TRANSPORTATION IMPACT ANALYSIS

880 Doolittle Drive

PREPARED FOR:

PROLOGIS

JANUARY 2024 | DRAFT

Prepared By:

Kimley»Horn

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1. INTRODUCTION

The following transportation impact analysis (TIA) has been prepared to determine potential Vehicle Miles Traveled (VMT) impacts and/or Level of Service (LOS) deficiencies associated with the proposed 880 Doolittle Drive project ("Project") in the City of San Leandro, CA. The project proposes to redevelop the existing building to become a warehousing and distribution spec building totaling 239,573 square feet.

Figure 1 illustrates the location of the project site in relation to the adjacent roadway network. The site would be accessed by an unsignalized full access driveway along Doolittle Drive and an unsignalized full access driveway along Hester Street. The Project site plan is presented in **Figure 2**.

This TIS was prepared to address the Project's VMT and LOS effects in order to assist the City of San Leandro ("City") with planning and the identification of conditions of approval and to mitigate the Project's VMT impacts or improve identified LOS deficiencies, if necessary. The following discusses the methodology, analysis, and results of the traffic assessment.

STUDY METHODOLOGY

VEHICLE MILES TRAVELED (VMT)

With the passage of SB 743, Vehicle Miles Traveled (VMT) has become an important indicator for determining if a new development will result in a "significant transportation impact" under the California Environmental Quality Act (CEQA). This report summarizes the VMT analysis and resultant findings for the proposed development.

The Alameda County Transportation Commission (ACTC) was developed to implement transportation programs and project across Alameda County. One of its responsibilities is to develop and manage the Countywide travel demand model, which is used for estimating future volumes and VMT based on future land uses and the future roadway network. ACTC has developed maps displaying estimates of VMT per employee based on traffic analysis zone (TAZ) estimates from the Alameda Countywide Travel Demand Model that were used to determine if the project would cause a significant impact.

The City does not have a specified VMT criteria, and therefore per guidance provided by the Governor's Office of Planning and Research (OPR) *Technical Advisory on Evaluating Transportation Impacts in CEQA*, the threshold for employment-based VMT uses is set at 15 percent below the regional average.

TRAFFIC OPERATIONS ANALYSIS

A transportation impact analysis was conducted to evaluate the Project's effect on LOS operations at eight (8) intersections within the project site and adjacent to the project site.

Study Area

The proposed project will generate new vehicular trips that may increase traffic volumes on the nearby street network. To assess changes in traffic conditions associated with the proposed project, the following intersections listed below were evaluated and are shown in **Figure 1**. The study intersections were selected based on the estimated vehicle trips generated by the project and the distribution of the trips to the roadway network.

1. Doolittle Drive and West Project Driveway – Unsignalized
2. Hester Street and North Project Driveway – Unsignalized
3. Hester Street and Adams Avenue – Unsignalized
4. Doolittle Drive and Adams Avenue – Signalized
5. Doolittle Drive and Davis Street – Signalized
6. Davis Street and SB I-880 Ramps – Signalized
7. Davis Street and NB I-880 Ramps – Signalized
8. Airport Access Road and 98th Avenue – Signalized

Analysis Scenarios

This traffic analysis evaluated the following five (5) scenarios:

- Existing Conditions – Based on Existing (2020) traffic counts from the *880 Doolittle Traffic Analysis* prepared by Urban Crossroads in October 2021 shown in **Appendix A**, and existing roadway geometry and traffic control in 2022. Existing (2020) counts were adjusted to the current Existing year (2022) by increasing the volumes by 0.772 percent per year (compounded annually). Trips from the existing site were removed to reflect the vacancy in 2023 conditions. This annual growth rate used in the Urban Crossroads study is based on the average Association of Bay Area Governments (ABAG) projected growth for employment, population, and households for San Leandro.
- Near Term Conditions – Based on adjusted existing traffic volumes, ambient growth along major roadways, and traffic generated by approved developments in the study area. This scenario is based on the roadway geometry and traffic control assumed for year 2024.
- Near Term Plus Project Conditions – Based on traffic generated by the proposed project added to Near Term traffic volumes. This scenario is based on the roadway geometry and traffic control assumed for year 2024.
- Cumulative Conditions – Based on future year traffic forecasts from the Alameda County Transportation Commission (ACTC) travel demand model. This scenario is based on the roadway geometry and traffic control assumed for year 2040.
- Cumulative Plus Project Conditions – Based on traffic generated by the proposed project added to Cumulative traffic volumes. This scenario is based on the roadway geometry and traffic control assumed for year 2040.

