1333	-	-	678	714	1410	-	-
HCM Lane V/C Ratio	0.003	-	-	0.038	0.03	0.005	-	-
HCM Control Delay (s)	7.7	0	-	10.5	10.2	7.6	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	4	2	13	4	1	14	13	147	11	4	149	9
Future Vol, veh/h	4	2	13	4	1	14	13	147	11	4	149	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	25	0	8	0	0	0	0	3	0	0	4	0
Mvmt Flow	4	2	14	4	1	15	14	158	12	4	160	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	373	371	165	373	370	164	170	0	0	170	0	0
Stage 1	173	173	-	192	192	-	-	-	-	-	-	-
Stage 2	200	198	-	181	178	-	-	-	-	-	-	-
Critical Hdwy	7.35	6.5	6.28	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.35	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.35	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.725	4	3.372	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	544	562	864	588	563	886	1420	-	-	1420	-	-
Stage 1	778	760	-	814	745	-	-	-	-	-	-	-
Stage 2	752	741	-	825	756	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	528	554	864	570	555	886	1420	-	-	1420	-	-
Mov Cap-2 Maneuver	528	554	-	570	555	-	-	-	-	-	-	-
Stage 1	769	758	-	805	737	-	-	-	-	-	-	-
Stage 2	730	733	-	807	754	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.1	9.8	0.6	0.2
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1420	-	-	724	772	1420	-	-
HCM Lane V/C Ratio	0.01	-	-	0.028	0.026	0.003	-	-
HCM Control Delay (s)	7.6	0	-	10.1	9.8	7.5	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-

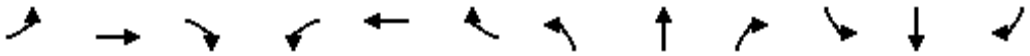
Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	16	1	14	8	1	12	2	153	10	5	141	9
Future Vol, veh/h	16	1	14	8	1	12	2	153	10	5	141	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	12	0	0	0	0	0	0	2	0	0	1	0
Mvmt Flow	18	1	16	9	1	14	2	174	11	6	160	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	368	366	165	370	366	180	170	0	0	185	0	0
Stage 1	177	177	-	184	184	-	-	-	-	-	-	-
Stage 2	191	189	-	186	182	-	-	-	-	-	-	-
Critical Hdwy	7.22	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.22	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.22	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.608	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	570	566	885	590	566	868	1420	-	-	1402	-	-
Stage 1	802	756	-	822	751	-	-	-	-	-	-	-
Stage 2	788	748	-	820	753	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	557	562	885	575	562	868	1420	-	-	1402	-	-
Mov Cap-2 Maneuver	557	562	-	575	562	-	-	-	-	-	-	-
Stage 1	800	752	-	820	749	-	-	-	-	-	-	-
Stage 2	773	747	-	800	749	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.7	10.2	0.1	0.2
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1420	-	-	669	711	1402	-	-
HCM Lane V/C Ratio	0.002	-	-	0.053	0.034	0.004	-	-
HCM Control Delay (s)	7.5	0	-	10.7	10.2	7.6	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.1	0	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	201	11	88	186	72	6	74	126	67	47	32
Future Volume (vph)	26	201	11	88	186	72	6	74	126	67	47	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt		0.99		1.00	0.96		1.00	0.91		1.00	0.94	
Flt Protected		0.99		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1690		1608	1622		1624	1548		1608	1589	
Flt Permitted		0.95		0.59	1.00		0.70	1.00		0.62	1.00	
Satd. Flow (perm)		1618		996	1622		1202	1548		1047	1589	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	27	212	12	93	196	76	6	78	133	71	49	34
RTOR Reduction (vph)	0	3	0	0	21	0	0	75	0	0	19	0
Lane Group Flow (vph)	0	248	0	93	251	0	6	136	0	71	64	0
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		27.5		27.5	27.5		28.5	28.5		28.5	28.5	
Effective Green, g (s)		27.5		27.5	27.5		28.5	28.5		28.5	28.5	
Actuated g/C Ratio		0.42		0.42	0.42		0.44	0.44		0.44	0.44	
Clearance Time (s)		4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)		684		421	686		527	678		459	696	
v/s Ratio Prot					c0.15			c0.09			0.04	
v/s Ratio Perm		0.15		0.09			0.00			0.07		
v/c Ratio		0.36		0.22	0.37		0.01	0.20		0.15	0.09	
Uniform Delay, d1		12.8		11.9	12.8		10.3	11.2		11.0	10.7	
Progression Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.5		1.2	1.5		0.0	0.7		0.7	0.3	
Delay (s)		14.3		13.1	14.3		10.3	11.9		11.7	10.9	
Level of Service		B		B	B		B	B		B	B	
Approach Delay (s)		14.3			14.0			11.9			11.3	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	13.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.28		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	66.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	69	250	3	4	193	17	0	1	2	22	7	76
Future Vol, veh/h	69	250	3	4	193	17	0	1	2	22	7	76
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	-	-	-	-	-	-	-	-	-	-	-	-
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, %	0	0	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	75	272	3	4	210	18	0	1	2	24	8	83

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	228	0	0	275	0	0	697	660	274	652	652	219
Stage 1	-	-	-	-	-	-	424	424	-	227	227	-
Stage 2	-	-	-	-	-	-	273	236	-	425	425	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1352	-	-	1300	-	-	358	386	770	384	390	826
Stage 1	-	-	-	-	-	-	612	590	-	780	720	-
Stage 2	-	-	-	-	-	-	737	713	-	611	590	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1352	-	-	1300	-	-	300	359	770	362	363	826
Mov Cap-2 Maneuver	-	-	-	-	-	-	300	359	-	362	363	-
Stage 1	-	-	-	-	-	-	572	551	-	729	717	-
Stage 2	-	-	-	-	-	-	654	710	-	568	551	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.7	0.1	11.5	12.3
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	557	1352	-	-	1300	-	-	610
HCM Lane V/C Ratio	0.006	0.055	-	-	0.003	-	-	0.187
HCM Control Delay (s)	11.5	7.8	0	-	7.8	0	-	12.3
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0	0.2	-	-	0	-	-	0.7

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	0	0	1	9	0	12	0	67	12	7	110	0
Future Vol, veh/h	0	0	1	9	0	12	0	67	12	7	110	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	0	0	0	0	1	8	14	2	0
Mvmt Flow	0	0	1	10	0	14	0	77	14	8	126	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	233	233	126	227	226	84	126	0	0	91	0	0
Stage 1	142	142	-	84	84	-	-	-	-	-	-	-
Stage 2	91	91	-	143	142	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.1	6.5	6.2	4.1	-	-	4.24	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.5	4	3.3	2.2	-	-	2.326	-	-
Pot Cap-1 Maneuver	722	667	924	733	677	981	1473	-	-	1432	-	-
Stage 1	861	779	-	929	829	-	-	-	-	-	-	-
Stage 2	916	820	-	865	783	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	708	663	924	729	673	981	1473	-	-	1432	-	-
Mov Cap-2 Maneuver	708	663	-	729	673	-	-	-	-	-	-	-
Stage 1	861	774	-	929	829	-	-	-	-	-	-	-
Stage 2	903	820	-	859	778	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.9	9.3	0	0.5
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1473	-	-	924	854	1432	-	-
HCM Lane V/C Ratio	-	-	-	0.001	0.028	0.006	-	-
HCM Control Delay (s)	0	-	-	8.9	9.3	7.5	0	-
HCM Lane LOS	A	-	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-

Intersection	
Intersection Delay, s/veh	7.7
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	3	6	75	6	9	114
Future Vol, veh/h	3	6	75	6	9	114
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	0	20	1	0	0	1
Mvmt Flow	4	7	88	7	11	134
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	7.1	7.5	7.8
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	33%	7%
Vol Thru, %	93%	0%	93%
Vol Right, %	7%	67%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	81	9	123
LT Vol	0	3	9
Through Vol	75	0	114
RT Vol	6	6	0
Lane Flow Rate	95	11	145
Geometry Grp	1	1	1
Degree of Util (X)	0.106	0.012	0.161
Departure Headway (Hd)	3.998	3.976	4.003
Convergence, Y/N	Yes	Yes	Yes
Cap	895	884	896
Service Time	2.031	2.075	2.027
HCM Lane V/C Ratio	0.106	0.012	0.162
HCM Control Delay	7.5	7.1	7.8
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.4	0	0.6

Intersection	
Int Delay, s/veh	2.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	305	86	61	235	57	27
Future Vol, veh/h	305	86	61	235	57	27
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	93	93	93	93	93	93
Heavy Vehicles, %	2	1	1	2	3	0
Mvmt Flow	328	92	66	253	61	29

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	420	0	759	374
Stage 1	-	-	-	-	374	-
Stage 2	-	-	-	-	385	-
Critical Hdwy	-	-	4.11	-	6.43	6.2
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.209	-	3.527	3.3
Pot Cap-1 Maneuver	-	-	1145	-	373	677
Stage 1	-	-	-	-	693	-
Stage 2	-	-	-	-	686	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1145	-	348	677
Mov Cap-2 Maneuver	-	-	-	-	348	-
Stage 1	-	-	-	-	693	-
Stage 2	-	-	-	-	640	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.7	16.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	412	-	-	1145	-
HCM Lane V/C Ratio	0.219	-	-	0.057	-
HCM Control Delay (s)	16.2	-	-	8.3	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.8	-	-	0.2	-

APPENDIX C: PROJECT TRAVEL DEMAND MEMORANDUM

KITTELSON & ASSOCIATES
155 Grand Avenue, Suite 505
Oakland, CA 94612
P 510.839.1742

Technical Memorandum

January 23, 2023

Project# 28461

To: Somer Smith, AICP
Associate Planner
City of San Mateo
330 W. 20th Avenue
San Mateo, CA 94403

From: Dhawal Kataria, AICP; Anusha Musunuru, PhD; Damian Stefanakis

CC: Matthew Moore, David J. Powers & Associates, Inc.
Mike Kato and Sue-Ellen Atkinson, City of San Mateo

RE: **San Mateo Nazareth Vista Transportation Impact Analysis – Project Travel Demand DRAFT**

INTRODUCTION

Kittelson & Associates, Inc. (Kittelson) prepared this memorandum for the proposed Nazareth Vista mixed-use development at 616 South B Street, San Mateo, CA ("project"). The project is proposing to replace all existing structures with a five-story mixed-use building with ground floor retail (9,880 square feet) and 48 residential units (65,187 square feet). The parking is provided on the ground floor and first level, totaling 70 parking spaces— 22 commercial/retail parking spaces and 48 residential parking spaces. The memorandum summarizes the trip generation and distribution assumptions for the project. Kittelson would like City staff approval on the assumptions before proceeding with the detailed transportation analysis.

Project Description

Nazareth Vista LLC is proposing to redevelop the 0.64-acre (27,921 square feet) bounded by South B Street to the east, 6th Avenue to the north, and 7th Avenue to the south. The applicant is proposing to construct a 5-story mixed-use building of approximately 85,496 square feet (site plan, as shown in Figure 1). The new development would replace an existing Kelly Moore Paint store and a TAP Plastics store that are both currently active. The building would consist of one level below-grade parking structure with 70 covered parking stalls, approximately 9,880 square feet of ground floor retail level, and four levels of residential totaling 48 units with approximately 65,187 square feet of residential space. The retail space would be located on the ground floor, and the residential space would be split between the ground floor, second level, third level, fourth level, and fifth levels. The ground floor would also include 9,163 square feet of parking area and a 1,266 square feet parking ramp. Table 1 summarizes the proposed mixed-use project characteristics.

Table 1 Existing and Proposed Land Uses

Existing land-uses to be removed	Units	Size (GFA)
Kelly-Moore Paint Store	1	7,500 SF
TAP Plastics	1	4,500 SF
Proposed Land Use	**Units**	**Size (GFA)**
Residential	48	65,187 SF
Studio/1-Bedroom	*35*	
2-Bedroom	*12*	
3-Bedroom	*1*	
Commercial/Retail	Not decided yet	9,880 SF

Notes: SF- Square Feet; Source: Nazareth Vista LLC, 2022

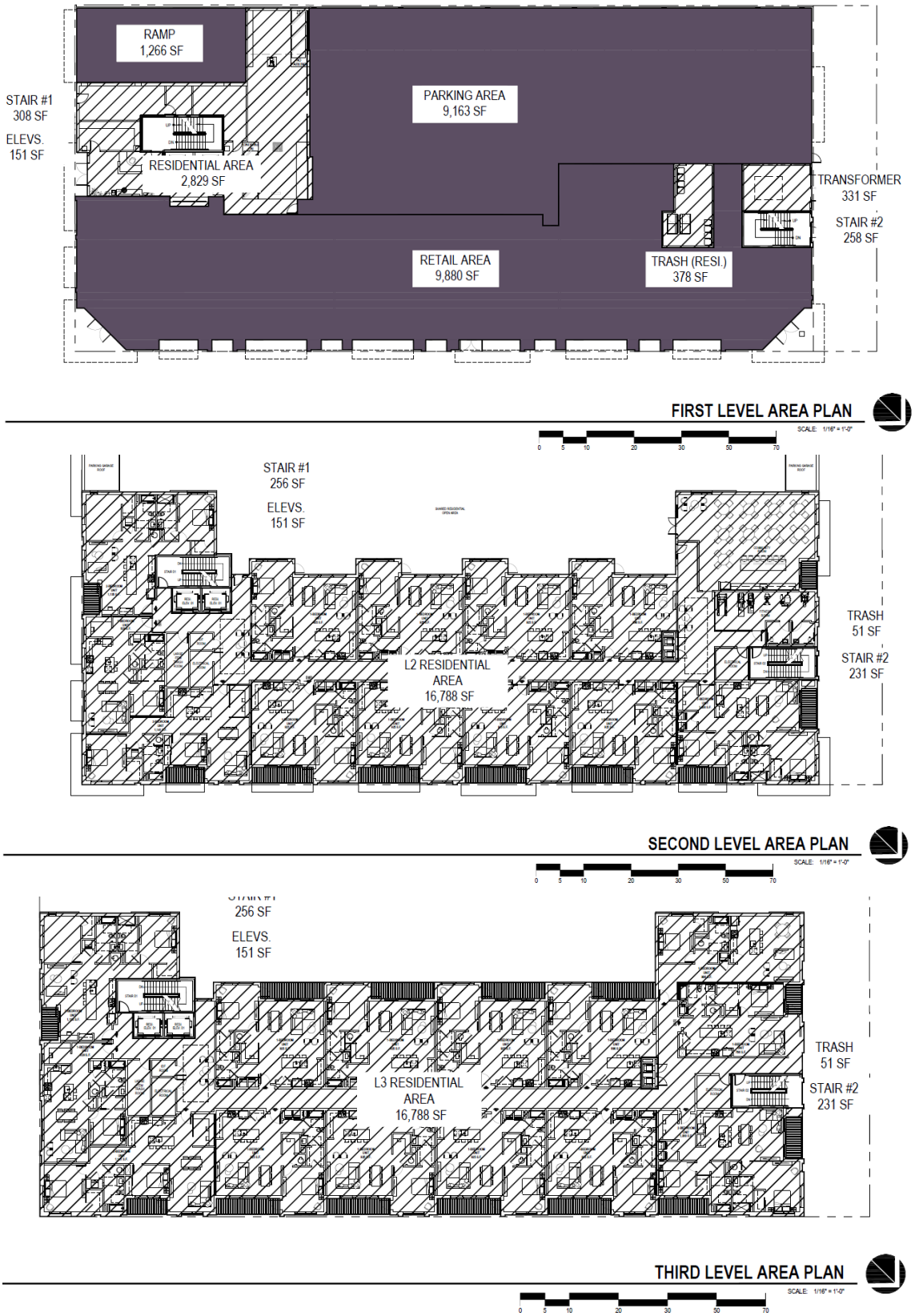
Existing Conditions

Kittelson collected intersection turning movement counts at seven of the nine study intersections and obtained the information for remaining two intersections from the City for the weekday a.m. (7-9 am) and p.m. (4-6 pm) peak periods. The data collection times coincide with the traditional commute periods when traffic is at the maximum. The traffic counts were collected when the Kelly Moore paint store and TAP plastics shop were in operation. The following nine study intersections were selected for analysis and are shown in Figure 2.

1. 5th Avenue & B Street
2. 6th Avenue & B Street
3. 7th Avenue & B Street
4. 8th Avenue & B Street
5. 9th Avenue & B Street
6. 9th Avenue & Laurel Avenue
7. 7th Avenue & Laurel Avenue
8. 6th Avenue & Laurel Avenue
9. 5th Avenue & Laurel Avenue

Figure 3 illustrates the existing a.m. and p.m. peak turning movement volumes and traffic control at the study intersections.

Figure 1 Proposed Mixed-Use project Site Plan (First, Second, and Third Floors)



Source: Nazareth Vista LLC, 2022

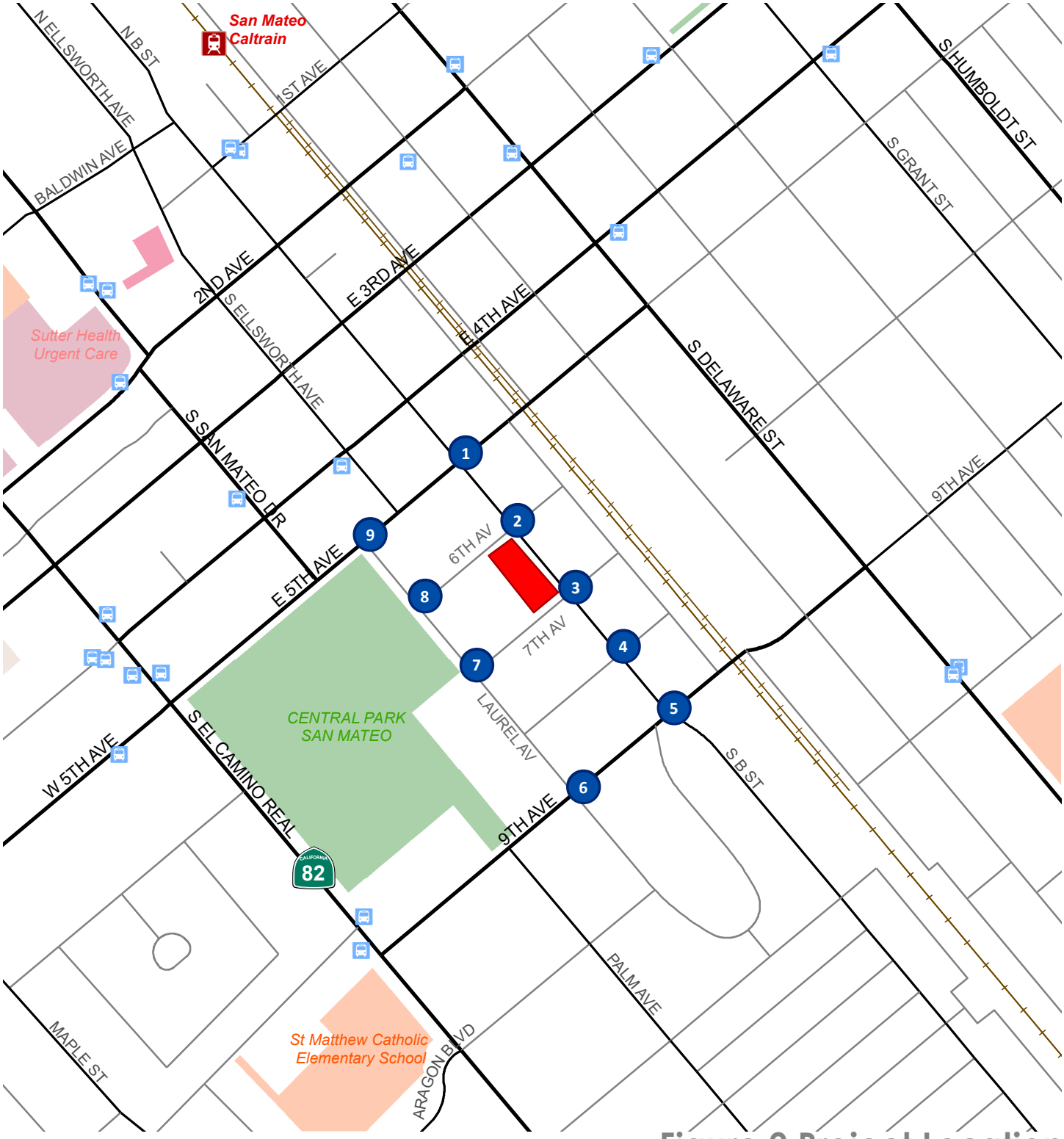


Figure 2 Project Location

LEGEND

- Project Location
- Study Intersection
- Caltrain Station
- SamTrans Bus Stop

Source: City of San Mateo, 2022

Miles

0 ¼

KITTELSON & ASSOCIATES

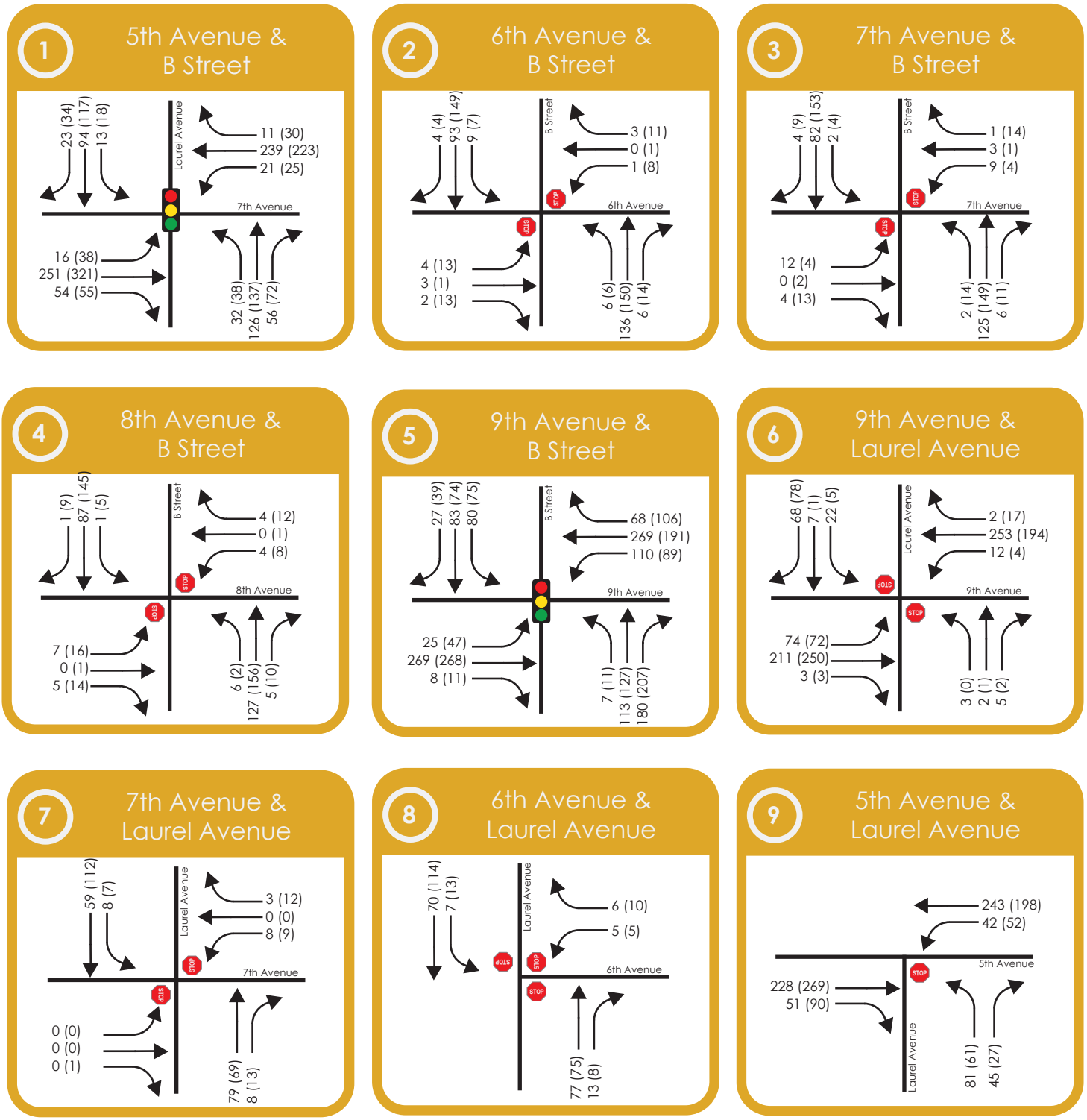


Figure 3 Existing Intersection Turning Volumes

LEGEND

XX	AM Peak Hour
(YY)	PM Peak Hour
STOP	Stop Sign
	Traffic Signal

KITTELSON & ASSOCIATES

Vehicle Trip Generation

ITE Development Land Use Codes

Trip generation is a key consideration for determining the local effects of the project on the transportation network. Trip generation rates published by the Institute of Transportation Engineers (ITE) Trip Generation Manual 11th Edition were used to estimate the number of trips the proposed mixed-use project would generate. ITE trip estimates are tied to specific land use codes. The ITE land use codes found to be most applicable to the project are listed below.

- Strip Retail Plaza <40K (ITE Land Use Code - 822)
- Mid-Rise Multi-family Housing (ITE Land Use Code - 221)

Kittelson did consider Mid-Rise Residential with Ground-Floor Commercial (ITE Land Use Code – 231) for the project. Presently, the ITE Trip Generation does not include vehicle trips for this land use, therefore Kittelson selected land use codes 822 and 221 for the proposed project trip estimates.

As mentioned in the previous section, the project will replace the existing Kelly Moore paint store and TAP Plastics shop (ITE land use code – 816). Given the existing uses are still active, the trips generated by these uses were credited to the project trip generation.

The project is assumed to be in the 'Dense Multi-Use Urban' context, considered by ITE to be an area that has diverse and interacting complementary land uses with good multimodal connectivity and frequent transit service. This is consistent with the Transit Oriented Development overlay and CBD zoning for the project site for which the San Mateo Municipal code promotes mixed-uses and pedestrian activity. Table 2 below shows the trip generation rates used for the analysis.

Table 2 Trip Generation Rates, ITE Trip Generation Manual, 11th Edition

Land Use	ITE Code	Land Use Context	Units*	Weekday Daily Rate	Weekday AM Peak Hour			Weekday PM Peak Hour		
					Rate	In %	Out %	Rate	In %	Out %
Strip Retail Plaza <40 KSF	822	General Urban/Suburban	KSF GLA	54.45	2.36	60%	40%	6.59	50%	50%
Mid-Rise Multi-Family Housing	221	Dense Multi-Use Urban	DU	2.01	0.25	15%	85%	0.25	74%	26%
Hardware/Paint Store (Existing use)	816	General Urban/Suburban	KSF GLA	8.07	0.92	54%	46%	2.98	46%	54%

Notes: KSF- 1,000 Square Feet, DU - Dwelling Units, GLA - Gross Leasable Area

Trip Generation Calculation

Trip generation estimates for this Project took into consideration three types of trips:

- **Primary or New Trips**: These are the trips whose specific purpose was to visit the site. Primary trip rates were generated using ITE Trip Generation Manual 11th Edition as shown in Table 2.
- **Pass-by Trips**: Drivers already on their way to a destination that stop temporarily at the project site without a major roadway diversion are considered making "pass-by" trips. Hardware and Paint Store is the only land use code in ITE Trip Generation Manual 11th Edition for which a pass-by rate was

supplied. The 26% average pass-by rate for this land use was only applicable for Weekday PM Peak, resulting in a reduction of nine(9) trips.

- **Internal Trips:** Trips that occur between land-uses on a multi-use project site and which can be made without using the off-site street network are considered "internal trips". Internal trips for this project can be made by walking between uses. Internal capture was estimated using methodology from NCHRP Report 684 – Enhancing Internal Trip Capture for Mixed-Use Developments.

The existing Kelly Moore paint store and TAP Plastics shop were included in the existing trip credits as they currently generate trips to and from the site. Pass-by trips were also applied to the existing land use.

Table 3 provides a summary of the proposed project's trip generation. As shown in the table, the project will generate 497 net new weekday daily trips of which 24 will occur at a.m. peak hour and 43 during the p.m. peak hour.

Table 3 Proposed Project Net Trip Generation Estimates

Land Use (ITE Land Use Code)	Unit	Size	Weekday Daily	Weekday AM Peak Hour			Weekday PM Peak Hour		
				In	Out	Total	In	Out	Total
Proposed Project									
Ground Floor Retail (822)	GFA (KSF)	9.88	538	14	9	23	33	32	65
Mid Rise Multi-family Housing (221)	DU	48	96	2	10	12	9	3	12
Total			*634*	*16*	*19*	*35*	*42*	35	*77*
Internal Trip Capture (NCHRP 684)			*-63*	-	-	-	*-4*	-4	*-8*
Total Proposed Project Trips			***571***	***16***	***19***	***35***	***38***	***31***	***69***
Existing Project (Credits for Existing Land Use)									
Kelly Moore Paints (816)	GFA (KSF)	7.5	61	4	3	7	10	12	22
Pass-by rate (26%)			-	-	-	-	*3*	*3*	6
TAP Plastics (816)	GFA (KSF)	4.5	36	2	2	4	6	7	13
Pass-by rate (26%)			-	-	-	-	*2*	*2*	*3*
Existing Trips at Project Site			***97***	***6***	***5***	***11***	***12***	***14***	***26***
Net New Project Trips (Total Proposed Project Trips – Existing Trips at Project Site)			**474**	**10**	**14**	**24**	**26**	**17**	**43**

Notes: KSF- 1,000 Square Feet, DU - Dwelling Units, GFA - Gross Floor Area

Source: ITE Trip Generation Manual, 11th Edition

Vehicle Trip Distribution

The vehicle trip distribution assumptions are based on the existing counts and proximity to the major arterials and freeways. As shown above, the proposed project would generate 24 trips in the morning peak hour and 43 trips in the evening peak hour. The driveways for the existing land use are situated on B Street, 6th Avenue, and 7th Avenue. The driveway for the proposed project site is situated on 7th Avenue for residential land use and on 6th Avenue for the retail/commercial land use portion of the project. Vehicle traffic going to/from the existing and proposed project site are distributed at each intersection according to the turning movement proportions consistent with the existing counts. The proposed project vehicle trip distribution percentages are illustrated in Figure 4 for AM and PM peak hour respectively.