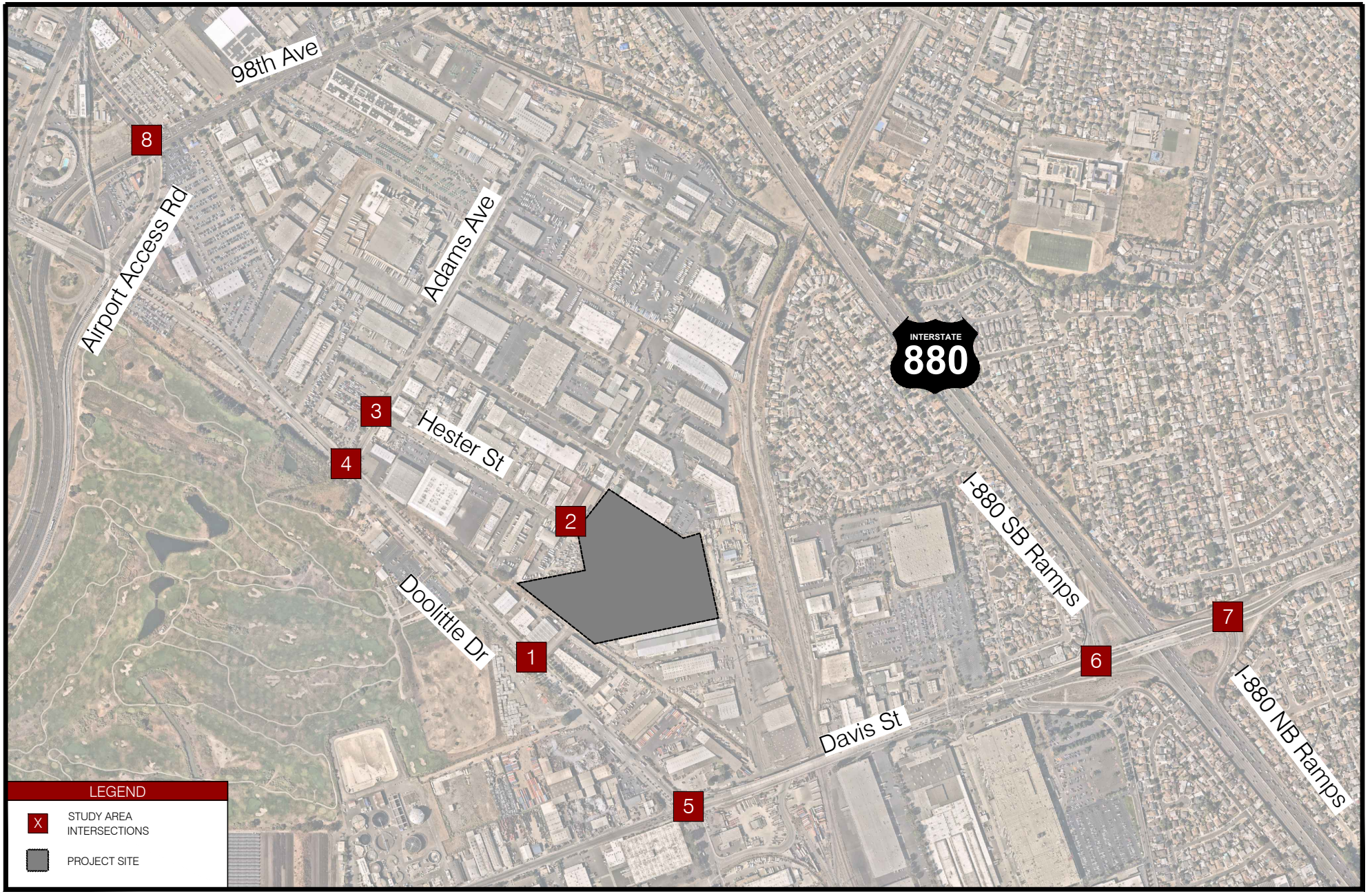

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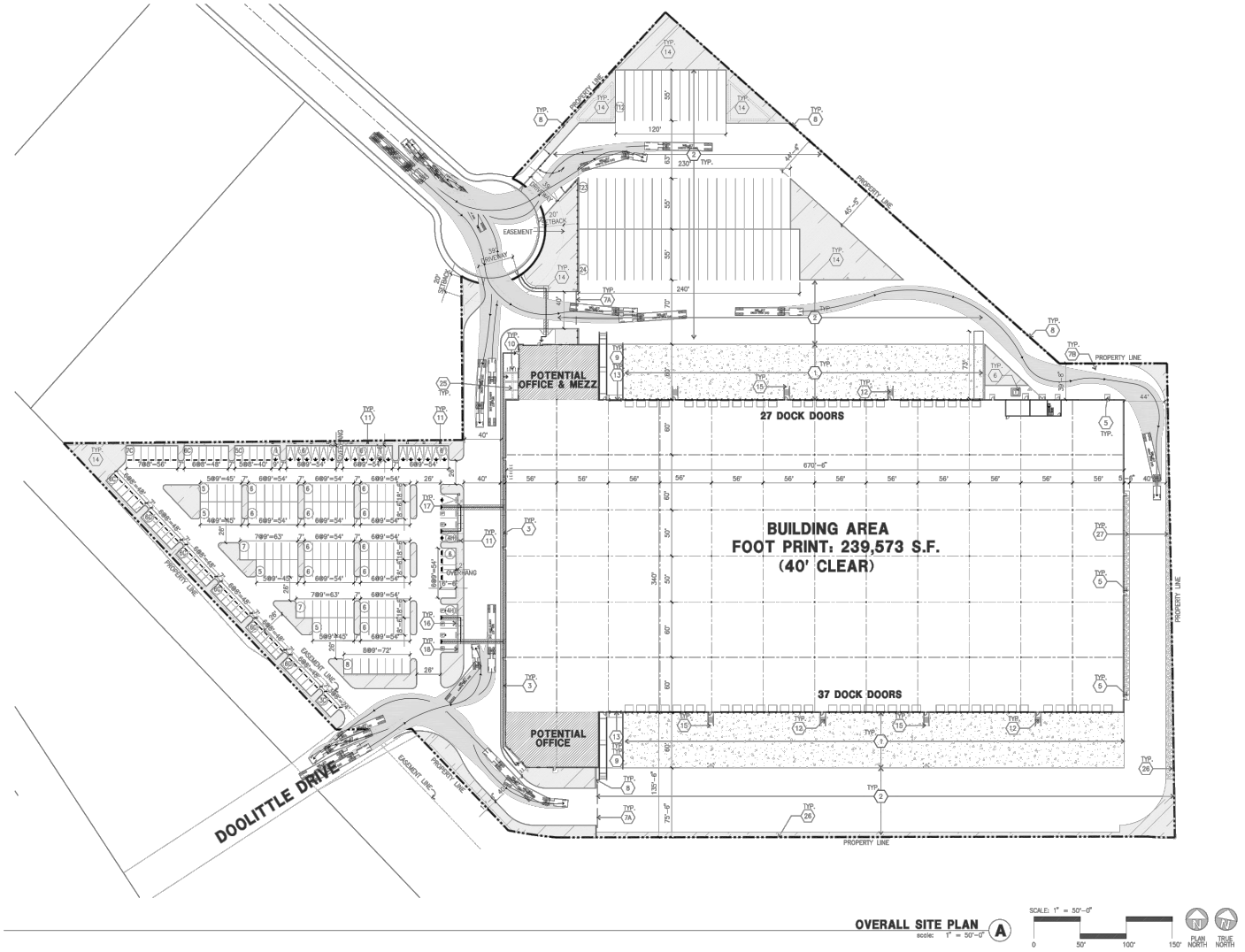
FIGURE 1

STUDY AREA AND INTERSECTIONS



Source: HPA Architecture

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FIGURE 2
SITE PLAN

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880 Doolittle Drive

Level of Service Standards

Analysis of the study intersections were based on the concept of Level of Service (LOS) and is a qualitative measure used to describe operational conditions. LOS ranges from A (best), which represents minimal delay, to F (worst), which represents heavy delay and a facility that is operating at or near its functional capacity. Levels of service for this study were determined using methods defined in the *Highway Capacity Manual, 6th Edition* (HCM 6) and *Highway Capacity Manual, 2000* (HCM 2000) within Synchro analysis software. Intersections with standard signal phasing were analyzed with HCM 6. Intersections with non-standard signal phasing or non-standard intersection control were analyzed using HCM 2000 methodologies due to HCM 6 methodology limitations within Synchro. This analysis was prepared based on the standards and methodologies set forth by the City of San Leandro (City).

It should be noted that recent changes to the California Environmental Quality Act (CEQA) now recognizes vehicle miles traveled (VMT) as the primary standard of review for project impacts and is no longer based on intersection delay and LOS. Therefore, the LOS evaluation is provided for informational purposes only and to document the operational changes as a result of the project. The VMT evaluation has been provided in Chapter 4.

The HCM includes procedures for analyzing side street stop controlled (SSSC) and signalized intersections. The SSSC procedure defines LOS as a function of average control delay for the worst approach. Conversely, the signalized intersection procedures define LOS as a function of average control delay for the intersection as a whole. **Table 1** relates the operational characteristics associated with each LOS category for signalized and unsignalized intersections.

Table 1 – Intersection Level of Service Definitions

Level of Service	Description	Signalized (Avg. control delay per vehicle sec/veh.)	Unsignalized (Avg. control delay per vehicle sec/veh.)
A	Free flow with no delays. Users are virtually unaffected by others in the traffic stream	≤ 10	≤ 10
B	Stable traffic. Traffic flows smoothly with few delays.	> 10 – 20	> 10 – 15
C	Stable flow but the operation of individual users becomes affected by other vehicles. Modest delays.	> 20 – 35	> 15 – 25
D	Approaching unstable flow. Operation of individual users becomes significantly affected by other vehicles. Delays may be more than one cycle during peak hours.	> 35 – 55	> 25 – 35
E	Unstable flow with operating conditions at or near the capacity level. Long delays and vehicle queuing.	> 55 – 80	> 35 – 50
F	Forced or breakdown flow that causes reduced capacity. Stop and go traffic conditions. Excessive long delays and vehicle queuing.	> 80	> 50

Sources: Transportation Research Board, Highway Capacity Manual 6th Edition, National Research Council, 2016.

The LOS standards as outlined in the City of San Leandro General Plan[1] is LOS D. The City does not have a written significant impact criteria. Based on the *880 Doolittle Traffic Analysis* by Urban Crossroads, dated October 2021, a project would create a deficiency under the following conditions:

- When a study intersection operates at an acceptable LOS for without project conditions and the addition of project trips causes the intersection to operate at an unacceptable LOS.
- When a study intersection operates at an unacceptable LOS for without project conditions and the addition of project trips causes the intersection volume-over-capacity ratio (v/c) to increase by 0.05 or more.

Queuing

The effects of vehicle queuing were analyzed and the 95th percentile queue is reported for all study intersections. The 95th percentile queue length represents a condition where 95 percent of the time during the peak hour, traffic queues will be less than or equal to the queue length determined by the analysis. This is referred to as the "95th percentile queue." Average queuing is generally less.

Queues that exceed the turn pocket length can create potentially hazardous conditions by blocking through traffic in adjacent travel lanes. The City does not have standards for queuing. For the purpose of this analysis, queuing deficiencies would be considered as operational issues and were considered to occur under conditions where project traffic causes the queue to extend beyond the turn pocket by 25 feet or more (i.e., the length of one vehicle) into adjacent traffic lanes that operate separately from the left or right turn lane. Where the vehicle queue already exceeds that turn pocket length under pre-project conditions, a queuing deficiency would occur if project traffic lengthened the queue by 25 feet or more.

REPORT ORGANIZATION

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

- Chapter 2: Existing Conditions – describes existing conditions on the roadway network.
- Chapter 3: Project Description – describes the project including project trip generation, distribution, and assignment.
- Chapter 4: Vehicles Miles Traveled – describes the Project's Vehicle Miles Traveled (VMT) methodology, analysis, and results.
- Chapter 5: Traffic Operations Analysis – describes intersection level of service analysis, roadway level of service, and intersection queuing.
- Chapter 6: Alameda County Transportation Commission Land Use Analysis Program – describes results of the Alameda CTC Land Use analysis under Year 2020 and Year 2040 Conditions.
- Chapter 7: Site Access and Circulation – describes site access and circulation and parking for the site. This chapters also includes potential effects the proposed project may have on the transit system, pedestrian facilities, and bicycle facilities.
- Chapter 8: Parking – describes the vehicle and bicycle parking for the proposed project, as well as required parking.
- Chapter 9: Conclusion – summarizes potential deficiencies and improvements of the proposed project, if necessary.

[1] *City of San Leandro General Plan, Transportation Element*, City of San Leandro, September 2016

2. EXISTING CONDITIONS

This chapter describes the existing conditions of the roadway network within the vicinity of the project site. The chapter also presents existing turning movement volumes and intersection levels of service.

EXISTING ROADWAY NETWORK

INTERSTATE 880 (I-880)

Interstate 880 (I-880) is a north-south freeway that connects to Interstate 280 and State Route 17 to the south to Interstate 80 and Interstate 580 to the north. Within the study area, the roadway consists of six southbound lanes (including one HOV lane) and four northbound lanes. I-880 serves as regional access to the project site. The posted speed limit on I-880 within the study area is 65 mph.

DOOLITTLE DRIVE

Doolittle Drive is a north-south arterial. It connects to Otis Drive and Fernside Boulevard to the north and Belvedere Avenue to the south. The roadway within the study area is two lanes in each direction and has a center two-way left-turn lane (TWLTL). It serves mainly industrial uses along the corridor. Within the study area, the speed limit on Doolittle Drive is 45 miles per hour.

DAVIS STREET

Davis Street is a four-lane, east-west arterial which runs between Business Center Drive and E 14th Street. The roadway serves residential and commercial uses. Within the study area, the speed limit on Davis Street is 35 miles per hour.

ADAMS AVENUE

Adams Avenue is a two-lane, east-west collector between Doolittle Drive and Bigge Street. The roadway includes Class II bike lanes and on-street parking and serves industrial uses. Within the study area, the speed limit on Adams Avenue is 35 miles per hour.

HESTER STREET

Hester Street is a two-lane, north-south local road connecting to Adams Avenue. The roadway includes on-street parking and serves industrial uses. Within the study area, there is no posted speed limit but given the classification of the road, it is assumed that the speed limit is 25 miles per hour.

AIRPORT ACCESS ROAD

Airport Access Road is a five-lane, minor collector that connects to Bessie Coleman Drive and Hegenberger Road. The roadway provides access to the Oakland International Airport. Within the study area, there is no posted speed limit but given the classification of the road, it is assumed that the speed limit is 35 miles per hour.

98TH AVENUE

98th Avenue is a minor arterial which connects to Bessie Coleman Drive to the west and Golf Links Road to the east. The roadway within the study area consists of six-lanes and serves multiple uses. Within the study area, the posted speed limit is 30 miles per hour.

EXISTING LANE CONFIGURATION AND TRAFFIC CONTROL

Existing intersection lane configuration and traffic controls are illustrated in **Figure 3**.

EXISTING PEAK-HOUR TURNING MOVEMENT VOLUMES

Volumes are based on Existing (2020) traffic counts from the *880 Doolittle Traffic Analysis*[2] prepared by Urban Crossroads in October 2021, and existing roadway geometry and traffic control in 2022. Existing (2020) counts were adjusted to the current Existing year (2022) by growing the volumes by 0.772 percent per year (compounded annually). Trips from the existing site were removed to reflect the vacancy in 2023 conditions. This annual growth rate used in the Urban Crossroads study is based on the average ABAG projected growth for employment, population, and households for San Leandro. Existing peak hour turning movement volumes are shown in **Figure 4.**

[2] *880 Doolittle Traffic Analysis,* Urban Crossroads, Inc., October 2021

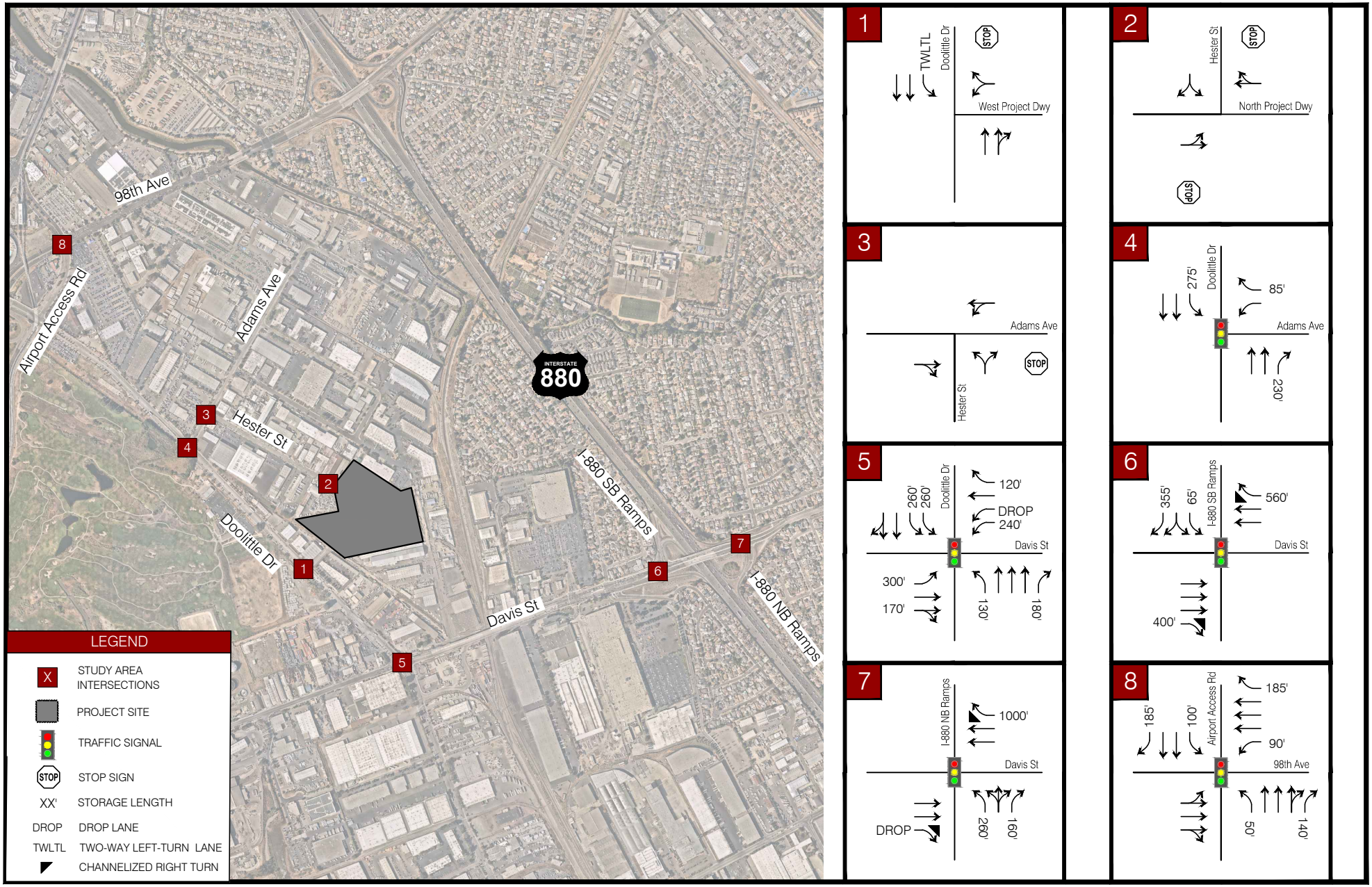

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FIGURE 3
EXISTING LANE GEOMETRY AND TRAFFIC CONTROL

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FIGURE 4
EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES

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880 Doolittle Drive

3. PROJECT DESCRIPTION

This chapter presents a description of the proposed site use, trip generation, trip distribution, and trip assignment for the proposed project on the transportation system.

PROPOSED SITE USE

The project proposes to redevelop the existing building to become a warehousing and distribution spec building totaling 239,573 square feet. The existing building has been vacant since 2020 (after the counts were taken) and was not occupied during Existing (2023) conditions. Therefore, no existing trip credits were taken.

Figure 1 illustrates the location of the project site in relation to the adjacent roadway network. The site would be accessed by an unsignalized full access driveway along Doolittle Drive and an unsignalized full access driveway along Hester Street. The Project site plan is presented in **Figure 2**.

TRIP GENERATION

Trip generation for projects are typically calculated based on information contained in the Institute of Transportation Engineer's (ITE) publication, *Trip Generation Manual, 11th Edition*[3]. The manual is a standard reference used by jurisdictions throughout the country for the estimation of trip generation of proposed projects. A trip is defined in the *Trip Generation Manual* as a single or one-directional vehicle movement with either the origin or destination at the project site. In other words, a trip can be either "to" or "from" the site and therefore, a single visitor to a site is counted as two.

For purposes of determining the worst-case deficiencies of traffic on the surrounding street network, the trips generated by a proposed project are estimated for the AM peak hour (between the hours of 7:00 AM and 9:00 AM), and for the PM peak hour (between 4:00 PM and 6:00 PM) on a typical weekday. Trips generated by the proposed project were based on the rates for ITE Land Use 155 (High-Cube Fulfillment Center – Sort).

Table 2 presents the trip generation for the proposed project. The project would generate 208 trips in the AM peak hour and 287 trips in the PM peak hour.

[3] *Trip Generation Manual, 11th Edition*, Institute of Transportation Engineers, 2021.

Table 2 – Project Trip Generation

Vehicle Type	Daily	AM Peak Hour (7:00-9:00)			PM Peak Hour (4:00-6:00)		
		In	Out	Total	In	Out	Total
100% ITE (LU 155 Sort) High-Cube Fulfillment Center[2]							
Rates							
Passenger Car	6.25	0.69	0.16	0.85	0.46	0.72	1.18
Truck	0.19	0.01	0.01	0.02	0.01	0.01	0.02
Trips							
Passenger Car	1,497	167	36	203	110	172	282
Truck	46	2	3	5	2	3	5
Total	1,543	169	39	208	112	175	287

[1] Existing trip generation is based on the 880 Doolittle Traffic Analysis prepared by Urban Crossroads in October 2021.
[2] Proposed trip generation based on ITE *Trip Generation Manual, 11th Edition*.

PROJECT TRIP DISTRIBUTION AND ASSIGNMENT

The Project's trip distribution was estimated based on the project access locations, freeway access, and roadway network within the study area. **Figure 5** presents the trip distribution assumed for the Near Term Plus Project and Cumulative Plus Project analysis.

Based on the assumed trip distribution, the volumes generated by the project were assigned to the roadway network. Trip assignment to the project driveways was based on the on-site circulation and available movements for each driveway. **Figure 6** presents the project's AM and PM peak hour trip assignment.