WEEKDAY AM (PM) PROPOSED PROJECT TRIP DISTRIBUTION

PROJECT SITE

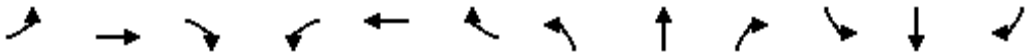
AM (PM) IN

AM (PM) OUT

Next Steps

Pending City's review of this memorandum, more detailed traffic analysis will be carried out based on the existing and proposed trip generation and the proposed project vehicle trip distribution assumptions.

APPENDIX D: BASELINE (OPENING YEAR) PLUS PROJECT CONDITIONS WORKSHEETS



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	309	59	21	344	11	37	126	57	13	92	28
Future Volume (veh/h)	17	309	59	21	344	11	37	126	57	13	92	28
Initial Q (Qb), veh	0	0	0	0	0	0	0	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	0.90	1.00	1.00	0.90	1.00	1.00	0.90	1.00	1.00	0.90
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683
Adj Flow Rate, veh/h	20	359	69	24	400	13	43	147	66	15	107	33
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	69	431	81	73	496	16	162	492	205	106	602	175
Arrive On Green	0.36	0.36	0.36	0.36	0.36	0.36	0.58	0.58	0.58	0.58	0.58	0.58
Sat Flow, veh/h	32	1204	225	41	1385	44	168	847	353	77	1036	301
Grp Volume(v), veh/h	448	0	0	437	0	0	256	0	0	155	0	0
Grp Sat Flow(s),veh/h/ln	1461	0	0	1470	0	0	1368	0	0	1414	0	0
Q Serve(g_s), s	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	18.2	0.0	0.0	17.4	0.0	0.0	5.9	0.0	0.0	3.2	0.0	0.0
Prop In Lane	0.04		0.15	0.05		0.03	0.17		0.26	0.10		0.21
Lane Grp Cap(c), veh/h	581	0	0	585	0	0	859	0	0	882	0	0
V/C Ratio(X)	0.77	0.00	0.00	0.75	0.00	0.00	0.30	0.00	0.00	0.18	0.00	0.00
Avail Cap(c_a), veh/h	771	0	0	777	0	0	859	0	0	882	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	19.3	0.0	0.0	18.9	0.0	0.0	6.9	0.0	0.0	6.4	0.0	0.0
Incr Delay (d2), s/veh	2.3	0.0	0.0	1.7	0.0	0.0	0.9	0.0	0.0	0.4	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	6.1	0.0	0.0	5.8	0.0	0.0	1.7	0.0	0.0	1.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.6	0.0	0.0	20.7	0.0	0.0	7.8	0.0	0.0	6.8	0.0	0.0
LnGrp LOS	C	A	A	C	A	A	A	A	A	A	A	A
Approach Vol, veh/h		448			437			256			155	
Approach Delay, s/veh		21.6			20.7			7.8			6.8	
Approach LOS		C			C			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		39.7		25.3		39.7		25.3				
Change Period (Y+Rc), s		3.5		3.5		3.5		3.5				
Max Green Setting (Gmax), s		27.5		30.5		27.5		30.5				
Max Q Clear Time (g_c+I1), s		7.9		20.2		5.2		19.4				
Green Ext Time (p_c), s		1.0		1.5		0.6		1.5				

Intersection Summary												
HCM 6th Ctrl Delay			16.8									
HCM 6th LOS			B									

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	3	3	1	0	3	8	139	6	9	93	5
Future Vol, veh/h	4	3	3	1	0	3	8	139	6	9	93	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
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, %	0	0	50	0	0	0	0	2	0	0	3	0
Mvmt Flow	5	4	4	1	0	4	11	183	8	12	122	7

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	361	363	126	363	362	187	129	0	0	191	0	0
Stage 1	150	150	-	209	209	-	-	-	-	-	-	-
Stage 2	211	213	-	154	153	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.7	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.75	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	598	568	810	597	569	860	1469	-	-	1395	-	-
Stage 1	857	777	-	798	733	-	-	-	-	-	-	-
Stage 2	796	730	-	853	775	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	588	558	810	583	559	860	1469	-	-	1395	-	-
Mov Cap-2 Maneuver	588	558	-	583	559	-	-	-	-	-	-	-
Stage 1	850	770	-	792	727	-	-	-	-	-	-	-
Stage 2	786	724	-	837	768	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.8	9.7	0.4	0.6
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1469	-	-	630	769	1395	-	-
HCM Lane V/C Ratio	0.007	-	-	0.021	0.007	0.008	-	-
HCM Control Delay (s)	7.5	0	-	10.8	9.7	7.6	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	15	0	6	9	3	1	2	127	6	2	83	4
Future Vol, veh/h	15	0	6	9	3	1	2	127	6	2	83	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	0	0	0	0	0	0	0	2	0	0	4	0
Mvmt Flow	19	0	8	11	4	1	3	161	8	3	105	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	288	289	108	289	287	165	110	0	0	169	0	0
Stage 1	114	114	-	171	171	-	-	-	-	-	-	-
Stage 2	174	175	-	118	116	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	668	624	951	667	626	885	1493	-	-	1421	-	-
Stage 1	896	805	-	836	761	-	-	-	-	-	-	-
Stage 2	833	758	-	891	803	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	662	622	951	660	623	885	1493	-	-	1421	-	-
Mov Cap-2 Maneuver	662	622	-	660	623	-	-	-	-	-	-	-
Stage 1	894	803	-	834	759	-	-	-	-	-	-	-
Stage 2	826	756	-	882	801	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.2	10.6	0.1	0.2
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1493	-	-	725	664	1421	-	-
HCM Lane V/C Ratio	0.002	-	-	0.037	0.025	0.002	-	-
HCM Control Delay (s)	7.4	0	-	10.2	10.6	7.5	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	7	0	5	4	0	4	6	129	5	1	88	1
Future Vol, veh/h	7	0	5	4	0	4	6	129	5	1	88	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	0	5	0	0	0	0	0	2	0	0	5	0
Mvmt Flow	9	0	6	5	0	5	8	163	6	1	111	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	299	299	112	299	296	166	112	0	0	169	0	0
Stage 1	114	114	-	182	182	-	-	-	-	-	-	-
Stage 2	185	185	-	117	114	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.55	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.55	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.55	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.045	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	657	608	947	657	619	884	1490	-	-	1421	-	-
Stage 1	896	795	-	824	753	-	-	-	-	-	-	-
Stage 2	821	741	-	892	805	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	650	604	947	649	615	884	1490	-	-	1421	-	-
Mov Cap-2 Maneuver	650	604	-	649	615	-	-	-	-	-	-	-
Stage 1	891	794	-	819	748	-	-	-	-	-	-	-
Stage 2	811	737	-	885	804	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.9	9.9	0.3	0.1
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1490	-	-	748	748	1421	-	-
HCM Lane V/C Ratio	0.005	-	-	0.02	0.014	0.001	-	-
HCM Control Delay (s)	7.4	0	-	9.9	9.9	7.5	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	213	5	88	268	63	11	62	144	45	46	16
Future Volume (vph)	22	213	5	88	268	63	11	62	144	45	46	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2		4.2	4.2		4.2	4.2		4.2	4.2	
Lane Util. Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt		1.00		1.00	0.97		1.00	0.90		1.00	0.96	
Flt Protected		1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1514		1448	1483		1462	1368		1419	1464	
Flt Permitted		0.95		0.58	1.00		0.71	1.00		0.58	1.00	
Satd. Flow (perm)		1452		882	1483		1096	1368		873	1464	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	24	237	6	98	298	70	12	69	160	50	51	18
RTOR Reduction (vph)	0	1	0	0	13	0	0	94	0	0	11	0
Lane Group Flow (vph)	0	266	0	98	355	0	12	135	0	50	58	0
Heavy Vehicles (%)	0%	1%	0%	1%	1%	0%	0%	0%	1%	3%	0%	4%
Parking (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		29.8		29.8	29.8		26.8	26.8		26.8	26.8	
Effective Green, g (s)		29.8		29.8	29.8		26.8	26.8		26.8	26.8	
Actuated g/C Ratio		0.46		0.46	0.46		0.41	0.41		0.41	0.41	
Clearance Time (s)		4.2		4.2	4.2		4.2	4.2		4.2	4.2	
Lane Grp Cap (vph)		665		404	679		451	564		359	603	
v/s Ratio Prot					c0.24			c0.10			0.04	
v/s Ratio Perm		0.18		0.11			0.01			0.06		
v/c Ratio		0.40		0.24	0.52		0.03	0.24		0.14	0.10	
Uniform Delay, d1		11.7		10.7	12.5		11.3	12.5		11.9	11.7	
Progression Factor		1.00		1.00	1.00		1.00	1.00		0.89	0.88	
Incremental Delay, d2		1.8		1.4	2.9		0.1	1.0		0.8	0.3	
Delay (s)		13.5		12.1	15.4		11.5	13.5		11.4	10.6	
Level of Service		B		B	B		B	B		B	B	
Approach Delay (s)		13.5			14.7			13.4			11.0	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	13.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	8.4
Intersection Capacity Utilization	66.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

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	78	211	3	12	253	2	3	2	5	6	1	71
Future Vol, veh/h	78	211	3	12	253	2	3	2	5	6	1	71
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	0	0	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	93	251	4	14	301	2	4	2	6	7	1	85

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	303	0	0	255	0	0	812	770	253	773	771	302
Stage 1	-	-	-	-	-	-	439	439	-	330	330	-
Stage 2	-	-	-	-	-	-	373	331	-	443	441	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1269	-	-	1322	-	-	300	333	791	319	333	742
Stage 1	-	-	-	-	-	-	601	582	-	687	649	-
Stage 2	-	-	-	-	-	-	652	649	-	598	580	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1269	-	-	1322	-	-	245	301	791	291	301	742
Mov Cap-2 Maneuver	-	-	-	-	-	-	245	301	-	291	301	-
Stage 1	-	-	-	-	-	-	550	533	-	629	641	-
Stage 2	-	-	-	-	-	-	569	641	-	541	531	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.2	0.3	14.3	11.4
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	397	1269	-	-	1322	-	-	652
HCM Lane V/C Ratio	0.03	0.073	-	-	0.011	-	-	0.142
HCM Control Delay (s)	14.3	8.1	0	-	7.8	0	-	11.4
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.1	0.2	-	-	0	-	-	0.5

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	0	0	0	10	0	4	0	83	9	9	61	0
Future Vol, veh/h	0	0	0	10	0	4	0	83	9	9	61	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2	0	0	0	0	0	0
Mvmt Flow	0	0	0	13	0	5	0	106	12	12	78	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	217	220	78	214	214	112	78	0	0	118	0	0
Stage 1	102	102	-	112	112	-	-	-	-	-	-	-
Stage 2	115	118	-	102	102	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	739	678	983	743	684	941	1533	-	-	1483	-	-
Stage 1	904	811	-	893	803	-	-	-	-	-	-	-
Stage 2	890	798	-	904	811	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	730	673	983	739	679	941	1533	-	-	1483	-	-
Mov Cap-2 Maneuver	730	673	-	739	679	-	-	-	-	-	-	-
Stage 1	904	805	-	893	803	-	-	-	-	-	-	-
Stage 2	885	798	-	897	805	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	9.7	0	1
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1533	-	-	-	787	1483	-	-
HCM Lane V/C Ratio	-	-	-	-	0.023	0.008	-	-
HCM Control Delay (s)	0	-	-	0	9.7	7.4	0	-
HCM Lane LOS	A	-	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0	-	-

Intersection	
Intersection Delay, s/veh	7.7
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	7	7	78	15	10	71
Future Vol, veh/h	7	7	78	15	10	71
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles, %	0	0	0	0	14	1
Mvmt Flow	9	9	96	19	12	88
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	7.3	7.5	7.9
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	50%	12%
Vol Thru, %	84%	0%	88%
Vol Right, %	16%	50%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	93	14	81
LT Vol	0	7	10
Through Vol	78	0	71
RT Vol	15	7	0
Lane Flow Rate	115	17	100
Geometry Grp	1	1	1
Degree of Util (X)	0.125	0.02	0.119
Departure Headway (Hd)	3.907	4.166	4.278
Convergence, Y/N	Yes	Yes	Yes
Cap	915	864	837
Service Time	1.943	2.166	2.308
HCM Lane V/C Ratio	0.126	0.02	0.119
HCM Control Delay	7.5	7.3	7.9
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.4	0.1	0.4

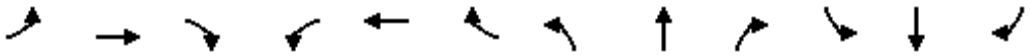
Intersection	
Int Delay, s/veh	3.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	263	54	58	250	85	69
Future Vol, veh/h	263	54	58	250	85	69
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	1	1	2	3	0
Mvmt Flow	286	59	63	272	92	75

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	345	0	714	316
Stage 1	-	-	-	-	316	-
Stage 2	-	-	-	-	398	-
Critical Hdwy	-	-	4.11	-	6.43	6.2
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.209	-	3.527	3.3
Pot Cap-1 Maneuver	-	-	1220	-	396	729
Stage 1	-	-	-	-	737	-
Stage 2	-	-	-	-	676	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1220	-	372	729
Mov Cap-2 Maneuver	-	-	-	-	372	-
Stage 1	-	-	-	-	737	-
Stage 2	-	-	-	-	635	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.5	16.6
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	477	-	-	1220	-
HCM Lane V/C Ratio	0.351	-	-	0.052	-
HCM Control Delay (s)	16.6	-	-	8.1	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	1.6	-	-	0.2	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	46	425	67	25	303	30	42	137	74	18	117	38
Future Volume (veh/h)	46	425	67	25	303	30	42	137	74	18	117	38
Initial Q (Qb), veh	0	0	0	0	0	0	0	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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683
Adj Flow Rate, veh/h	49	457	72	27	326	32	45	147	80	19	126	41
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	106	551	83	94	600	57	158	459	225	112	579	175
Arrive On Green	0.42	0.42	0.42	0.42	0.42	0.42	0.51	0.51	0.51	0.51	0.51	0.51
Sat Flow, veh/h	83	1306	198	57	1422	134	163	908	446	79	1146	346
Grp Volume(v), veh/h	578	0	0	385	0	0	272	0	0	186	0	0
Grp Sat Flow(s),veh/h/ln	1586	0	0	1612	0	0	1516	0	0	1572	0	0
Q Serve(g_s), s	8.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	18.0	0.0	0.0	9.6	0.0	0.0	5.6	0.0	0.0	3.5	0.0	0.0
Prop In Lane	0.08		0.12	0.07		0.08	0.17		0.29	0.10		0.22
Lane Grp Cap(c), veh/h	740	0	0	750	0	0	843	0	0	867	0	0
V/C Ratio(X)	0.78	0.00	0.00	0.51	0.00	0.00	0.32	0.00	0.00	0.21	0.00	0.00
Avail Cap(c_a), veh/h	888	0	0	898	0	0	843	0	0	867	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	14.3	0.0	0.0	12.0	0.0	0.0	8.1	0.0	0.0	7.6	0.0	0.0
Incr Delay (d2), s/veh	3.0	0.0	0.0	0.2	0.0	0.0	1.0	0.0	0.0	0.6	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.2	0.0	0.0	3.1	0.0	0.0	1.8	0.0	0.0	1.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.3	0.0	0.0	12.2	0.0	0.0	9.1	0.0	0.0	8.2	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	A	A	A	A	A	A
Approach Vol, veh/h		578			385			272			186	
Approach Delay, s/veh		17.3			12.2			9.1			8.2	
Approach LOS		B			B			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		29.8		25.2		29.8		25.2				
Change Period (Y+Rc), s		3.5		3.5		3.5		3.5				
Max Green Setting (Gmax), s		21.0		27.0		21.0		27.0				
Max Q Clear Time (g_c+I1), s		7.6		20.0		5.5		11.6				
Green Ext Time (p_c), s		1.0		1.7		0.6		1.5				