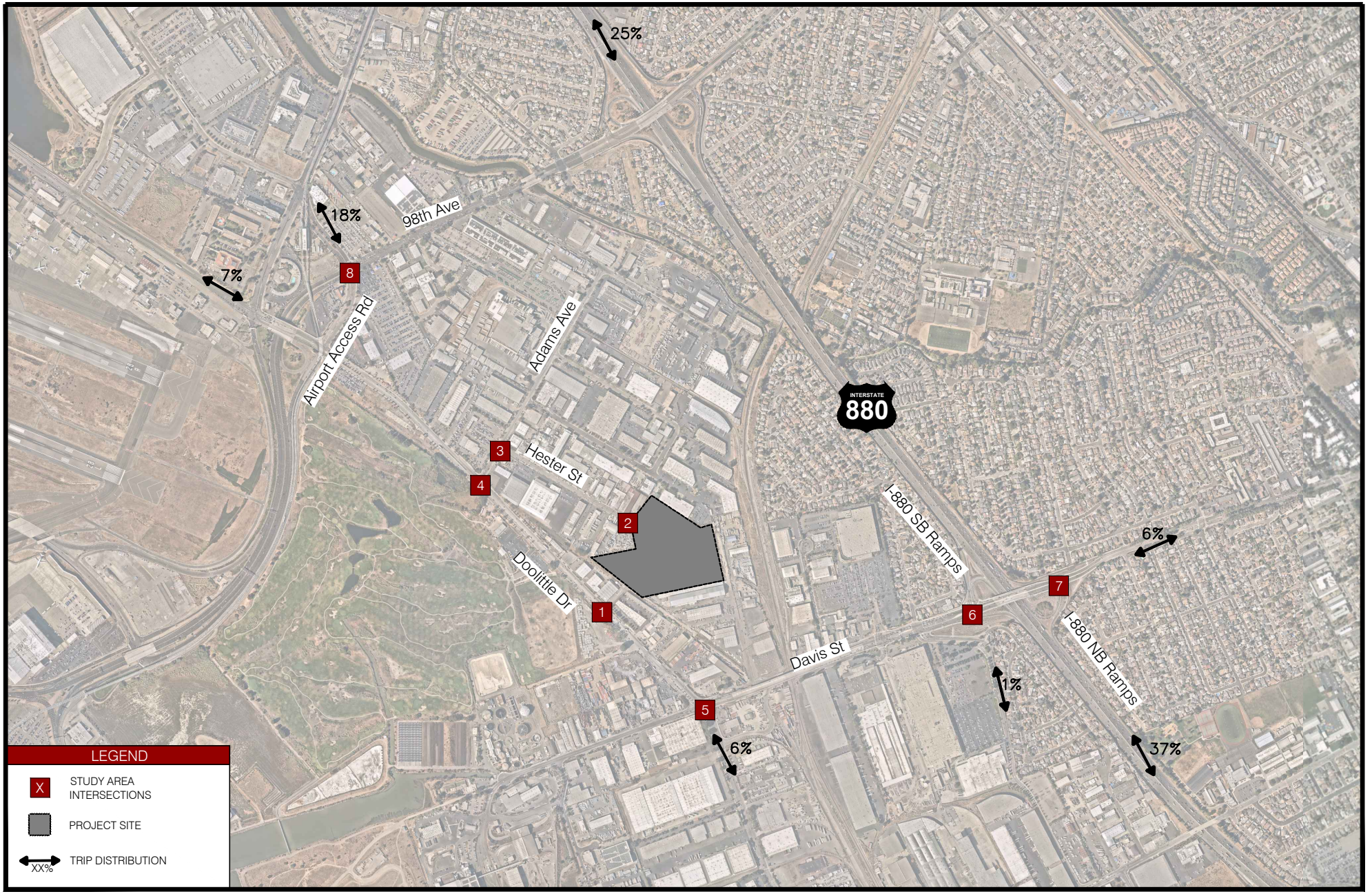

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FIGURE 5
PROJECT TRIP DISTRIBUTION

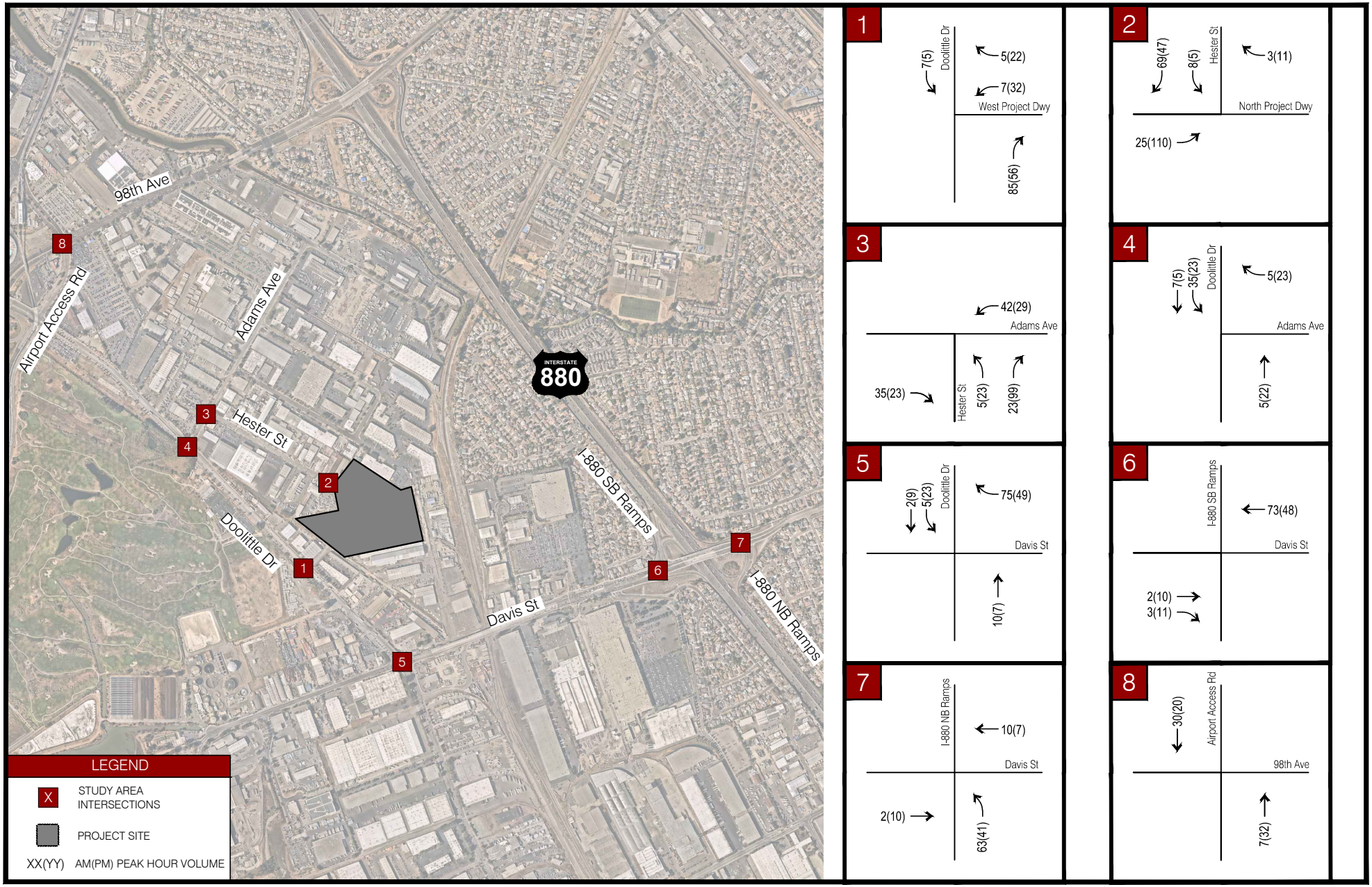

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FIGURE 6
PROJECT PEAK HOUR TURNING MOVEMENT VOLUMES

4. VEHICLE MILES TRAVELED (VMT)

This chapter summarizes the Project's Vehicle Miles Traveled (VMT) methodology, analysis, and results.

VMT METHODOLOGY

The City has not yet adopted VMT guidelines or a methodology for determining VMT impacts. Therefore, the Project's VMT evaluation relied on guidance provided by the Governor's Office of Planning and Research (OPR) Technical Advisory on Evaluating Transportation Impacts in CEQA[4] to determine potential impacts under Senate Bill (SB) 743. It should be noted that the ACTC VMT tools and maps are consistent with OPR methodology and the recommended 15 percent below regional average threshold. The approach outlined by the OPR Technical Advisory does not specifically address industrial facilities. However, for the purposes of this analysis, it is assumed that the employee VMT for this Project would have a similar VMT as an employee for an office use. Therefore, the Project was analyzed as an office project, which is evaluated based on VMT per employee since the predominant driver of VMT for the proposed Project would be commute trips and other employee-based trips. This approach is consistent with OPR guidelines which states, "where methodologies exist that can estimate the full extent of vehicle miles traveled from a project, the lead agency should apply them to do so".

VMT ANALYSIS

The ACTC has developed maps displaying estimates of VMT per employee based on traffic analysis zone (TAZ) estimates from the Alameda Countywide Travel Demand Model. Based on the VMT per Employee map for the Central Planning Area shown in **Appendix B**, the project is located in an area with a VMT equal to 15.34 in 2020 and 16.08 in 2040.

Based on the VMT per Employee map for the Central Planning Area in year 2020 provided by the ACTC, the project is located in an area with a VMT equal to 15.34. The target VMT, which is 15 percent below the average, for Central Planning Area is 16.3. Since the proposed project VMT does not exceeds the Central Planning Area threshold, the project will result in a less than significant VMT impact.

Based on the VMT per Employee table for the Central Planning Area in year 2040 provided by the ACTC, the project is located in an area with a VMT equal to 16.08. The target VMT, which is 15 percent below the average, for Central Planning Area is 16.2. Since the proposed project VMT does not exceeds the Central Planning Area threshold, the project will result in a less than significant VMT impact.