Intersection Summary												
HCM 6th Ctrl Delay			13.1									
HCM 6th LOS			B									

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	13	1	21	8	1	11	10	150	14	7	151	7
Future Vol, veh/h	13	1	21	8	1	11	10	150	14	7	151	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
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, %	0	0	0	0	0	0	16	3	0	0	1	0
Mvmt Flow	14	1	23	9	1	12	11	163	15	8	164	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	383	384	168	389	381	171	172	0	0	178	0	0
Stage 1	184	184	-	193	193	-	-	-	-	-	-	-
Stage 2	199	200	-	196	188	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.26	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.344	-	-	2.2	-	-
Pot Cap-1 Maneuver	579	553	881	574	555	878	1324	-	-	1410	-	-
Stage 1	822	751	-	813	745	-	-	-	-	-	-	-
Stage 2	807	739	-	810	748	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	564	545	881	552	547	878	1324	-	-	1410	-	-
Mov Cap-2 Maneuver	564	545	-	552	547	-	-	-	-	-	-	-
Stage 1	815	746	-	806	738	-	-	-	-	-	-	-
Stage 2	788	732	-	783	744	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.3	10.4	0.4	0.3
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1324	-	-	718	693	1410	-	-
HCM Lane V/C Ratio	0.008	-	-	0.053	0.031	0.005	-	-
HCM Control Delay (s)	7.7	0	-	10.3	10.4	7.6	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.1	0	-	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	4	2	14	4	2	14	16	153	11	4	158	11
Future Vol, veh/h	4	2	14	4	2	14	16	153	11	4	158	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	25	0	8	0	0	0	0	3	0	0	4	0
Mvmt Flow	4	2	15	4	2	15	17	165	12	4	170	12

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	398	395	176	398	395	171	182	0	0	177	0	0
Stage 1	184	184	-	205	205	-	-	-	-	-	-	-
Stage 2	214	211	-	193	190	-	-	-	-	-	-	-
Critical Hdwy	7.35	6.5	6.28	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.35	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.35	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.725	4	3.372	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	523	545	852	566	545	878	1405	-	-	1411	-	-
Stage 1	767	751	-	802	736	-	-	-	-	-	-	-
Stage 2	739	731	-	813	747	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	506	536	852	547	536	878	1405	-	-	1411	-	-
Mov Cap-2 Maneuver	506	536	-	547	536	-	-	-	-	-	-	-
Stage 1	757	749	-	792	726	-	-	-	-	-	-	-
Stage 2	715	721	-	794	745	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.2	10	0.7	0.2
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1405	-	-	713	741	1411	-	-
HCM Lane V/C Ratio	0.012	-	-	0.03	0.029	0.003	-	-
HCM Control Delay (s)	7.6	0	-	10.2	10	7.6	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-

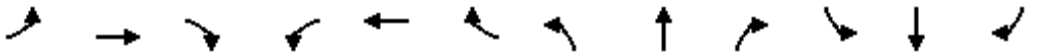
Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	16	1	14	8	1	12	2	161	10	5	151	9
Future Vol, veh/h	16	1	14	8	1	12	2	161	10	5	151	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	12	0	0	0	0	0	0	2	0	0	1	0
Mvmt Flow	18	1	16	9	1	14	2	183	11	6	172	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	389	387	177	391	387	189	182	0	0	194	0	0
Stage 1	189	189	-	193	193	-	-	-	-	-	-	-
Stage 2	200	198	-	198	194	-	-	-	-	-	-	-
Critical Hdwy	7.22	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.22	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.22	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.608	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	552	551	871	572	551	858	1405	-	-	1391	-	-
Stage 1	790	748	-	813	745	-	-	-	-	-	-	-
Stage 2	779	741	-	808	744	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	539	547	871	558	547	858	1405	-	-	1391	-	-
Mov Cap-2 Maneuver	539	547	-	558	547	-	-	-	-	-	-	-
Stage 1	788	744	-	811	744	-	-	-	-	-	-	-
Stage 2	764	740	-	788	740	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.8	10.4	0.1	0.2
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1405	-	-	651	696	1391	-	-
HCM Lane V/C Ratio	0.002	-	-	0.054	0.034	0.004	-	-
HCM Control Delay (s)	7.6	0	-	10.8	10.4	7.6	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.1	0	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	201	11	88	186	76	6	79	126	71	51	34
Future Volume (vph)	26	201	11	88	186	76	6	79	126	71	51	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt		0.99		1.00	0.96		1.00	0.91		1.00	0.94	
Flt Protected		0.99		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1690		1608	1619		1624	1552		1608	1591	
Flt Permitted		0.95		0.59	1.00		0.70	1.00		0.61	1.00	
Satd. Flow (perm)		1617		996	1619		1195	1552		1037	1591	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	27	212	12	93	196	80	6	83	133	75	54	36
RTOR Reduction (vph)	0	3	0	0	23	0	0	75	0	0	20	0
Lane Group Flow (vph)	0	248	0	93	254	0	6	141	0	75	70	0
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		27.5		27.5	27.5		28.5	28.5		28.5	28.5	
Effective Green, g (s)		27.5		27.5	27.5		28.5	28.5		28.5	28.5	
Actuated g/C Ratio		0.42		0.42	0.42		0.44	0.44		0.44	0.44	
Clearance Time (s)		4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)		684		421	684		523	680		454	697	
v/s Ratio Prot					c0.16			c0.09			0.04	
v/s Ratio Perm		0.15		0.09			0.01			0.07		
v/c Ratio		0.36		0.22	0.37		0.01	0.21		0.17	0.10	
Uniform Delay, d1		12.8		11.9	12.8		10.3	11.3		11.0	10.7	
Progression Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.5		1.2	1.5		0.0	0.7		0.8	0.3	
Delay (s)		14.3		13.1	14.4		10.3	12.0		11.8	11.0	
Level of Service		B		B	B		B	B		B	B	
Approach Delay (s)		14.3			14.1			11.9			11.4	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	13.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	66.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	79	250	3	4	195	17	0	1	2	22	7	80
Future Vol, veh/h	79	250	3	4	195	17	0	1	2	22	7	80
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	-	-	-	-	-	-	-	-	-	-	-	-
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, %	0	0	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	86	272	3	4	212	18	0	1	2	24	8	87

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	230	0	0	275	0	0	723	684	274	676	676	221
Stage 1	-	-	-	-	-	-	446	446	-	229	229	-
Stage 2	-	-	-	-	-	-	277	238	-	447	447	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1350	-	-	1300	-	-	344	374	770	370	378	824
Stage 1	-	-	-	-	-	-	595	577	-	778	718	-
Stage 2	-	-	-	-	-	-	734	712	-	595	577	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1350	-	-	1300	-	-	284	344	770	346	348	824
Mov Cap-2 Maneuver	-	-	-	-	-	-	284	344	-	346	348	-
Stage 1	-	-	-	-	-	-	550	534	-	720	715	-
Stage 2	-	-	-	-	-	-	647	709	-	548	534	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.9	0.1	11.6	12.4
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	545	1350	-	-	1300	-	-	603
HCM Lane V/C Ratio	0.006	0.064	-	-	0.003	-	-	0.196
HCM Control Delay (s)	11.6	7.8	0	-	7.8	0	-	12.4
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0	0.2	-	-	0	-	-	0.7

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	0	0	1	10	0	13	0	75	14	8	113	0
Future Vol, veh/h	0	0	1	10	0	13	0	75	14	8	113	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	0	0	0	0	1	8	14	2	0
Mvmt Flow	0	0	1	11	0	15	0	86	16	9	130	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	250	250	130	243	242	94	130	0	0	102	0	0
Stage 1	148	148	-	94	94	-	-	-	-	-	-	-
Stage 2	102	102	-	149	148	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.1	6.5	6.2	4.1	-	-	4.24	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.5	4	3.3	2.2	-	-	2.326	-	-
Pot Cap-1 Maneuver	703	653	920	715	663	968	1468	-	-	1418	-	-
Stage 1	855	775	-	918	821	-	-	-	-	-	-	-
Stage 2	904	811	-	858	779	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	688	648	920	710	658	968	1468	-	-	1418	-	-
Mov Cap-2 Maneuver	688	648	-	710	658	-	-	-	-	-	-	-
Stage 1	855	770	-	918	821	-	-	-	-	-	-	-
Stage 2	890	811	-	851	774	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.9	9.4	0	0.5
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1468	-	-	920	836	1418	-	-
HCM Lane V/C Ratio	-	-	-	0.001	0.032	0.006	-	-
HCM Control Delay (s)	0	-	-	8.9	9.4	7.6	0	-
HCM Lane LOS	A	-	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-

Intersection	
Intersection Delay, s/veh	7.8
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	16	76	14	21	115
Future Vol, veh/h	6	16	76	14	21	115
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	0	20	1	0	0	1
Mvmt Flow	7	19	89	16	25	135
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	7.2	7.6	8
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	27%	15%
Vol Thru, %	84%	0%	85%
Vol Right, %	16%	73%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	90	22	136
LT Vol	0	6	21
Through Vol	76	0	115
RT Vol	14	16	0
Lane Flow Rate	106	26	160
Geometry Grp	1	1	1
Degree of Util (X)	0.117	0.029	0.18
Departure Headway (Hd)	3.988	4.082	4.055
Convergence, Y/N	Yes	Yes	Yes
Cap	895	882	883
Service Time	2.033	2.082	2.087
HCM Lane V/C Ratio	0.118	0.029	0.181
HCM Control Delay	7.6	7.2	8
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.4	0.1	0.7

Intersection	
Int Delay, s/veh	2.7

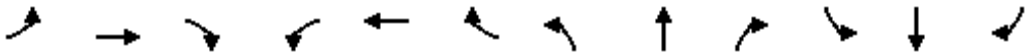
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	305	99	61	235	70	27
Future Vol, veh/h	305	99	61	235	70	27
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	1	1	2	3	0
Mvmt Flow	328	106	66	253	75	29

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	434	0	766	381
Stage 1	-	-	-	-	381	-
Stage 2	-	-	-	-	385	-
Critical Hdwy	-	-	4.11	-	6.43	6.2
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.209	-	3.527	3.3
Pot Cap-1 Maneuver	-	-	1131	-	369	671
Stage 1	-	-	-	-	688	-
Stage 2	-	-	-	-	686	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1131	-	344	671
Mov Cap-2 Maneuver	-	-	-	-	344	-
Stage 1	-	-	-	-	688	-
Stage 2	-	-	-	-	639	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.7	17.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	398	-	-	1131	-
HCM Lane V/C Ratio	0.262	-	-	0.058	-
HCM Control Delay (s)	17.2	-	-	8.4	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	1	-	-	0.2	-

APPENDIX E: CUMULATIVE CONDITIONS WORKSHEETS



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	330	219	23	391	11	217	209	85	13	181	63
Future Volume (veh/h)	23	330	219	23	391	11	217	209	85	13	181	63
Initial Q (Qb), veh	0	0	0	0	0	0	0	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	0.90	1.00	1.00	0.90	1.00	1.00	0.90	1.00	1.00	0.90
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683
Adj Flow Rate, veh/h	27	384	255	27	455	13	252	243	99	15	210	73
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	72	409	263	77	660	18	279	211	82	72	474	158
Arrive On Green	0.49	0.49	0.49	0.49	0.49	0.49	0.45	0.45	0.45	0.45	0.45	0.45
Sat Flow, veh/h	28	831	533	37	1340	37	449	474	185	30	1063	355
Grp Volume(v), veh/h	666	0	0	495	0	0	594	0	0	298	0	0
Grp Sat Flow(s),veh/h/ln	1393	0	0	1414	0	0	1108	0	0	1448	0	0
Q Serve(g_s), s	13.9	0.0	0.0	0.0	0.0	0.0	19.7	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	30.2	0.0	0.0	16.2	0.0	0.0	29.0	0.0	0.0	9.3	0.0	0.0
Prop In Lane	0.04		0.38	0.05		0.03	0.42		0.17	0.05		0.24
Lane Grp Cap(c), veh/h	743	0	0	755	0	0	573	0	0	704	0	0
V/C Ratio(X)	0.90	0.00	0.00	0.66	0.00	0.00	1.04	0.00	0.00	0.42	0.00	0.00
Avail Cap(c_a), veh/h	743	0	0	755	0	0	573	0	0	704	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	15.9	0.0	0.0	12.5	0.0	0.0	20.2	0.0	0.0	12.5	0.0	0.0
Incr Delay (d2), s/veh	13.1	0.0	0.0	1.7	0.0	0.0	47.3	0.0	0.0	1.9	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	10.9	0.0	0.0	5.1	0.0	0.0	16.3	0.0	0.0	3.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.0	0.0	0.0	14.1	0.0	0.0	67.5	0.0	0.0	14.4	0.0	0.0
LnGrp LOS	C	A	A	B	A	A	F	A	A	B	A	A
Approach Vol, veh/h		666			495			594			298	
Approach Delay, s/veh		29.0			14.1			67.5			14.4	
Approach LOS		C			B			E			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		31.0		34.0		31.0		34.0				
Change Period (Y+Rc), s		3.5		3.5		3.5		3.5				
Max Green Setting (Gmax), s		27.5		30.5		27.5		30.5				
Max Q Clear Time (g_c+I1), s		31.0		32.2		11.3		18.2				
Green Ext Time (p_c), s		0.0		0.0		1.1		1.9				

Intersection Summary												
HCM 6th Ctrl Delay			34.4									
HCM 6th LOS			C									

Intersection	
Int Delay, s/veh	6.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	67	10	45	1	4	3	39	371	6	9	334	25
Future Vol, veh/h	67	10	45	1	4	3	39	371	6	9	334	25
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
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, %	0	0	50	0	0	0	0	2	0	0	3	0
Mvmt Flow	88	13	59	1	5	4	51	488	8	12	439	33

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1079	1078	456	1110	1090	492	472	0	0	496	0	0
Stage 1	480	480	-	594	594	-	-	-	-	-	-	-
Stage 2	599	598	-	516	496	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.7	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.75	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	198	220	516	188	217	581	1100	-	-	1078	-	-
Stage 1	571	558	-	495	496	-	-	-	-	-	-	-
Stage 2	492	494	-	546	549	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	181	203	516	149	200	581	1100	-	-	1078	-	-
Mov Cap-2 Maneuver	181	203	-	149	200	-	-	-	-	-	-	-
Stage 1	534	550	-	463	464	-	-	-	-	-	-	-
Stage 2	452	462	-	465	541	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	45.4	20	0.8	0.2
HCM LOS	E	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1100	-	-	241	251	1078	-	-
HCM Lane V/C Ratio	0.047	-	-	0.666	0.042	0.011	-	-
HCM Control Delay (s)	8.4	0	-	45.4	20	8.4	0	-
HCM Lane LOS	A	A	-	E	C	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	4.2	0.1	0	-	-