Table 3 summarizes the VMT analysis.

[4] Technical Advisory on Evaluating Transportation Impacts in CEQA, Governor's Office of Planning and Research, December 2018.

Table 3 – VMT Analysis Summary

Category	2020	2040
	Central Planning Area	Central Planning Area
Average VMT per Employee	19.2	19.1
Threshold VMT per Employee (85% of Average)	16.3	16.2
Project TAZ Average VMT per Employee	15.34	16.08
VMT Reduction Percentage Needed	0%	0%

5. TRAFFIC OPERATIONS ANALYSIS

This chapter will discuss the traffic operations analysis that was conducted to determine the effect of the proposed project on the transportation system. The operations analysis includes intersection level of service and intersection queuing.

EXISTING CONDITIONS

Existing conditions represent operations based on the existing roadway configuration (**Figure 3**) and existing volumes (**Figure 4**).

INTERSECTION LEVEL OF SERVICE

Traffic operations were evaluated at the study intersections under existing traffic conditions. Results of the analysis are presented in **Table 4**. All study intersections function within acceptable LOS standards under this analysis scenario except for Intersection #5 – Doolittle Drive and Davis Street in the AM peak hour.

Table 4 – Existing Peak Hour LOS Summary

#	Intersection	LOS Criteria	Jurisdiction	Control[1]	Existing					
					AM Peak			PM Peak		
					LOS	Delay[2] (sec)	v/c	LOS	Delay[2] (sec)	v/c
1	Doolittle Drive/West Project Driveway	D	City	SSSC	A	0.3	-	A	0.2	-
	Worst Approach				C	17.9	0.37	B	13.5	0.36
2	Hester Street/North Project Driveway[4]	D	City	SSSC	A	6.7	-	A	8.4	-
	Worst Approach				A	9.6	0.03	A	9.4	0.05
3	Hester Street/Adams Avenue	D	City	SSSC	A	0.6	-	A	2.3	-
	Worst Approach				B	10.9	0.20	B	10.6	0.11
4	Doolittle Drive/Adams Avenue[3]	D	City	Signal	B	10.9	0.43	B	10.7	0.68
5	Doolittle Drive/Davis Street	D	City	Signal	**F**	**107.4**	**0.93**	D	54.5	0.72
6	Davis Street/SB I-880 Ramps[3]	D	City	Signal	B	13.3	0.70	B	14.3	0.59
7	Davis Street/NB I-880 Ramps[3]	D	City	Signal	B	11	0.61	B	13.7	0.64
8	Airport Access Road/98th Avenue[3]	D	City	Signal	C	34.8	0.40	D	40.1	0.49

Note: Intersections that are operating below acceptable levels are shown in **BOLD**.
1 SSSC = Side Street Stop Control
2 The average control delay is reported for signalized intersections. The average control delay and the delay for the worst approach are reported for SSSC intersections.
3 Analyzed using HCM 2000 due to non-NEMA phasing.
4 Analyzed using HCM 2000 due to errors with HCM 6 within Synchro 11.

Analysis sheets are provided in **Appendix C**.

NEAR TERM TRAFFIC CONDITIONS

LANE GEOMETRY

Under Near Term conditions, no roadway improvements were assumed, therefore existing lane geometry was assumed as shown in **Figure 3**.

TRAFFIC VOLUMES

At the time of the analysis (November 2022), the San Leandro Developments map and table was downloaded from the City's website and used to determine which projects would be included in the Near Term Conditions. Projects within the vicinity of the project site that were proposed or approved were assumed to be generating vehicle traffic under Near Term Conditions. All pending and approved projects were considered; however, only the projects that would generate a substantial number of trips and were located close enough to affect the study area were included in the analysis. **Figure 7** lists the projects that were included in the Near Term traffic and shows the location of all approved and pending projects. Locations shown in red were included in the analysis and locations shown in blue were considered but not included in the analysis. Specifically, the Oakland Airport Golf Course Parking Lot project was included. Volumes along major arterials such as Doolittle Drive and 98th Avenue were also grown by 0.772 percent per year (compounded annually) to account for trips generated by future developments outside of San Leandro. Pending and approved project volumes are shown in **Figure 8**.

INTERSECTION LEVEL OF SERVICE

Near Term volumes were evaluated at the study intersections and are presented in **Figure 9**. Results are presented in **Table 5**. All study intersections function within acceptable LOS standards under this analysis scenario except for Intersection #5 – Doolittle Drive and Davis Street.

Analysis sheets are provided in **Appendix C**.

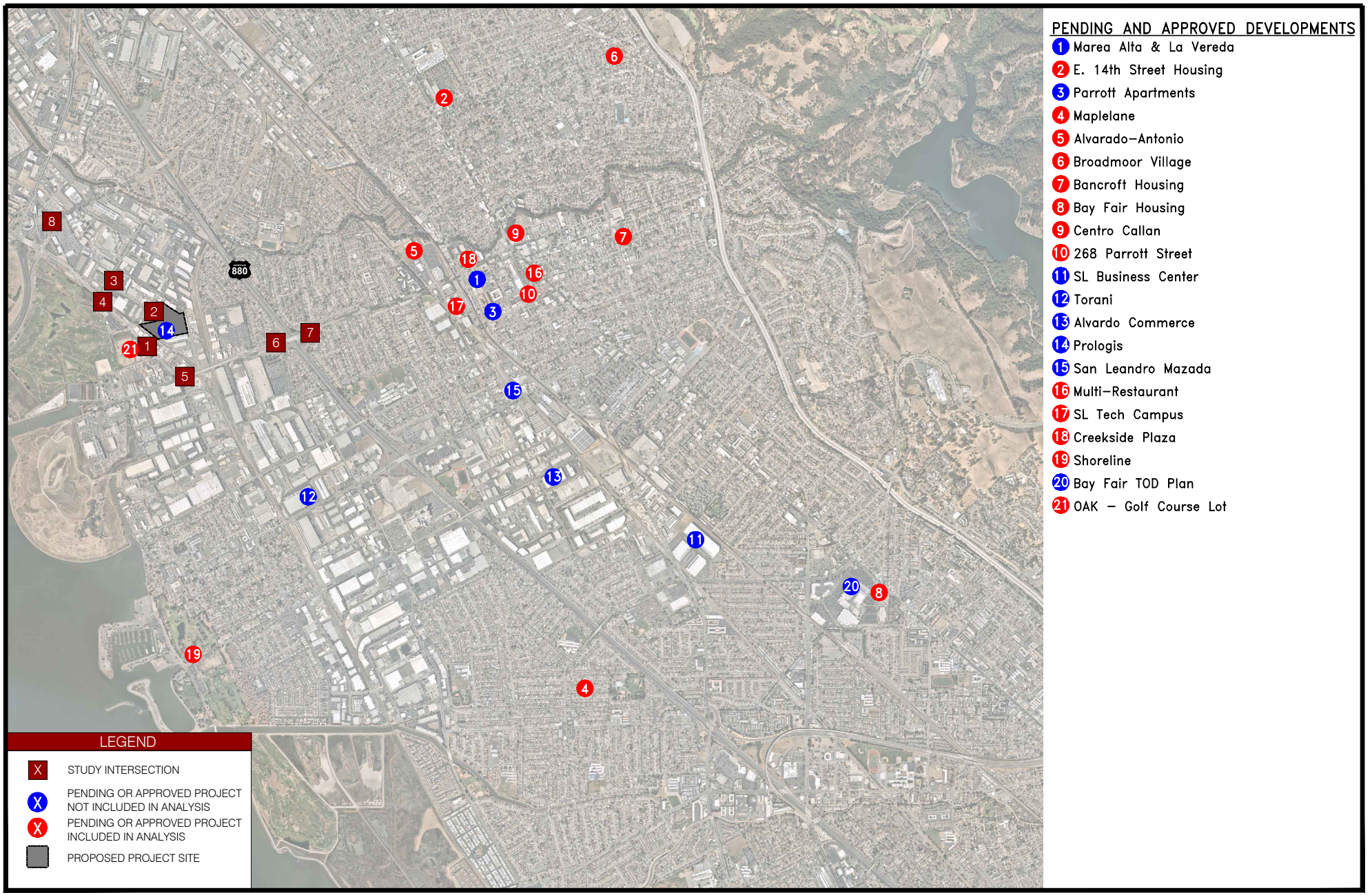

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FIGURE 7

PENDING AND APPROVED PROJECT LOCATIONS

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FIGURE 8
PENDING AND APPROVED PROJECT PEAK HOUR TURNING MOVEMENT VOLUMES