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	17	0	10	10	3	1	5	384	6	2	364	8
Future Vol, veh/h	17	0	10	10	3	1	5	384	6	2	364	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	0	0	0	0	0	0	0	2	0	0	4	0
Mvmt Flow	22	0	13	13	4	1	6	486	8	3	461	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	977	978	466	981	979	490	471	0	0	494	0	0
Stage 1	472	472	-	502	502	-	-	-	-	-	-	-
Stage 2	505	506	-	479	477	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	232	252	601	231	252	582	1101	-	-	1080	-	-
Stage 1	576	562	-	555	545	-	-	-	-	-	-	-
Stage 2	553	543	-	571	559	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	227	249	601	224	249	582	1101	-	-	1080	-	-
Mov Cap-2 Maneuver	227	249	-	224	249	-	-	-	-	-	-	-
Stage 1	571	560	-	551	541	-	-	-	-	-	-	-
Stage 2	544	539	-	557	557	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	18.8	21.2	0.1	0
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1101	-	-	295	240	1080	-	-
HCM Lane V/C Ratio	0.006	-	-	0.116	0.074	0.002	-	-
HCM Control Delay (s)	8.3	0	-	18.8	21.2	8.3	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.4	0.2	0	-	-

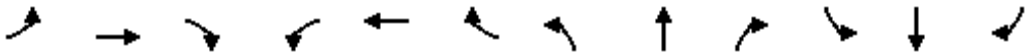
Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	24	5	25	4	3	4	50	374	6	1	372	8
Future Vol, veh/h	24	5	25	4	3	4	50	374	6	1	372	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	0	5	0	0	0	0	0	2	0	0	5	0
Mvmt Flow	30	6	32	5	4	5	63	473	8	1	471	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1086	1085	476	1100	1086	477	481	0	0	481	0	0
Stage 1	478	478	-	603	603	-	-	-	-	-	-	-
Stage 2	608	607	-	497	483	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.55	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.55	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.55	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.045	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	196	214	593	191	218	592	1092	-	-	1092	-	-
Stage 1	572	551	-	489	492	-	-	-	-	-	-	-
Stage 2	486	482	-	559	556	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	180	197	593	166	201	592	1092	-	-	1092	-	-
Mov Cap-2 Maneuver	180	197	-	166	201	-	-	-	-	-	-	-
Stage 1	527	550	-	450	453	-	-	-	-	-	-	-
Stage 2	440	444	-	523	555	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	22.9	20.9	1	0
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1092	-	-	269	240	1092	-	-
HCM Lane V/C Ratio	0.058	-	-	0.254	0.058	0.001	-	-
HCM Control Delay (s)	8.5	0	-	22.9	20.9	8.3	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	1	0.2	0	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	212	10	110	276	102	34	300	211	94	235	69
Future Volume (vph)	56	212	10	110	276	102	34	300	211	94	235	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2		4.2	4.2		4.2	4.2		4.2	4.2	
Lane Util. Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt		1.00		1.00	0.96		1.00	0.94		1.00	0.97	
Flt Protected		0.99		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1505		1448	1466		1462	1438		1419	1473	
Flt Permitted		0.86		0.55	1.00		0.46	1.00		0.23	1.00	
Satd. Flow (perm)		1312		837	1466		709	1438		338	1473	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	62	236	11	122	307	113	38	333	234	104	261	77
RTOR Reduction (vph)	0	2	0	0	21	0	0	39	0	0	16	0
Lane Group Flow (vph)	0	307	0	122	399	0	38	528	0	104	322	0
Heavy Vehicles (%)	0%	1%	0%	1%	1%	0%	0%	0%	1%	3%	0%	4%
Parking (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		29.8		29.8	29.8		26.8	26.8		26.8	26.8	
Effective Green, g (s)		29.8		29.8	29.8		26.8	26.8		26.8	26.8	
Actuated g/C Ratio		0.46		0.46	0.46		0.41	0.41		0.41	0.41	
Clearance Time (s)		4.2		4.2	4.2		4.2	4.2		4.2	4.2	
Lane Grp Cap (vph)		601		383	672		292	592		139	607	
v/s Ratio Prot					c0.27			c0.37			0.22	
v/s Ratio Perm		0.23		0.15			0.05			0.31		
v/c Ratio		0.51		0.32	0.59		0.13	0.89		0.75	0.53	
Uniform Delay, d1		12.4		11.2	13.1		11.9	17.8		16.2	14.4	
Progression Factor		1.00		1.00	1.00		1.00	1.00		0.94	0.91	
Incremental Delay, d2		3.1		2.2	3.8		0.9	18.3		25.9	2.7	
Delay (s)		15.5		13.3	16.9		12.8	36.0		41.1	15.8	
Level of Service		B		B	B		B	D		D	B	
Approach Delay (s)		15.5			16.1			34.6			21.8	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	23.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	8.4
Intersection Capacity Utilization	93.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	91	211	4	15	274	2	4	2	6	6	1	84
Future Vol, veh/h	91	211	4	15	274	2	4	2	6	6	1	84
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	0	0	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	108	251	5	18	326	2	5	2	7	7	1	100

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	328	0	0	256	0	0	884	834	254	837	835	327
Stage 1	-	-	-	-	-	-	470	470	-	363	363	-
Stage 2	-	-	-	-	-	-	414	364	-	474	472	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1243	-	-	1321	-	-	268	306	790	288	306	719
Stage 1	-	-	-	-	-	-	578	563	-	660	628	-
Stage 2	-	-	-	-	-	-	620	627	-	575	562	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1243	-	-	1321	-	-	210	271	790	258	271	719
Mov Cap-2 Maneuver	-	-	-	-	-	-	210	271	-	258	271	-
Stage 1	-	-	-	-	-	-	520	506	-	593	617	-
Stage 2	-	-	-	-	-	-	524	616	-	510	505	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.4	0.4	15.6	11.9
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	353	1243	-	-	1321	-	-	633
HCM Lane V/C Ratio	0.04	0.087	-	-	0.014	-	-	0.171
HCM Control Delay (s)	15.6	8.2	0	-	7.8	0	-	11.9
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.1	0.3	-	-	0	-	-	0.6

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	0	7	0	10	5	4	0	97	10	10	73	0
Future Vol, veh/h	0	7	0	10	5	4	0	97	10	10	73	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2	0	0	0	0	0	0
Mvmt Flow	0	9	0	13	6	5	0	124	13	13	94	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	256	257	94	256	251	131	94	0	0	137	0	0
Stage 1	120	120	-	131	131	-	-	-	-	-	-	-
Stage 2	136	137	-	125	120	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	697	647	963	697	652	919	1513	-	-	1459	-	-
Stage 1	884	796	-	873	788	-	-	-	-	-	-	-
Stage 2	867	783	-	879	796	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	683	641	963	685	646	919	1513	-	-	1459	-	-
Mov Cap-2 Maneuver	683	641	-	685	646	-	-	-	-	-	-	-
Stage 1	884	789	-	873	788	-	-	-	-	-	-	-
Stage 2	855	783	-	861	789	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.7	10.2	0	0.9
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1513	-	-	641	712	1459	-	-
HCM Lane V/C Ratio	-	-	-	0.014	0.034	0.009	-	-
HCM Control Delay (s)	0	-	-	10.7	10.2	7.5	0	-
HCM Lane LOS	A	-	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-

Intersection	
Intersection Delay, s/veh	7.8
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	7	95	16	9	86
Future Vol, veh/h	6	7	95	16	9	86
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles, %	0	0	0	0	14	1
Mvmt Flow	7	9	117	20	11	106
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	7.3	7.7	8
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	46%	9%
Vol Thru, %	86%	0%	91%
Vol Right, %	14%	54%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	111	13	95
LT Vol	0	6	9
Through Vol	95	0	86
RT Vol	16	7	0
Lane Flow Rate	137	16	117
Geometry Grp	1	1	1
Degree of Util (X)	0.15	0.019	0.14
Departure Headway (Hd)	3.928	4.22	4.287
Convergence, Y/N	Yes	Yes	Yes
Cap	909	853	835
Service Time	1.969	2.22	2.321
HCM Lane V/C Ratio	0.151	0.019	0.14
HCM Control Delay	7.7	7.3	8
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.5	0.1	0.5

Intersection	
Int Delay, s/veh	4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	274	63	52	265	100	55
Future Vol, veh/h	274	63	52	265	100	55
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	1	1	2	3	0
Mvmt Flow	298	68	57	288	109	60

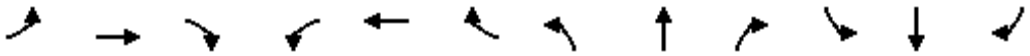
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	366	0	734	332
Stage 1	-	-	-	-	332	-
Stage 2	-	-	-	-	402	-
Critical Hdwy	-	-	4.11	-	6.43	6.2
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.209	-	3.527	3.3
Pot Cap-1 Maneuver	-	-	1198	-	386	714
Stage 1	-	-	-	-	725	-
Stage 2	-	-	-	-	673	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1198	-	364	714
Mov Cap-2 Maneuver	-	-	-	-	364	-
Stage 1	-	-	-	-	725	-
Stage 2	-	-	-	-	635	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.3	18.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	441	-	-	1198	-
HCM Lane V/C Ratio	0.382	-	-	0.047	-
HCM Control Delay (s)	18.1	-	-	8.2	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	1.8	-	-	0.1	-

HCM 6th Signalized Intersection Summary
1: B Street & 5th Avenue

06/21/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	404	286	32	309	30	204	193	87	18	248	77
Future Volume (veh/h)	55	404	286	32	309	30	204	193	87	18	248	77
Initial Q (Qb), veh	0	0	0	0	0	0	0	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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683
Adj Flow Rate, veh/h	59	434	308	34	332	32	219	208	94	19	267	83
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	107	448	303	103	683	63	284	214	89	84	496	149
Arrive On Green	0.52	0.52	0.52	0.52	0.52	0.52	0.41	0.41	0.41	0.41	0.41	0.41
Sat Flow, veh/h	71	864	584	62	1318	121	467	523	218	38	1213	363
Grp Volume(v), veh/h	801	0	0	398	0	0	521	0	0	369	0	0
Grp Sat Flow(s),veh/h/ln	1519	0	0	1501	0	0	1208	0	0	1614	0	0
Q Serve(g_s), s	18.4	0.0	0.0	0.0	0.0	0.0	12.9	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	28.5	0.0	0.0	8.4	0.0	0.0	22.5	0.0	0.0	9.6	0.0	0.0
Prop In Lane	0.07		0.38	0.09		0.08	0.42		0.18	0.05		0.22
Lane Grp Cap(c), veh/h	857	0	0	849	0	0	587	0	0	729	0	0
V/C Ratio(X)	0.93	0.00	0.00	0.47	0.00	0.00	0.89	0.00	0.00	0.51	0.00	0.00
Avail Cap(c_a), veh/h	857	0	0	849	0	0	587	0	0	729	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	13.3	0.0	0.0	8.4	0.0	0.0	16.8	0.0	0.0	12.4	0.0	0.0
Incr Delay (d2), s/veh	16.8	0.0	0.0	0.2	0.0	0.0	17.9	0.0	0.0	2.5	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	11.8	0.0	0.0	2.5	0.0	0.0	8.7	0.0	0.0	3.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.1	0.0	0.0	8.5	0.0	0.0	34.7	0.0	0.0	14.9	0.0	0.0
LnGrp LOS	C	A	A	A	A	A	C	A	A	B	A	A
Approach Vol, veh/h		801			398			521			369	
Approach Delay, s/veh		30.1			8.5			34.7			14.9	
Approach LOS		C			A			C			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		24.5		30.5		24.5		30.5				
Change Period (Y+Rc), s		3.5		3.5		3.5		3.5				
Max Green Setting (Gmax), s		21.0		27.0		21.0		27.0				
Max Q Clear Time (g_c+I1), s		24.5		30.5		11.6		10.4				
Green Ext Time (p_c), s		0.0		0.0		1.1		1.7				

Intersection Summary												
HCM 6th Ctrl Delay			24.5									
HCM 6th LOS			C									

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	17	1	20	8	1	11	29	390	21	11	494	20
Future Vol, veh/h	17	1	20	8	1	11	29	390	21	11	494	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
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, %	0	0	0	0	0	0	16	3	0	0	1	0
Mvmt Flow	18	1	22	9	1	12	32	424	23	12	537	22

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1078	1083	548	1084	1083	436	559	0	0	447	0	0
Stage 1	572	572	-	500	500	-	-	-	-	-	-	-
Stage 2	506	511	-	584	583	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.26	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.344	-	-	2.2	-	-
Pot Cap-1 Maneuver	198	219	540	196	219	625	946	-	-	1124	-	-
Stage 1	509	508	-	557	546	-	-	-	-	-	-	-
Stage 2	552	540	-	501	502	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	185	206	540	179	206	625	946	-	-	1124	-	-
Mov Cap-2 Maneuver	185	206	-	179	206	-	-	-	-	-	-	-
Stage 1	486	500	-	532	521	-	-	-	-	-	-	-
Stage 2	516	516	-	472	494	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	19.8	18	0.6	0.2
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	946	-	-	284	298	1124	-	-
HCM Lane V/C Ratio	0.033	-	-	0.145	0.073	0.011	-	-
HCM Control Delay (s)	8.9	0	-	19.8	18	8.2	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.5	0.2	0	-	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	2	13	4	1	14	14	425	11	4	500	10
Future Vol, veh/h	4	2	13	4	1	14	14	425	11	4	500	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	25	0	8	0	0	0	0	3	0	0	4	0
Mvmt Flow	4	2	14	4	1	15	15	457	12	4	538	11

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1053	1051	544	1053	1050	463	549	0	0	469	0	0
Stage 1	552	552	-	493	493	-	-	-	-	-	-	-
Stage 2	501	499	-	560	557	-	-	-	-	-	-	-
Critical Hdwy	7.35	6.5	6.28	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.35	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.35	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.725	4	3.372	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	185	229	528	206	229	603	1031	-	-	1103	-	-
Stage 1	479	518	-	562	550	-	-	-	-	-	-	-
Stage 2	512	547	-	516	515	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	176	223	528	195	223	603	1031	-	-	1103	-	-
Mov Cap-2 Maneuver	176	223	-	195	223	-	-	-	-	-	-	-
Stage 1	469	515	-	551	539	-	-	-	-	-	-	-
Stage 2	488	536	-	498	512	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16.4	14.6	0.3	0.1
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1031	-	-	337	394	1103	-	-
HCM Lane V/C Ratio	0.015	-	-	0.061	0.052	0.004	-	-
HCM Control Delay (s)	8.5	0	-	16.4	14.6	8.3	0	-
HCM Lane LOS	A	A	-	C	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.2	0	-	-

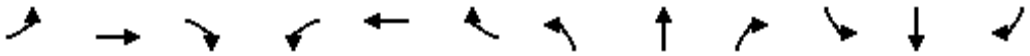
Intersection	
Int Delay, s/veh	4.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	23	1	100	31	5	12	37	430	18	5	462	40
Future Vol, veh/h	23	1	100	31	5	12	37	430	18	5	462	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	12	0	0	0	0	0	0	2	0	0	1	0
Mvmt Flow	26	1	114	35	6	14	42	489	20	6	525	45

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1153	1153	548	1200	1165	499	570	0	0	509	0	0
Stage 1	560	560	-	583	583	-	-	-	-	-	-	-
Stage 2	593	593	-	617	582	-	-	-	-	-	-	-
Critical Hdwy	7.22	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.22	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.22	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.608	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	167	199	540	163	196	576	1013	-	-	1066	-	-
Stage 1	495	514	-	502	502	-	-	-	-	-	-	-
Stage 2	475	497	-	481	502	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	151	186	540	122	183	576	1013	-	-	1066	-	-
Mov Cap-2 Maneuver	151	186	-	122	183	-	-	-	-	-	-	-
Stage 1	466	510	-	473	473	-	-	-	-	-	-	-
Stage 2	432	468	-	376	498	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	21.1	39	0.7	0.1
HCM LOS	C	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1013	-	-	362	159	1066	-	-
HCM Lane V/C Ratio	0.042	-	-	0.389	0.343	0.005	-	-
HCM Control Delay (s)	8.7	0	-	21.1	39	8.4	0	-
HCM Lane LOS	A	A	-	C	E	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.8	1.4	0	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	68	201	27	129	186	117	9	302	140	149	345	97
Future Volume (vph)	68	201	27	129	186	117	9	302	140	149	345	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt		0.99		1.00	0.94		1.00	0.95		1.00	0.97	
Flt Protected		0.99		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1670		1608	1595		1624	1629		1608	1637	
Flt Permitted		0.86		0.54	1.00		0.35	1.00		0.35	1.00	
Satd. Flow (perm)		1453		917	1595		604	1629		598	1637	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	72	212	28	136	196	123	9	318	147	157	363	102
RTOR Reduction (vph)	0	5	0	0	35	0	0	26	0	0	16	0
Lane Group Flow (vph)	0	307	0	136	284	0	9	439	0	157	449	0
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		27.5		27.5	27.5		28.5	28.5		28.5	28.5	
Effective Green, g (s)		27.5		27.5	27.5		28.5	28.5		28.5	28.5	
Actuated g/C Ratio		0.42		0.42	0.42		0.44	0.44		0.44	0.44	
Clearance Time (s)		4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)		614		387	674		264	714		262	717	
v/s Ratio Prot					0.18			0.27			c0.27	
v/s Ratio Perm		c0.21		0.15			0.01			0.26		
v/c Ratio		0.50		0.35	0.42		0.03	0.62		0.60	0.63	
Uniform Delay, d1		13.7		12.7	13.2		10.4	14.0		13.9	14.1	
Progression Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.9		2.5	1.9		0.2	3.9		9.7	4.1	
Delay (s)		16.6		15.2	15.1		10.6	18.0		23.6	18.2	
Level of Service		B		B	B		B	B		C	B	
Approach Delay (s)		16.6			15.1			17.8			19.6	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	17.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	87.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	89	250	4	7	194	17	1	1	3	23	7	94
Future Vol, veh/h	89	250	4	7	194	17	1	1	3	23	7	94
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	-	-	-	-	-	-	-	-	-	-	-	-
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, %	0	0	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	97	272	4	8	211	18	1	1	3	25	8	102

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	229	0	0	276	0	0	759	713	274	706	706	220
Stage 1	-	-	-	-	-	-	468	468	-	236	236	-
Stage 2	-	-	-	-	-	-	291	245	-	470	470	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1351	-	-	1299	-	-	326	360	770	353	363	825
Stage 1	-	-	-	-	-	-	579	565	-	772	713	-
Stage 2	-	-	-	-	-	-	721	707	-	578	563	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1351	-	-	1299	-	-	261	327	770	326	330	825
Mov Cap-2 Maneuver	-	-	-	-	-	-	261	327	-	326	330	-
Stage 1	-	-	-	-	-	-	530	517	-	706	708	-
Stage 2	-	-	-	-	-	-	621	702	-	526	515	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2	0.3	12.9	12.7
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	464	1351	-	-	1299	-	-	603
HCM Lane V/C Ratio	0.012	0.072	-	-	0.006	-	-	0.224
HCM Control Delay (s)	12.9	7.9	0	-	7.8	0	-	12.7
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0	0.2	-	-	0	-	-	0.9

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	1	1	11	6	13	0	87	15	9	126	0
Future Vol, veh/h	0	1	1	11	6	13	0	87	15	9	126	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	0	0	0	0	1	8	14	2	0
Mvmt Flow	0	1	1	13	7	15	0	100	17	10	145	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	285	282	145	275	274	109	145	0	0	117	0	0
Stage 1	165	165	-	109	109	-	-	-	-	-	-	-
Stage 2	120	117	-	166	165	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.1	6.5	6.2	4.1	-	-	4.24	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.5	4	3.3	2.2	-	-	2.326	-	-
Pot Cap-1 Maneuver	667	627	902	681	637	950	1450	-	-	1400	-	-
Stage 1	837	762	-	901	809	-	-	-	-	-	-	-
Stage 2	884	799	-	841	766	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	647	622	902	675	632	950	1450	-	-	1400	-	-
Mov Cap-2 Maneuver	647	622	-	675	632	-	-	-	-	-	-	-
Stage 1	837	756	-	901	809	-	-	-	-	-	-	-
Stage 2	863	799	-	832	760	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.9	10	0	0.5
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1450	-	-	736	760	1400	-	-
HCM Lane V/C Ratio	-	-	-	0.003	0.045	0.007	-	-
HCM Control Delay (s)	0	-	-	9.9	10	7.6	0	-
HCM Lane LOS	A	-	-	A	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-

Intersection	
Intersection Delay, s/veh	7.8
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	11	93	11	15	130
Future Vol, veh/h	6	11	93	11	15	130
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	0	20	1	0	0	1
Mvmt Flow	7	13	109	13	18	153
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	7.3	7.7	8
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	35%	10%
Vol Thru, %	89%	0%	90%
Vol Right, %	11%	65%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	104	17	145
LT Vol	0	6	15
Through Vol	93	0	130
RT Vol	11	11	0
Lane Flow Rate	122	20	171
Geometry Grp	1	1	1
Degree of Util (X)	0.137	0.023	0.192
Departure Headway (Hd)	4.017	4.205	4.048
Convergence, Y/N	Yes	Yes	Yes
Cap	888	856	885
Service Time	2.06	2.205	2.081
HCM Lane V/C Ratio	0.137	0.023	0.193
HCM Control Delay	7.7	7.3	8
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.5	0.1	0.7

Intersection	
Int Delay, s/veh	3.2

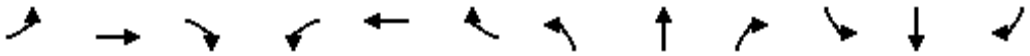
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	282	102	62	268	80	37
Future Vol, veh/h	282	102	62	268	80	37
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	1	1	2	3	0
Mvmt Flow	303	110	67	288	86	40

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	413	0	780	358
Stage 1	-	-	-	-	358	-
Stage 2	-	-	-	-	422	-
Critical Hdwy	-	-	4.11	-	6.43	6.2
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.209	-	3.527	3.3
Pot Cap-1 Maneuver	-	-	1151	-	362	691
Stage 1	-	-	-	-	705	-
Stage 2	-	-	-	-	659	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1151	-	337	691
Mov Cap-2 Maneuver	-	-	-	-	337	-
Stage 1	-	-	-	-	705	-
Stage 2	-	-	-	-	614	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.6	18
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	402	-	-	1151	-
HCM Lane V/C Ratio	0.313	-	-	0.058	-
HCM Control Delay (s)	18	-	-	8.3	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	1.3	-	-	0.2	-

APPENDIX F: CUMULATIVE PLUS PROJECT CONDITIONS WORKSHEETS



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	330	220	23	391	11	217	212	87	13	182	63
Future Volume (veh/h)	23	330	220	23	391	11	217	212	87	13	182	63
Initial Q (Qb), veh	0	0	0	0	0	0	0	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	0.90	1.00	1.00	0.90	1.00	1.00	0.90	1.00	1.00	0.90
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683
Adj Flow Rate, veh/h	27	384	256	27	455	13	252	247	101	15	212	73
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	72	409	263	77	659	18	277	213	83	72	475	157
Arrive On Green	0.49	0.49	0.49	0.49	0.49	0.49	0.45	0.45	0.45	0.45	0.45	0.45
Sat Flow, veh/h	28	830	535	37	1339	37	445	476	186	30	1065	352
Grp Volume(v), veh/h	667	0	0	495	0	0	600	0	0	300	0	0
Grp Sat Flow(s),veh/h/ln	1393	0	0	1413	0	0	1108	0	0	1448	0	0
Q Serve(g_s), s	14.0	0.0	0.0	0.0	0.0	0.0	19.6	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	30.3	0.0	0.0	16.2	0.0	0.0	29.0	0.0	0.0	9.4	0.0	0.0
Prop In Lane	0.04		0.38	0.05		0.03	0.42		0.17	0.05		0.24
Lane Grp Cap(c), veh/h	743	0	0	754	0	0	573	0	0	704	0	0
V/C Ratio(X)	0.90	0.00	0.00	0.66	0.00	0.00	1.05	0.00	0.00	0.43	0.00	0.00
Avail Cap(c_a), veh/h	743	0	0	754	0	0	573	0	0	704	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	15.9	0.0	0.0	12.5	0.0	0.0	20.2	0.0	0.0	12.6	0.0	0.0
Incr Delay (d2), s/veh	13.3	0.0	0.0	1.7	0.0	0.0	50.6	0.0	0.0	1.9	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	11.0	0.0	0.0	5.1	0.0	0.0	16.8	0.0	0.0	3.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.2	0.0	0.0	14.1	0.0	0.0	70.8	0.0	0.0	14.5	0.0	0.0
LnGrp LOS	C	A	A	B	A	A	F	A	A	B	A	A
Approach Vol, veh/h		667			495			600			300	
Approach Delay, s/veh		29.2			14.1			70.8			14.5	
Approach LOS		C			B			E			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		31.0		34.0		31.0		34.0				
Change Period (Y+Rc), s		3.5		3.5		3.5		3.5				
Max Green Setting (Gmax), s		27.5		30.5		27.5		30.5				
Max Q Clear Time (g_c+I1), s		31.0		32.3		11.4		18.2				
Green Ext Time (p_c), s		0.0		0.0		1.1		1.9				

Intersection Summary												
HCM 6th Ctrl Delay			35.5									
HCM 6th LOS			D									

Intersection	
Int Delay, s/veh	7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	67	10	46	1	4	3	42	375	6	9	334	27
Future Vol, veh/h	67	10	46	1	4	3	42	375	6	9	334	27
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
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, %	0	0	50	0	0	0	0	2	0	0	3	0
Mvmt Flow	88	13	61	1	5	4	55	493	8	12	439	36

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1093	1092	457	1125	1106	497	475	0	0	501	0	0
Stage 1	481	481	-	607	607	-	-	-	-	-	-	-
Stage 2	612	611	-	518	499	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.7	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.75	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	193	216	515	184	212	577	1098	-	-	1074	-	-
Stage 1	570	557	-	487	489	-	-	-	-	-	-	-
Stage 2	484	487	-	544	547	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	176	198	515	144	194	577	1098	-	-	1074	-	-
Mov Cap-2 Maneuver	176	198	-	144	194	-	-	-	-	-	-	-
Stage 1	530	549	-	453	455	-	-	-	-	-	-	-
Stage 2	442	453	-	462	539	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	48.1	20.4	0.8	0.2
HCM LOS	E	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1098	-	-	236	244	1074	-	-
HCM Lane V/C Ratio	0.05	-	-	0.686	0.043	0.011	-	-
HCM Control Delay (s)	8.5	0	-	48.1	20.4	8.4	0	-
HCM Lane LOS	A	A	-	E	C	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	4.4	0.1	0	-	-

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	21	0	12	10	3	1	5	387	6	2	365	8
Future Vol, veh/h	21	0	12	10	3	1	5	387	6	2	365	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	0	0	0	0	0	0	0	2	0	0	4	0
Mvmt Flow	27	0	15	13	4	1	6	490	8	3	462	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	982	983	467	987	984	494	472	0	0	498	0	0
Stage 1	473	473	-	506	506	-	-	-	-	-	-	-
Stage 2	509	510	-	481	478	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	230	251	600	228	250	579	1100	-	-	1076	-	-
Stage 1	576	562	-	552	543	-	-	-	-	-	-	-
Stage 2	550	541	-	570	559	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	225	248	600	220	247	579	1100	-	-	1076	-	-
Mov Cap-2 Maneuver	225	248	-	220	247	-	-	-	-	-	-	-
Stage 1	571	560	-	548	539	-	-	-	-	-	-	-
Stage 2	541	537	-	553	557	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	19.4	21.5	0.1	0
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1100	-	-	291	236	1076	-	-
HCM Lane V/C Ratio	0.006	-	-	0.144	0.075	0.002	-	-
HCM Control Delay (s)	8.3	0	-	19.4	21.5	8.4	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.5	0.2	0	-	-

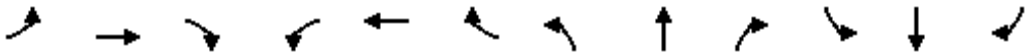
Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	24	5	25	4	3	4	50	377	6	1	374	8
Future Vol, veh/h	24	5	25	4	3	4	50	377	6	1	374	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	0	5	0	0	0	0	0	2	0	0	5	0
Mvmt Flow	30	6	32	5	4	5	63	477	8	1	473	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1092	1091	478	1106	1092	481	483	0	0	485	0	0
Stage 1	480	480	-	607	607	-	-	-	-	-	-	-
Stage 2	612	611	-	499	485	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.55	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.55	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.55	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.045	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	194	212	591	190	216	589	1090	-	-	1088	-	-
Stage 1	571	549	-	487	489	-	-	-	-	-	-	-
Stage 2	484	480	-	557	555	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	178	195	591	165	199	589	1090	-	-	1088	-	-
Mov Cap-2 Maneuver	178	195	-	165	199	-	-	-	-	-	-	-
Stage 1	526	548	-	449	450	-	-	-	-	-	-	-
Stage 2	438	442	-	521	554	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	23.2	21	1	0
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1090	-	-	266	239	1088	-	-
HCM Lane V/C Ratio	0.058	-	-	0.257	0.058	0.001	-	-
HCM Control Delay (s)	8.5	0	-	23.2	21	8.3	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	1	0.2	0	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	213	10	110	276	103	34	302	211	95	236	69
Future Volume (vph)	56	213	10	110	276	103	34	302	211	95	236	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2		4.2	4.2		4.2	4.2		4.2	4.2	
Lane Util. Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt		1.00		1.00	0.96		1.00	0.94		1.00	0.97	
Flt Protected		0.99		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1505		1448	1466		1462	1438		1419	1473	
Flt Permitted		0.86		0.55	1.00		0.46	1.00		0.22	1.00	
Satd. Flow (perm)		1312		836	1466		708	1438		334	1473	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	62	237	11	122	307	114	38	336	234	106	262	77
RTOR Reduction (vph)	0	2	0	0	21	0	0	39	0	0	16	0
Lane Group Flow (vph)	0	308	0	122	400	0	38	531	0	106	323	0
Heavy Vehicles (%)	0%	1%	0%	1%	1%	0%	0%	0%	1%	3%	0%	4%
Parking (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		29.8		29.8	29.8		26.8	26.8		26.8	26.8	
Effective Green, g (s)		29.8		29.8	29.8		26.8	26.8		26.8	26.8	
Actuated g/C Ratio		0.46		0.46	0.46		0.41	0.41		0.41	0.41	
Clearance Time (s)		4.2		4.2	4.2		4.2	4.2		4.2	4.2	
Lane Grp Cap (vph)		601		383	672		291	592		137	607	
v/s Ratio Prot					c0.27			c0.37			0.22	
v/s Ratio Perm		0.23		0.15			0.05			0.32		
v/c Ratio		0.51		0.32	0.60		0.13	0.90		0.77	0.53	
Uniform Delay, d1		12.5		11.2	13.1		11.9	17.8		16.5	14.4	
Progression Factor		1.00		1.00	1.00		1.00	1.00		0.94	0.91	
Incremental Delay, d2		3.1		2.2	3.9		0.9	18.9		29.0	2.7	
Delay (s)		15.6		13.3	17.0		12.8	36.7		44.5	15.9	
Level of Service		B		B	B		B	D		D	B	
Approach Delay (s)		15.6			16.2			35.2			22.7	
Approach LOS		B			B			D			C	