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FIGURE 9
NEAR TERM PEAK HOUR TURNING MOVEMENT VOLUMES

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880 Doolittle Drive

Table 5 – Near Term and Near Term Plus Project Peak Hour LOS Summary

#	Intersection	LOS Criteria	Jurisdiction	Control[1]	Near Term						Near Term Plus Project									
					AM Peak			PM Peak			AM Peak					PM Peak				
					LOS	Delay[2] (sec)	v/c	LOS	Delay[2] (sec)	v/c	LOS	Delay[2] (sec)	Delay Var (sec)	v/c	v/c Var	LOS	Delay[2] (sec)	Delay Var (sec)	v/c	v/c Var
1	Doolittle Drive/West Project Driveway	D	City	SSSC	A	0.3	-	A	0.2	-	A	0.4	0.1	-	-	A	0.6	0.4	-	-
	Worst Approach				C	19.2	0.4	B	14.1	0.39	C	19.8	0.6	0.40	0.00	C	18.7	4.6	0.39	0.00
2	Hester Street/North Project Driveway[4]	D	City	SSSC	A	6.7	-	A	8.4	-	A	4.9	-1.8	-	-	A	8.1	-0.3	-	-
	Worst Approach				A	9.6	0.03	A	9.4	0.05	B	10.4	0.8	0.06	0.03	B	10.7	1.3	0.21	0.16
3	Hester Street/Adams Avenue	D	City	SSSC	A	0.8	-	A	2.5	-	A	1.9	1.1	-	-	A	4.9	2.4	-	-
	Worst Approach				B	11.0	0.20	B	10.7	0.12	B	11.7	0.7	0.23	0.03	B	12.1	1.4	0.30	0.18
4	Doolittle Drive/Adams Avenue[3]	D	City	Signal	B	11.0	0.46	B	12.0	0.71	B	13.4	2.4	0.49	0.03	B	13.7	1.7	0.72	0.01
5	Doolittle Drive/Davis Street	D	City	Signal	**F**	**110.7**	**0.97**	**E**	**62.7**	**0.76**	**F**	**127.4**	**16.7**	**1.04**	**0.07**	**E**	**67.4**	**4.7**	**0.80**	**0.04**
6	Davis Street/SB I-880 Ramps[3]	D	City	Signal	B	14.1	0.75	B	14.7	0.64	B	14.7	0.6	0.78	0.03	B	14.9	0.2	0.66	0.02
7	Davis Street/NB I-880 Ramps[3]	D	City	Signal	B	11.8	0.67	B	14.4	0.66	B	12.2	0.4	0.69	0.02	B	14.5	0.1	0.68	0.02
8	Airport Access Road/98th Avenue[3]	D	City	Signal	C	34.8	0.40	D	40.9	0.50	C	34.5	-0.3	0.40	0.00	D	40.4	-0.5	0.51	0.01

Note: Intersections that are operating below acceptable levels are shown in **BOLD**. Project caused deficiencies are shaded.

1 SSSC = Side Street Stop Control

2 The average control delay is reported for signalized intersections. The average control delay and the delay for the worst approach is reported for SSSC intersections.

3 Analyzed using HCM 2000 due to non-NEMA phasing.

4 Analyzed using HCM 2000 due to errors with HCM 6 within Synchro 11.

NEAR TERM PLUS PROJECT

LANE GEOMETRY AND CONTROL

The project is not proposing any roadway improvements at any study intersection and therefore Near Term Plus Project conditions assumed existing lane geometry as illustrated in **Figure 3**.

TRAFFIC VOLUMES

The Project is estimated to generate a net 497 daily trips, a total of 49 AM peak hour trips (89 inbound and -40 outbound), and 152 PM peak hour trips (55 inbound and 97 outbound). Near Term Plus Project volumes were determined by adding the total project traffic, **Figure 6**, to the Near Term conditions volume, **Figure 9**. Near Term Plus Project peak hour volumes are shown in **Figure 10**.

INTERSECTION LEVEL OF SERVICE

Near Term Plus Project traffic conditions were evaluated at the study intersections. Results are presented in **Table 5**. All study intersections function within acceptable LOS standards under this analysis scenario during the AM and PM peak hours except for Intersection #5 – Doolittle Drive and Davis Street. In the AM peak hour, this intersection deficiency is considered a project deficiency because it operates at an unacceptable LOS for without project conditions and the addition of project trips causes the intersection v/c to increase by 0.05 or more.

Analysis sheets are provided in **Appendix C**.

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FIGURE 10
NEAR TERM PLUS PROJECT PEAK HOUR TURNING MOVEMENT VOLUMES

CUMULATIVE TRAFFIC CONDITIONS

LANE GEOMETRY

Under Cumulative conditions, no roadway improvements were assumed, therefore existing lane geometry was assumed as shown in **Figure 3**.

TRAFFIC VOLUMES

To account for future development and growth within the County, the Cumulative traffic volumes were developed by determining a growth rate from the ACTC Model. Existing and future year model outputs were acquired for the roadway links in the study area. These link volumes were then used to determine an annual growth rate that was applied to the Existing volumes. The volumes were reviewed to ensure that there would be no decrease in volumes from Existing or Near Term to the Cumulative year. For locations where the volumes would decrease, they were conservatively assumed to equal the Near Term volume and rounded up to the nearest 10 vehicles. Cumulative peak hour volumes are presented in **Figure 11.**

INTERSECTION LEVEL OF SERVICE

Cumulative volumes were evaluated at the study intersections. Results are presented in **Table 6**. All study intersections function within acceptable LOS standards under this analysis scenario except for Intersection #5 – Doolittle Drive and Davis Street and Intersection #8 – Airport Access Road and 98th Avenue.

Analysis sheets are provided in **Appendix C.**

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FIGURE 11
CUMULATIVE PEAK HOUR TURNING MOVEMENT VOLUMES

197546001 January 2024

880 Doolittle Drive

Table 6 – Cumulative and Cumulative Plus Project Peak Hour LOS Summary

#	Intersection	LOS Criteria	Jurisdiction	Control[1]	Cumulative						Cumulative Plus Project									
					AM Peak			PM Peak			AM Peak					PM Peak				
					LOS	Delay[2] (sec)	v/c	LOS	Delay[2] (sec)	v/c	LOS	Delay[2] (sec)	Delay Var (sec)	v/c	v/c Var	LOS	Delay[2] (sec)	Delay Var (sec)	v/c	v/c Var
1	Doolittle Drive/West Project Driveway	D	City	SSSC	A	0.3	-	A	0.2	-	A	0.5	0.2	-	-	A	0.8	0.6	-	-
	Worst Approach				C	24.9	0.51	C	21.1	0.51	D	27.2	2.3	0.51	0.00	D	28.4	7.3	0.51	0.00
2	Hester Street/North Project Driveway[4]	D	City	SSSC	A	6.4	-	A	7.7	-	A	5.2	-1.2	-	-	A	8.1	0.4	-	-
	Worst Approach				A	10.0	0.04	A	9.7	0.06	B	10.8	0.8	0.07	0.03	B	11.2	1.5	0.23	0.17
3	Hester Street/Adams Avenue	D	City	SSSC	A	1.5	-	A	2.3	-	A	2.5	1.0	-	-	A	4.7	2.4	-	-
	Worst Approach				C	15.1	0.26	B	11.6	0.14	C	17.6	2.5	0.28	0.02	B	13.2	1.6	0.34	0.20
4	Doolittle Drive/Adams Avenue[3]	D	City	Signal	B	11.8	0.6	C	27.2	1.02	B	13.3	1.5	0.62	0.02	C	30.6	3.4	1.02	0.00
5	Doolittle Drive/Davis Street	D	City	Signal	**F**	**156.8**	**1.20**	**F**	**177.8**	**1.17**	**F**	**173.2**	16.4	**1.27**	**0.07**	**F**	**189.8**	12.0	**1.21**	0.04
6	Davis Street/SB I-880 Ramps[3]	D	City	Signal	B	14.2	0.76	C	21.3	0.85	B	14.6	0.4	0.78	0.02	C	23.6	2.3	0.87	0.02
7	Davis Street/NB I-880 Ramps[3]	D	City	Signal	B	11.8	0.77	C	28.5	0.89	B	12.2	0.4	0.78	0.01	C	29.4	0.9	0.90	0.01
8	Airport Access Road/98th Avenue[3]	D	City	Signal	**E**	**66.9**	**0.61**	**F**	**441.7**	**1.29**	**E**	**66.4**	-0.5	**0.61**	0.00	**F**	**437.1**	-4.6	**1.30**	0.01

Note: Intersections that are operating below acceptable levels are shown in **BOLD**. Project caused deficiencies are shaded.

1 SSSC = Side Street Stop Control
2 The average control delay is reported for signalized intersections. The average control delay and the delay for the worst approach is reported for SSSC intersections.
3 Analyzed using HCM 2000 due to non-NEMA phasing.
4 Analyzed using HCM 2000 due to errors with HCM 6 within Synchro 11.

CUMULATIVE PLUS PROJECT

LANE GEOMETRY AND CONTROL

The project is not proposing any roadway improvements at any study intersection and therefore Cumulative Plus Project conditions assumed existing lane geometry as illustrated in **Figure 3**.

TRAFFIC VOLUMES

The Project is estimated to generate a net 497 daily trips, a total of 49 AM peak hour trips (89 inbound and -40 outbound), and 152 PM peak hour trips (55 inbound and 97 outbound). Cumulative Plus Project volumes were determined by adding the total project traffic, **Figure 6**, to the Cumulative conditions volume, **Figure 11**. Cumulative Plus Project peak hour volumes are shown in **Figure 12**.

INTERSECTION LEVEL OF SERVICE

Cumulative Plus Project traffic conditions were evaluated at the study intersections. Results are presented in **Table 6**. Intersections operate unacceptably but are not considered a project deficiency if the intersection is operating unacceptably without the project and the increase in v/c is less than 0.05. Intersection #8 – Airport Access Road and 98th Avenue operates unacceptably in the AM and PM peak hours, but is not considered a project deficiency because the project increases the v/c by less than 0.05. Intersection #5 – Doolittle Drive and Davis Street operates unacceptably in the AM and PM peak hours and is considered a project deficiency in the AM peak hour because the project increases the v/c by more than 0.05.

Analysis sheets are provided in **Appendix C**.