Intersection Summary			
HCM 2000 Control Delay	23.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	8.4
Intersection Capacity Utilization	94.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	98	211	4	15	274	2	4	2	6	7	1	88
Future Vol, veh/h	98	211	4	15	274	2	4	2	6	7	1	88
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	0	0	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	117	251	5	18	326	2	5	2	7	8	1	105

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	328	0	0	256	0	0	904	852	254	855	853	327
Stage 1	-	-	-	-	-	-	488	488	-	363	363	-
Stage 2	-	-	-	-	-	-	416	364	-	492	490	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1243	-	-	1321	-	-	260	299	790	281	299	719
Stage 1	-	-	-	-	-	-	565	553	-	660	628	-
Stage 2	-	-	-	-	-	-	618	627	-	562	552	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1243	-	-	1321	-	-	200	262	790	250	262	719
Mov Cap-2 Maneuver	-	-	-	-	-	-	200	262	-	250	262	-
Stage 1	-	-	-	-	-	-	503	492	-	587	617	-
Stage 2	-	-	-	-	-	-	518	616	-	493	491	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.6	0.4	16	12.1
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	341	1243	-	-	1321	-	-	623
HCM Lane V/C Ratio	0.042	0.094	-	-	0.014	-	-	0.183
HCM Control Delay (s)	16	8.2	0	-	7.8	0	-	12.1
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.1	0.3	-	-	0	-	-	0.7

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	0	7	0	13	5	5	0	103	11	11	76	0
Future Vol, veh/h	0	7	0	13	5	5	0	103	11	11	76	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2	0	0	0	0	0	0
Mvmt Flow	0	9	0	17	6	6	0	132	14	14	97	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	270	271	97	269	264	139	97	0	0	146	0	0
Stage 1	125	125	-	139	139	-	-	-	-	-	-	-
Stage 2	145	146	-	130	125	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	683	636	959	684	641	909	1509	-	-	1448	-	-
Stage 1	879	792	-	864	782	-	-	-	-	-	-	-
Stage 2	858	776	-	874	792	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	668	630	959	672	635	909	1509	-	-	1448	-	-
Mov Cap-2 Maneuver	668	630	-	672	635	-	-	-	-	-	-	-
Stage 1	879	784	-	864	782	-	-	-	-	-	-	-
Stage 2	845	776	-	855	784	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.8	10.3	0	0.9
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1509	-	-	630	703	1448	-	-
HCM Lane V/C Ratio	-	-	-	0.014	0.042	0.01	-	-
HCM Control Delay (s)	0	-	-	10.8	10.3	7.5	0	-
HCM Lane LOS	A	-	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-

Intersection	
Intersection Delay, s/veh	7.9
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	9	8	96	19	14	87
Future Vol, veh/h	9	8	96	19	14	87
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles, %	0	0	0	0	14	1
Mvmt Flow	11	10	119	23	17	107
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	7.4	7.7	8.1
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	53%	14%
Vol Thru, %	83%	0%	86%
Vol Right, %	17%	47%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	115	17	101
LT Vol	0	9	14
Through Vol	96	0	87
RT Vol	19	8	0
Lane Flow Rate	142	21	125
Geometry Grp	1	1	1
Degree of Util (X)	0.155	0.025	0.149
Departure Headway (Hd)	3.931	4.301	4.309
Convergence, Y/N	Yes	Yes	Yes
Cap	907	837	830
Service Time	1.976	2.301	2.346
HCM Lane V/C Ratio	0.157	0.025	0.151
HCM Control Delay	7.7	7.4	8.1
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.5	0.1	0.5

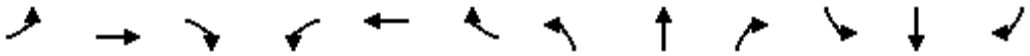
Intersection	
Int Delay, s/veh	4.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	274	67	52	265	106	55
Future Vol, veh/h	274	67	52	265	106	55
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	1	1	2	3	0
Mvmt Flow	298	73	57	288	115	60

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	371	0	737	335
Stage 1	-	-	-	-	335	-
Stage 2	-	-	-	-	402	-
Critical Hdwy	-	-	4.11	-	6.43	6.2
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.209	-	3.527	3.3
Pot Cap-1 Maneuver	-	-	1193	-	384	712
Stage 1	-	-	-	-	722	-
Stage 2	-	-	-	-	673	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1193	-	362	712
Mov Cap-2 Maneuver	-	-	-	-	362	-
Stage 1	-	-	-	-	722	-
Stage 2	-	-	-	-	635	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.3	18.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	435	-	-	1193	-
HCM Lane V/C Ratio	0.402	-	-	0.047	-
HCM Control Delay (s)	18.7	-	-	8.2	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	1.9	-	-	0.1	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	404	287	32	309	30	204	196	90	18	252	77
Future Volume (veh/h)	55	404	287	32	309	30	204	196	90	18	252	77
Initial Q (Qb), veh	0	0	0	0	0	0	0	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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683
Adj Flow Rate, veh/h	59	434	309	34	332	32	219	211	97	19	271	83
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	107	447	303	103	683	63	281	214	91	84	498	147
Arrive On Green	0.52	0.52	0.52	0.52	0.52	0.52	0.41	0.41	0.41	0.41	0.41	0.41
Sat Flow, veh/h	71	863	585	62	1318	121	460	523	222	38	1218	359
Grp Volume(v), veh/h	802	0	0	398	0	0	527	0	0	373	0	0
Grp Sat Flow(s),veh/h/ln	1519	0	0	1501	0	0	1205	0	0	1615	0	0
Q Serve(g_s), s	18.4	0.0	0.0	0.0	0.0	0.0	12.8	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	28.5	0.0	0.0	8.4	0.0	0.0	22.5	0.0	0.0	9.7	0.0	0.0
Prop In Lane	0.07		0.39	0.09		0.08	0.42		0.18	0.05		0.22
Lane Grp Cap(c), veh/h	857	0	0	849	0	0	586	0	0	729	0	0
V/C Ratio(X)	0.94	0.00	0.00	0.47	0.00	0.00	0.90	0.00	0.00	0.51	0.00	0.00
Avail Cap(c_a), veh/h	857	0	0	849	0	0	586	0	0	729	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	13.3	0.0	0.0	8.4	0.0	0.0	17.0	0.0	0.0	12.5	0.0	0.0
Incr Delay (d2), s/veh	17.0	0.0	0.0	0.2	0.0	0.0	19.3	0.0	0.0	2.6	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.9	0.0	0.0	2.5	0.0	0.0	9.1	0.0	0.0	3.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.3	0.0	0.0	8.5	0.0	0.0	36.3	0.0	0.0	15.0	0.0	0.0
LnGrp LOS	C	A	A	A	A	A	D	A	A	B	A	A
Approach Vol, veh/h		802			398			527			373	
Approach Delay, s/veh		30.3			8.5			36.3			15.0	
Approach LOS		C			A			D			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		24.5		30.5		24.5		30.5				
Change Period (Y+Rc), s		3.5		3.5		3.5		3.5				
Max Green Setting (Gmax), s		21.0		27.0		21.0		27.0				
Max Q Clear Time (g_c+I1), s		24.5		30.5		11.7		10.4				
Green Ext Time (p_c), s		0.0		0.0		1.1		1.7				

Intersection Summary												
HCM 6th Ctrl Delay			25.0									
HCM 6th LOS			C									

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	17	1	31	8	1	11	35	390	21	11	496	24
Future Vol, veh/h	17	1	31	8	1	11	35	390	21	11	496	24
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
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, %	0	0	0	0	0	0	16	3	0	0	1	0
Mvmt Flow	18	1	34	9	1	12	38	424	23	12	539	26

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1094	1099	552	1106	1101	436	565	0	0	447	0	0
Stage 1	576	576	-	512	512	-	-	-	-	-	-	-
Stage 2	518	523	-	594	589	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.26	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.344	-	-	2.2	-	-
Pot Cap-1 Maneuver	193	214	537	190	214	625	941	-	-	1124	-	-
Stage 1	506	505	-	548	540	-	-	-	-	-	-	-
Stage 2	544	534	-	495	499	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	179	199	537	168	199	625	941	-	-	1124	-	-
Mov Cap-2 Maneuver	179	199	-	168	199	-	-	-	-	-	-	-
Stage 1	479	497	-	518	511	-	-	-	-	-	-	-
Stage 2	504	505	-	456	491	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	19	18.7	0.7	0.2
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	941	-	-	311	285	1124	-	-
HCM Lane V/C Ratio	0.04	-	-	0.171	0.076	0.011	-	-
HCM Control Delay (s)	9	0	-	19	18.7	8.2	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.6	0.2	0	-	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	2	14	4	2	14	17	431	11	4	509	12
Future Vol, veh/h	4	2	14	4	2	14	17	431	11	4	509	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	25	0	8	0	0	0	0	3	0	0	4	0
Mvmt Flow	4	2	15	4	2	15	18	463	12	4	547	13

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1076	1073	554	1075	1073	469	560	0	0	475	0	0
Stage 1	562	562	-	505	505	-	-	-	-	-	-	-
Stage 2	514	511	-	570	568	-	-	-	-	-	-	-
Critical Hdwy	7.35	6.5	6.28	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.35	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.35	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.725	4	3.372	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	178	222	521	199	222	598	1021	-	-	1098	-	-
Stage 1	473	513	-	553	544	-	-	-	-	-	-	-
Stage 2	503	540	-	510	510	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	168	216	521	188	216	598	1021	-	-	1098	-	-
Mov Cap-2 Maneuver	168	216	-	188	216	-	-	-	-	-	-	-
Stage 1	462	510	-	540	531	-	-	-	-	-	-	-
Stage 2	477	527	-	491	507	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16.5	15.3	0.3	0.1
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1021	-	-	334	371	1098	-	-
HCM Lane V/C Ratio	0.018	-	-	0.064	0.058	0.004	-	-
HCM Control Delay (s)	8.6	0	-	16.5	15.3	8.3	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.2	0	-	-

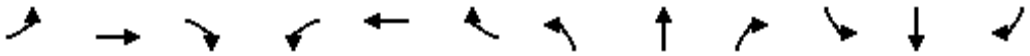
Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	23	1	100	31	5	12	37	438	18	5	472	40
Future Vol, veh/h	23	1	100	31	5	12	37	438	18	5	472	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	12	0	0	0	0	0	0	2	0	0	1	0
Mvmt Flow	26	1	114	35	6	14	42	498	20	6	536	45

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1173	1173	559	1220	1185	508	581	0	0	518	0	0
Stage 1	571	571	-	592	592	-	-	-	-	-	-	-
Stage 2	602	602	-	628	593	-	-	-	-	-	-	-
Critical Hdwy	7.22	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.22	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.22	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.608	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	161	194	532	158	191	569	1003	-	-	1058	-	-
Stage 1	489	508	-	496	497	-	-	-	-	-	-	-
Stage 2	470	492	-	474	497	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	146	181	532	117	178	569	1003	-	-	1058	-	-
Mov Cap-2 Maneuver	146	181	-	117	178	-	-	-	-	-	-	-
Stage 1	460	504	-	467	468	-	-	-	-	-	-	-
Stage 2	426	463	-	369	493	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	21.8	41	0.7	0.1
HCM LOS	C	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1003	-	-	353	153	1058	-	-
HCM Lane V/C Ratio	0.042	-	-	0.399	0.357	0.005	-	-
HCM Control Delay (s)	8.7	0	-	21.8	41	8.4	0	-
HCM Lane LOS	A	A	-	C	E	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.9	1.5	0	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	68	201	27	129	186	121	9	307	140	153	349	99
Future Volume (vph)	68	201	27	129	186	121	9	307	140	153	349	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt		0.99		1.00	0.94		1.00	0.95		1.00	0.97	
Flt Protected		0.99		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1670		1608	1593		1624	1630		1608	1637	
Flt Permitted		0.86		0.54	1.00		0.35	1.00		0.35	1.00	
Satd. Flow (perm)		1451		917	1593		594	1630		589	1637	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	72	212	28	136	196	127	9	323	147	161	367	104
RTOR Reduction (vph)	0	5	0	0	36	0	0	25	0	0	16	0
Lane Group Flow (vph)	0	307	0	136	287	0	9	445	0	161	455	0
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		27.5		27.5	27.5		28.5	28.5		28.5	28.5	
Effective Green, g (s)		27.5		27.5	27.5		28.5	28.5		28.5	28.5	
Actuated g/C Ratio		0.42		0.42	0.42		0.44	0.44		0.44	0.44	
Clearance Time (s)		4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)		613		387	673		260	714		258	717	
v/s Ratio Prot					0.18			0.27			c0.28	
v/s Ratio Perm		c0.21		0.15			0.02			0.27		
v/c Ratio		0.50		0.35	0.43		0.03	0.62		0.62	0.63	
Uniform Delay, d1		13.7		12.7	13.2		10.4	14.1		14.1	14.2	
Progression Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.9		2.5	2.0		0.2	4.1		10.9	4.3	
Delay (s)		16.6		15.2	15.2		10.7	18.2		25.0	18.5	
Level of Service		B		B	B		B	B		C	B	
Approach Delay (s)		16.6			15.2			18.0			20.1	
Approach LOS		B			B			B			C	

Intersection Summary			
HCM 2000 Control Delay	17.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	88.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	3.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	99	250	4	7	196	17	1	1	3	23	7	98
Future Vol, veh/h	99	250	4	7	196	17	1	1	3	23	7	98
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	-	-	-	-	-	-	-	-	-	-	-	-
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, %	0	0	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	108	272	4	8	213	18	1	1	3	25	8	107

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	231	0	0	276	0	0	786	737	274	730	730	222
Stage 1	-	-	-	-	-	-	490	490	-	238	238	-
Stage 2	-	-	-	-	-	-	296	247	-	492	492	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1349	-	-	1299	-	-	312	348	770	340	352	823
Stage 1	-	-	-	-	-	-	564	552	-	770	712	-
Stage 2	-	-	-	-	-	-	717	706	-	562	551	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1349	-	-	1299	-	-	246	313	770	311	316	823
Mov Cap-2 Maneuver	-	-	-	-	-	-	246	313	-	311	316	-
Stage 1	-	-	-	-	-	-	510	500	-	697	707	-
Stage 2	-	-	-	-	-	-	613	701	-	505	499	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.2	0.2	13.1	12.9
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	448	1349	-	-	1299	-	-	595
HCM Lane V/C Ratio	0.012	0.08	-	-	0.006	-	-	0.234
HCM Control Delay (s)	13.1	7.9	0	-	7.8	0	-	12.9
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0	0.3	-	-	0	-	-	0.9