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FIGURE 12
CUMULATIVE PLUS PROJECT PEAK HOUR TURNING MOVEMENT VOLUMES

VEHICLE QUEUING

As congestion increases, it is common for traffic at intersections to form lines of stopped (or queued) vehicles. Queue lengths were determined for turn lanes in which significant project trips are being added, and the distance that vehicles will back up approaching an intersection were estimated. Synchro software calculates the 95th percentile queues based on Synchro software methodology. The 95th percentile queue is used to account for fluctuations in traffic and represents a condition where 95 percent of the time during the peak period, traffic volumes will be less than or equal to the queue determined by the analysis. It is used as a benchmark for determining deficiencies as a standard transportation engineering practice. A typical vehicle length of 25 feet was used in the queuing analysis. The effect of vehicle queuing was analyzed by reporting the 95th percentile queues for turning movements where the project would add trips to existing or proposed turn pockets. Left-turn lane vehicle queuing that exceeds a turn pocket length can create potentially hazardous conditions by blocking or disrupting through traffic in adjacent travel lanes. An operational deficiency, and not a significant impact, was assumed to occur if the left turn queue increases by one or more vehicles and the vehicle queue exceeds the left turn pocket length.

All queue lengths are contained within the available storage and the project does not increase the queue by one or more vehicles, except for the following movements:

- Intersection #5 – Doolittle Drive and Davis Street
    - Westbound right-turn (AM peak hour in Near Term plus Project and Cumulative plus Project scenarios)

The analysis showed that the westbound right-turn queue at Doolittle Drive and Davis Street exceeds the storage bay length of 120 feet. In the Near Term plus Project scenario and Cumulative plus Project scenario, the project trips increased the westbound right-turn queue by 146 feet and 141 feet in the AM peak hour, respectively. However, since the westbound right-turn vehicles will go during the same signal phase as the westbound through vehicles, this is not considered a queuing deficiency. Therefore, although the westbound right-turn queue extends beyond the storage length, it is not expected to cause any safety issues and no improvement is necessary.

The vehicle queuing summary is shown in **Table 7**.

Table 7 – Vehicle Queuing Summary

#	Intersection	Control	Movement	Storage Length (ft)	Existing		Near Term		Near Term Plus Project		Cumulative		Cumulative Plus Project	
					AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
4	Doolittle Dr/Adams Ave	Signal	WBR	85	<25	25	<25	25	<25	30	<25	26	<25	29
			NBR	230	44	26	46	27	46	27	49	28	49	28
			SBL	275	51	<25	51	<25	107	41	76	<25	131	43
5	Doolittle Dr/Davis St	Signal	WBR	120	**904**	**282**	**935**	**323**	**1,081**	**394**	**1,309**	**988**	**1,450**	**1,086**
			SBL	260	183	**458**	206	**477**	209	**500**	**580**	**765**	**586**	**788**
6	Davis St/SB I-880	Signal	EBR	400	40	53	40	54	41	54	41	54	41	55
			SBR	350	201	154	209	163	214	166	222	257	222	257

Note: NBR=northbound right, SBL=southbound left, SBR=southbound right, EBR=eastbound right, WBL=westbound left, WBR=westbound right
Queues exceeding available storage by greater than 25 feet are shown in bold.
Deficient queues that increase by more than 25 feet under project conditions are shaded.

6. ALAMEDA COUNTY TRANSPORTATION COMMISSION LAND USE ANALYSIS PROGRAM

This chapter presents the results of the Alameda CTC Land Use analysis under Year 2020 and Year 2040 Conditions, with and without the Project, in the PM peak hour.

YEAR 2020 AND YEAR 2040 NO PROJECT CONDITIONS

The Alameda CTC Land Use analysis was performed to comply with its congestion management plan (CMP) Land Use Analysis Program. In the CMP, development projects generating more than 100 PM net new peak hour trips are analyzed to determine its impact on Metropolitan Transportation System (MTS) roadways. Since the ACTC Land Use Analysis Program's 100-trip criteria is in the PM peak hour and the project generates greater project trips in the PM peak hour than the AM peak hour, the analysis was evaluated in the PM peak hour only.

The Alameda CTC travel demand model for Year 2020 and Year 2040 was used to determine 2020 and 2040 traffic volumes in the PM peak hour along the MTS roadways of Doolittle Drive and Davis Street. Traffic volumes and the number of lanes in each direction were used to determine the segment v/c ratio. It is assumed that the capacity of the roadway segment is 800 vehicles per hour per lane (vphpl).

Based on the analysis, the following MTS roadway segments operate at an unacceptable LOS F in Year 2020 and 2040 Conditions during the PM peak hour:

Year 2020 Conditions

- Northbound Doolittle Drive from Davis Street to Adams Avenue
- Eastbound Davis Street from Doolittle Drive to I-880 SB Ramps

Year 2040 Conditions

- Northbound Doolittle Drive from Davis Street to Adams Avenue
- Southbound Doolittle Drive from Adams Avenue to Davis Street
- Eastbound Davis Street from Doolittle Drive to I-880 SB Ramps
- Westbound Davis Street from I-880 SB Ramps to Doolittle Drive

YEAR 2020 AND YEAR 2040 PLUS PROJECT CONDITIONS

Project trips during the PM peak hour were added to the roadway segments under Year 2020 and Year 2040 Conditions to determine the v/c ratio under Plus Project Conditions. Based on the analysis, the following roadway segments continue to operate at an unacceptable LOS F in Plus Project Conditions:

Year 2020 Plus Project Conditions

- Northbound Doolittle Drive from Davis Street to West Project Driveway
  - With the addition of the project trips, this results in an increase in v/c of more than 0.02 – **Project Deficiency**
- Northbound Doolittle Drive from Adams Avenue to West Project Driveway
  - With the addition of the project trips, this results in an increase in v/c of less than 0.02 – **Not a Deficiency**
- Eastbound Davis Street from Doolittle Drive to I-880 SB Ramps
  - With the addition of the project trips, this results in an increase in v/c of less than 0.02 – **Not a Deficiency**

Year 2040 Plus Project Conditions

- Northbound Doolittle Drive from Davis Street to West Project Driveway
    - With the addition of the project trips, this results in an increase in v/c of more than 0.02 – **Project Deficiency**
- Northbound Doolittle Drive from Adams Avenue to West Project Driveway
    - With the addition of the project trips, this results in an increase in v/c of less than 0.02 – **Not a Deficiency**
- Southbound Doolittle Drive from Adams Avenue to West Project Driveway
    - With the addition of the project trips, this results in an increase in v/c of less than 0.02 – **Not a Deficiency**
- Southbound Doolittle Drive from West Project Driveway to Davis Street
    - With the addition of the project trips, this results in an increase in v/c of more than 0.02 – **Project Deficiency**
- Eastbound Davis Street from Doolittle Drive to I-880 SB Ramps
    - With the addition of the project trips, this results in an increase in v/c of less than 0.02 – **Not a Deficiency**
- Westbound Davis Street from I-880 SB Ramps to Doolittle Drive
    - With the addition of the project trips, this results in an increase in v/c of more than 0.02 – **Project Deficiency**

Table 8 and **Table 9** summarize the roadway segment capacity analysis for Year 2020 and Year 2040, respectively.

Table 8 – Year 2020 ACTC Roadway Segment Analysis

Location	Limits	# of Lanes	Capacity (vphpl)	No Project - Year 2020 (PM)			With Project - Year 2020 (PM)				
				Volume (vph)	LOS	V/C	Project Generated Trips	Volume (vph)	LOS	V/C	Δ V/C
Arterial Segment											
NB Doolittle Dr	Davis St (Int #5) to Project Dwy (Int #1)	2	800	1,764	**F**	**1.103**	56	1,791	**F**	**1.119**	**0.035**
	Project Dwy (Int #1) to Adams Ave (Int #4)	2	800	1,764	**F**	**1.103**	22	1,756	**F**	**1.098**	**0.014**
SB Doolittle Dr	Adams Ave (Int #4) to Project Dwy (Int #1)	2	800	1,599	E	0.999	5	1,589	E	0.993	0.003
	Project Dwy (Int #1) to Davis St (Int #5)	2	800	1,599	E	0.999	32	1,591	E	0.994	0.020
EB Davis St	Doolittle Dr (Int #5) to I-880 SB Ramps (Int #6)	2	800	2,095	**F**	**1.309**	23	2,088	**F**	**1.305**	**0.014**
	I-880 SB Ramps (Int #6) to I-880 NB Ramps (Int #7)	3	800	1,497	C	0.624	10	1,495	C	0.623	0.004
WB Davis St	I-880 NB Ramps (Int #7) to I-880 SB Ramps (Int #6)	3	800	1,362	B	0.568	48	1,392	B	0.580	0.020
	I-880 SB Ramps (Int #6) to Doolittle Dr (Int #5)	2	800	1,532	E	0.958	49	1,559	E	0.974	0.031

Note: Segments that are operating below acceptable levels are shown in **BOLD**. Project caused deficiencies are shaded.