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	1	1	12	6	14	0	95	17	10	129	0
Future Vol, veh/h	0	1	1	12	6	14	0	95	17	10	129	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	0	0	0	0	1	8	14	2	0
Mvmt Flow	0	1	1	14	7	16	0	109	20	11	148	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	301	299	148	290	289	119	148	0	0	129	0	0
Stage 1	170	170	-	119	119	-	-	-	-	-	-	-
Stage 2	131	129	-	171	170	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.1	6.5	6.2	4.1	-	-	4.24	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.5	4	3.3	2.2	-	-	2.326	-	-
Pot Cap-1 Maneuver	651	613	899	666	624	938	1446	-	-	1386	-	-
Stage 1	832	758	-	890	801	-	-	-	-	-	-	-
Stage 2	873	789	-	836	762	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	630	607	899	659	618	938	1446	-	-	1386	-	-
Mov Cap-2 Maneuver	630	607	-	659	618	-	-	-	-	-	-	-
Stage 1	832	751	-	890	801	-	-	-	-	-	-	-
Stage 2	851	789	-	826	755	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10	10.1	0	0.5
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1446	-	-	725	747	1386	-	-
HCM Lane V/C Ratio	-	-	-	0.003	0.049	0.008	-	-
HCM Control Delay (s)	0	-	-	10	10.1	7.6	0	-
HCM Lane LOS	A	-	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.2	0	-	-

Intersection	
Intersection Delay, s/veh	8
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	9	21	94	19	27	131
Future Vol, veh/h	9	21	94	19	27	131
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	0	20	1	0	0	1
Mvmt Flow	11	25	111	22	32	154
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	7.4	7.8	8.2
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	30%	17%
Vol Thru, %	83%	0%	83%
Vol Right, %	17%	70%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	113	30	158
LT Vol	0	9	27
Through Vol	94	0	131
RT Vol	19	21	0
Lane Flow Rate	133	35	186
Geometry Grp	1	1	1
Degree of Util (X)	0.148	0.041	0.211
Departure Headway (Hd)	4.017	4.218	4.095
Convergence, Y/N	Yes	Yes	Yes
Cap	885	854	872
Service Time	2.076	2.218	2.141
HCM Lane V/C Ratio	0.15	0.041	0.213
HCM Control Delay	7.8	7.4	8.2
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.5	0.1	0.8

Intersection	
Int Delay, s/veh	3.5

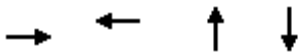
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	282	115	62	268	93	37
Future Vol, veh/h	282	115	62	268	93	37
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	1	1	2	3	0
Mvmt Flow	303	124	67	288	100	40

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	427	0	787	365
Stage 1	-	-	-	-	365	-
Stage 2	-	-	-	-	422	-
Critical Hdwy	-	-	4.11	-	6.43	6.2
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.209	-	3.527	3.3
Pot Cap-1 Maneuver	-	-	1138	-	359	685
Stage 1	-	-	-	-	700	-
Stage 2	-	-	-	-	659	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1138	-	334	685
Mov Cap-2 Maneuver	-	-	-	-	334	-
Stage 1	-	-	-	-	700	-
Stage 2	-	-	-	-	613	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.6	19.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	391	-	-	1138	-
HCM Lane V/C Ratio	0.358	-	-	0.059	-
HCM Control Delay (s)	19.2	-	-	8.4	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	1.6	-	-	0.2	-

APPENDIX G: 95TH PERCENTILE QUEUE LENGTH WORKSHEETS



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	374	315	249	151
v/c Ratio	0.73	0.61	0.31	0.18
Control Delay	25.9	21.5	12.8	9.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	25.9	21.5	12.8	9.0
Queue Length 50th (ft)	125	100	56	25
Queue Length 95th (ft)	158	129	124	65
Internal Link Dist (ft)	339	822	217	220
Turn Bay Length (ft)				
Base Capacity (vph)	710	710	808	832
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.53	0.44	0.31	0.18

Intersection Summary

Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	266	98	369	12	228	52	68
v/c Ratio	0.40	0.24	0.53	0.03	0.35	0.14	0.11
Control Delay	13.9	12.8	15.2	11.7	6.2	12.7	9.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.9	12.8	15.2	11.7	6.2	12.7	9.4
Queue Length 50th (ft)	66	22	92	3	16	12	11
Queue Length 95th (ft)	119	51	166	11	56	m27	m28
Internal Link Dist (ft)	244		277		462		207
Turn Bay Length (ft)		50		70		80	
Base Capacity (vph)	666	405	692	452	658	360	613
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.24	0.53	0.03	0.35	0.14	0.11

Intersection Summary

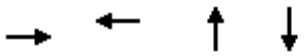
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	445	299	265	182
v/c Ratio	0.71	0.48	0.33	0.22
Control Delay	20.0	14.0	10.6	9.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	20.0	14.0	10.6	9.6
Queue Length 50th (ft)	116	69	45	29
Queue Length 95th (ft)	159	97	112	76
Internal Link Dist (ft)	339	822	217	220
Turn Bay Length (ft)				
Base Capacity (vph)	814	813	810	836
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.55	0.37	0.33	0.22

Intersection Summary

Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	251	93	275	6	212	76	87
v/c Ratio	0.37	0.22	0.39	0.01	0.28	0.17	0.12
Control Delay	14.5	13.8	13.0	10.5	5.9	12.3	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.5	13.8	13.0	10.5	5.9	12.3	7.8
Queue Length 50th (ft)	64	22	60	1	18	17	11
Queue Length 95th (ft)	115	51	114	7	54	42	34
Internal Link Dist (ft)	244		277		462		207
Turn Bay Length (ft)		50		70		80	
Base Capacity (vph)	687	421	707	525	753	458	717
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.22	0.39	0.01	0.28	0.17	0.12

Intersection Summary



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	446	437	250	154
v/c Ratio	0.78	0.75	0.34	0.20
Control Delay	26.3	25.0	14.6	10.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	26.3	25.0	14.6	10.4
Queue Length 50th (ft)	145	140	60	30
Queue Length 95th (ft)	196	189	126	67
Internal Link Dist (ft)	339	822	217	220
Turn Bay Length (ft)				
Base Capacity (vph)	710	716	741	768
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.63	0.61	0.34	0.20

Intersection Summary

Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	266	98	367	12	227	49	68
v/c Ratio	0.40	0.24	0.53	0.03	0.35	0.14	0.11
Control Delay	13.9	12.8	15.2	11.7	6.1	11.8	8.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.9	12.8	15.2	11.7	6.1	11.8	8.7
Queue Length 50th (ft)	66	22	91	3	16	11	11
Queue Length 95th (ft)	119	51	164	11	56	m24	m25
Internal Link Dist (ft)	244		277		462		207
Turn Bay Length (ft)		50		70		80	
Base Capacity (vph)	666	405	693	452	657	361	613
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.24	0.53	0.03	0.35	0.14	0.11

Intersection Summary

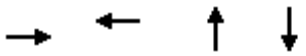
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	577	385	265	182
v/c Ratio	0.81	0.53	0.37	0.25
Control Delay	22.2	13.0	12.7	11.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	22.2	13.0	12.7	11.3
Queue Length 50th (ft)	140	78	56	36
Queue Length 95th (ft)	238	131	112	76
Internal Link Dist (ft)	339	822	217	220
Turn Bay Length (ft)				
Base Capacity (vph)	813	821	712	739
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.71	0.47	0.37	0.25

Intersection Summary

Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	251	93	272	6	211	71	83
v/c Ratio	0.37	0.22	0.38	0.01	0.28	0.16	0.12
Control Delay	14.5	13.8	13.0	10.5	5.9	12.2	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.5	13.8	13.0	10.5	5.9	12.2	7.7
Queue Length 50th (ft)	64	22	60	1	17	16	11
Queue Length 95th (ft)	115	51	114	7	54	39	33
Internal Link Dist (ft)	244		277		462		207
Turn Bay Length (ft)		50		70		80	
Base Capacity (vph)	687	421	707	527	753	458	716
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.22	0.38	0.01	0.28	0.16	0.12

Intersection Summary



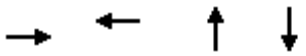
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	448	437	256	155
v/c Ratio	0.78	0.75	0.35	0.20
Control Delay	26.5	24.9	14.6	10.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	26.5	24.9	14.6	10.4
Queue Length 50th (ft)	145	140	63	30
Queue Length 95th (ft)	197	189	130	68
Internal Link Dist (ft)	339	822	217	220
Turn Bay Length (ft)				
Base Capacity (vph)	709	716	741	767
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.63	0.61	0.35	0.20

Intersection Summary

Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	267	98	368	12	229	50	69
v/c Ratio	0.40	0.24	0.53	0.03	0.35	0.14	0.11
Control Delay	13.9	12.8	15.2	11.7	6.2	11.9	8.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.9	12.8	15.2	11.7	6.2	11.9	8.8
Queue Length 50th (ft)	66	22	92	3	16	12	12
Queue Length 95th (ft)	119	52	165	11	56	m25	m26
Internal Link Dist (ft)	244		277		462		207
Turn Bay Length (ft)		50		70		80	
Base Capacity (vph)	666	404	692	451	658	359	614
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.24	0.53	0.03	0.35	0.14	0.11

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	578	385	272	186
v/c Ratio	0.81	0.53	0.38	0.25
Control Delay	22.3	13.0	12.9	11.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	22.3	13.0	12.9	11.4
Queue Length 50th (ft)	139	78	58	37
Queue Length 95th (ft)	239	131	115	77
Internal Link Dist (ft)	339	822	217	220
Turn Bay Length (ft)				
Base Capacity (vph)	813	820	712	738
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.71	0.47	0.38	0.25

Intersection Summary

Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	251	93	276	6	216	75	90
v/c Ratio	0.37	0.22	0.39	0.01	0.29	0.16	0.13
Control Delay	14.5	13.8	13.0	10.5	6.0	12.3	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.5	13.8	13.0	10.5	6.0	12.3	7.8
Queue Length 50th (ft)	64	22	61	1	19	17	12
Queue Length 95th (ft)	115	51	115	7	55	41	35
Internal Link Dist (ft)	244		277		462		207
Turn Bay Length (ft)		50		70		80	
Base Capacity (vph)	687	421	707	523	755	455	717
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.22	0.39	0.01	0.29	0.16	0.13

Intersection Summary

Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	666	495	594	298
v/c Ratio	0.97	0.70	1.31	0.47
Control Delay	47.3	19.4	172.4	15.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	47.3	19.4	172.4	15.8
Queue Length 50th (ft)	239	142	~315	79
Queue Length 95th (ft)	#425	229	m#430	132
Internal Link Dist (ft)	339	822	217	220
Turn Bay Length (ft)				
Base Capacity (vph)	686	707	455	631
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.97	0.70	1.31	0.47

Intersection Summary

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

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

m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	309	122	420	38	567	104	338
v/c Ratio	0.51	0.32	0.61	0.13	0.90	0.75	0.54
Control Delay	16.1	14.1	16.5	13.4	36.5	48.0	15.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.1	14.1	16.5	13.4	36.5	48.0	15.4
Queue Length 50th (ft)	81	29	106	9	180	35	87
Queue Length 95th (ft)	148	65	193	27	#374	m#82	m123
Internal Link Dist (ft)	244		277		462		207
Turn Bay Length (ft)		50		70		80	
Base Capacity (vph)	603	383	693	292	631	139	623
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.32	0.61	0.13	0.90	0.75	0.54

Intersection Summary

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

m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	801	398	521	369
v/c Ratio	1.02	0.50	1.19	0.57
Control Delay	55.3	11.5	128.7	16.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	55.3	11.5	128.7	16.9
Queue Length 50th (ft)	~254	77	~214	89
Queue Length 95th (ft)	#474	140	#372	161
Internal Link Dist (ft)	339	822	217	220
Turn Bay Length (ft)				
Base Capacity (vph)	784	790	437	645
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.02	0.50	1.19	0.57

Intersection Summary

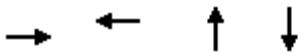
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	312	136	319	9	465	157	465
v/c Ratio	0.50	0.35	0.45	0.03	0.63	0.60	0.63
Control Delay	16.9	16.0	13.1	11.0	17.3	26.1	18.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.9	16.0	13.1	11.0	17.3	26.1	18.1
Queue Length 50th (ft)	84	35	68	2	122	45	128
Queue Length 95th (ft)	151	76	130	9	213	#125	220
Internal Link Dist (ft)	244		277		462		207
Turn Bay Length (ft)		50		70		80	
Base Capacity (vph)	619	388	709	264	740	262	733
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.35	0.45	0.03	0.63	0.60	0.63

Intersection Summary

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



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	667	495	600	300
v/c Ratio	0.97	0.70	1.32	0.48
Control Delay	47.7	19.4	178.0	15.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	47.7	19.4	178.0	15.8
Queue Length 50th (ft)	240	142	~320	79
Queue Length 95th (ft)	#425	229	m#436	133
Internal Link Dist (ft)	339	822	217	220
Turn Bay Length (ft)				
Base Capacity (vph)	686	707	455	631
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.97	0.70	1.32	0.48

Intersection Summary

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

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

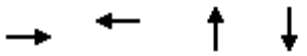
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	310	122	421	38	570	106	339
v/c Ratio	0.51	0.32	0.61	0.13	0.90	0.77	0.54
Control Delay	16.1	14.1	16.5	13.4	37.2	51.8	15.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.1	14.1	16.5	13.4	37.2	51.8	15.4
Queue Length 50th (ft)	81	29	107	9	182	36	87
Queue Length 95th (ft)	149	65	193	27	#377	m#86	m123
Internal Link Dist (ft)	244		277		462		207
Turn Bay Length (ft)		50		70		80	
Base Capacity (vph)	603	383	692	291	631	137	623
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.32	0.61	0.13	0.90	0.77	0.54

Intersection Summary

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

m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	802	398	527	373
v/c Ratio	1.02	0.50	1.21	0.58
Control Delay	55.6	11.5	135.2	17.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	55.6	11.5	135.2	17.0
Queue Length 50th (ft)	~256	77	~219	90
Queue Length 95th (ft)	#474	140	#377	163
Internal Link Dist (ft)	339	822	217	220
Turn Bay Length (ft)				
Base Capacity (vph)	784	790	436	645
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.02	0.50	1.21	0.58

Intersection Summary

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

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

Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	312	136	323	9	470	161	471
v/c Ratio	0.50	0.35	0.46	0.03	0.64	0.62	0.64
Control Delay	16.9	16.0	13.2	11.0	17.5	27.8	18.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.9	16.0	13.2	11.0	17.5	27.8	18.3
Queue Length 50th (ft)	84	35	69	2	124	47	130
Queue Length 95th (ft)	151	76	131	9	217	#131	224
Internal Link Dist (ft)	244		277		462		207
Turn Bay Length (ft)		50		70		80	
Base Capacity (vph)	619	388	709	260	739	258	733
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.35	0.46	0.03	0.64	0.62	0.64

Intersection Summary

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