Table 9 – Year 2040 ACTC Roadway Segment Analysis

Location	Limits	# of Lanes	Capacity (vphpl)	No Project - Year 2040 (PM)			With Project - Year 2040 (PM)				
				Volume (vph)	LOS	V/C	Project Generated Trips	Volume (vph)	LOS	V/C	Δ V/C
Arterial Segment											
NB Doolittle Dr	Davis St (Int #5) to Project Dwy (Int #1)	2	800	2,084	**F**	**1.303**	56	2,111	**F**	**1.319**	**0.035**
	Project Dwy (Int #1) to Adams Ave (Int #4)	2	800	2,084	**F**	**1.303**	22	2,076	**F**	**1.298**	**0.014**
SB Doolittle Dr	Adams Ave (Int #4) to Project Dwy (Int #1)	2	800	2,270	**F**	**1.419**	5	2,260	**F**	**1.413**	**0.003**
	Project Dwy (Int #1) to Davis St (Int #5)	2	800	2,270	**F**	**1.419**	32	2,262	**F**	**1.414**	**0.020**
EB Davis St	Doolittle Dr (Int #5) to I-880 SB Ramps (Int #6)	2	800	2,314	**F**	**1.446**	23	2,307	**F**	**1.442**	**0.014**
	I-880 SB Ramps (Int #6) to I-880 NB Ramps (Int #7)	3	800	2,073	D	0.864	10	2,071	D	0.863	0.004
WB Davis St	I-880 NB Ramps (Int #7) to I-880 SB Ramps (Int #6)	3	800	1,887	D	0.786	48	1,917	D	0.799	0.020
	I-880 SB Ramps (Int #6) to Doolittle Dr (Int #5)	2	800	2,087	**F**	**1.304**	49	2,114	**F**	**1.321**	**0.031**

Note: Segments that are operating below acceptable levels are shown in **BOLD**. Project caused deficiencies are shaded.

7. SITE ACCESS AND CIRCULATION

This section discusses site access, site circulation, pedestrian facilities, bicycle facilities, transit recommendations, and sight distance analysis for the project.

The following summarizes the project access locations:

- Doolittle Drive and West Project Driveway
  - Stop-controlled westbound movement for project driveway
  - Full access
- Hester Street and North Project Driveway
  - Stop-controlled eastbound and westbound movement for project driveway
  - Full access

Appendix C contains the queuing worksheets for the Project's driveways. These AM/PM peak hour worksheets are the results of the Cumulative Plus Project Conditions and show that the west and north project driveway throat depths are sufficient to accommodate the project outbound queues during the peak hours. For the west project driveway, the throat depth was measured as approximately 50 feet, which is the distance from Doolittle Drive to the internal drive aisle at 900 Doolittle Drive. As shown, the estimated outbound vehicle queue is less than 25 feet, which does not exceed the throat depth of 50 feet. However, it is possible that a truck with a vehicle length of more than 50 feet may temporarily block the drive aisle at 900 Doolittle Drive. In this case, vehicles may queue within the drive aisle; however, this should not result in vehicles queuing onto Doolittle Drive and therefore does not require any improvements. For the north project driveway, the throat depths were measured as approximately 50 feet for both the eastbound and westbound approach, which is the distance from Hester Street to the first parking space. As shown, the estimated outbound vehicle queue is less than 25 feet, which does not exceed the throat depth of 50 feet. Therefore, there are no anticipated conflicts or excessive queuing.

VEHICLE SITE CIRCULATION

Passenger cars and trucks may use the West Project Driveway and North Project Driveway to enter the site. All truck parking is located on the north side of the site and the passenger car parking spaces are located to the west of the site. 24 dock doors are located on the north site of the building and 37 dock doors are located on the south side. Vehicles may use the drive aisles proposed on all sides of the building to access these parking spaces and docks.

PEDESTRIAN FACILITIES

There are existing continuous sidewalks on both sides of Doolittle Drive adjacent to the project site where pedestrians can access the site, as well as existing continuous sidewalks on both sides of Adams Avenue and on the east side of Hester Street. There are also existing crosswalks along the east, south, and west legs at the signalized intersection of Doolittle Drive and Davis Street, and existing crosswalks on the east and south legs at the signalized intersection of Doolittle Drive and Adams Street.

Within the project site, there are marked pedestrian crosswalks connecting the accessible parking spaces to the sidewalks along the west side of the building. These sidewalks along the west side of the building provide access to the office spaces. There are sufficient pedestrian facilities adjacent to the project and to nearby complimentary uses.

BICYCLE FACILITIES

Bicycles will have access to the project site using the Class II bicycle lanes along Doolittle Drive and Adams Avenue. Existing bicycle facilities are shown in **Figure 13**.

Within the project site, bicycle parking will be provided on the ground level. The project provides 12 short-term and 12 long-term bicycle parking spaces, which meets the City's requirements. Since there are sufficient bicycle facilities adjacent to the project, to nearby complimentary uses, and within the project site, no additional bicycle facilities are recommended to be constructed by the project.

TRANSIT

For those taking transit, Alameda-Contra Costa Transit District (AC Transit) bus routes 34, 35, 73, 98, 805 operate within the study area. The nearest bus stop is located at the intersection of Westgate Parkway and Davis Street, which is approximately 0.9 miles southeast of the project site. The San Leandro BART station, which serves the Blue, Green, and Orange BART lines, is located within 2.1 miles east of the project site. The San Leandro LINKS shuttle is a free shuttle to and from the San Leandro BART station that operates a North Loop and South Loop. The North Loop runs along Davis Street from the BART station to Marina Boulevard, Merced Street, Williams Street, Doolittle Drive, and Davis Street. There is an existing stop located at Doolittle Drive and Davis Street. Pedestrians can travel between the LINKS bus stop and the project site using the existing sidewalks located along both sides of Davis Street. Existing transit facilities are shown in **Figure 14**.

Since the LINKS route serves as a sufficient transit facility in proximity to the project along Davis Street to nearby complimentary uses, no additional transit facilities are recommended to be constructed by the project.

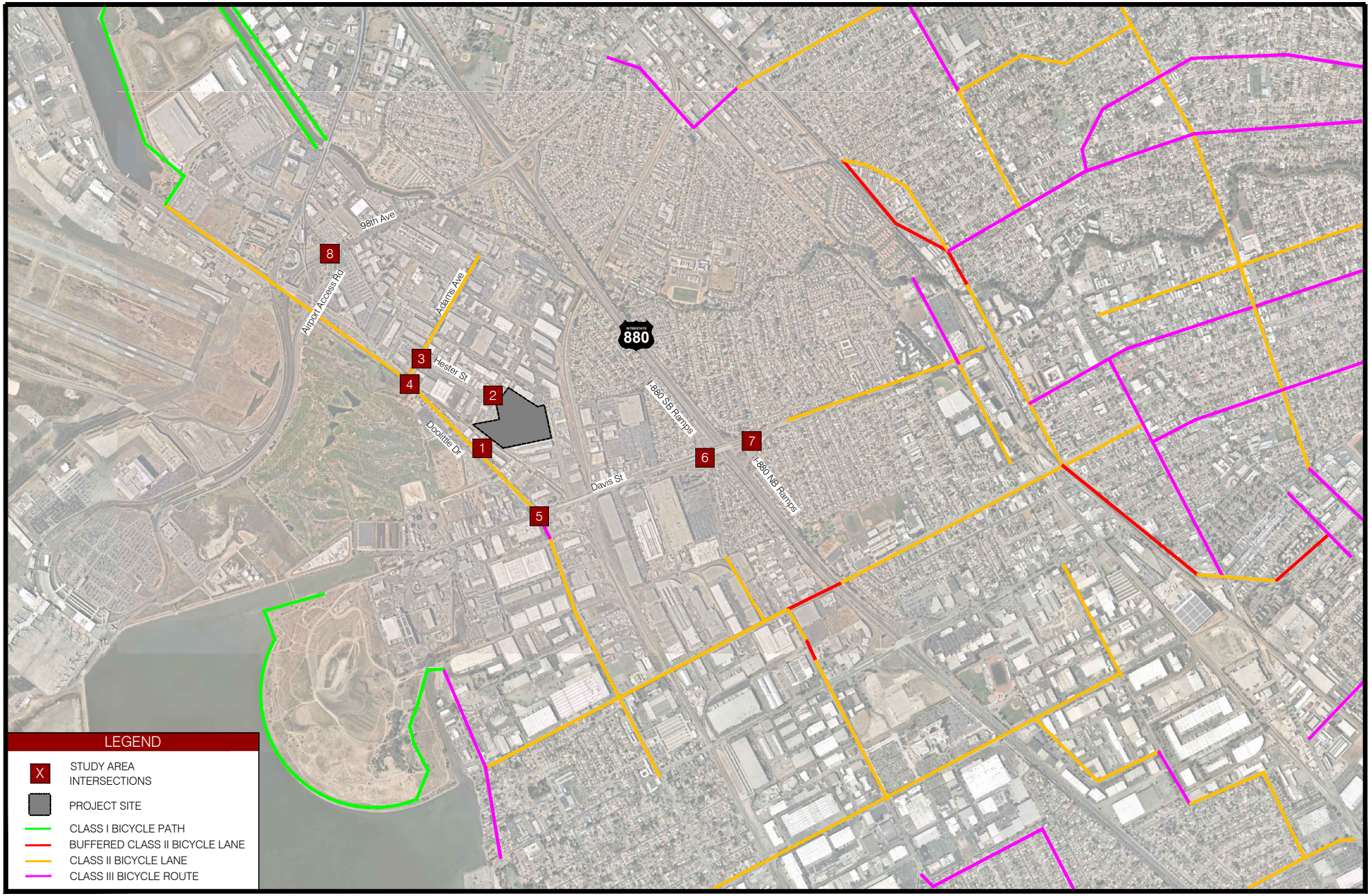

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FIGURE 13
BICYCLE FACILITIES

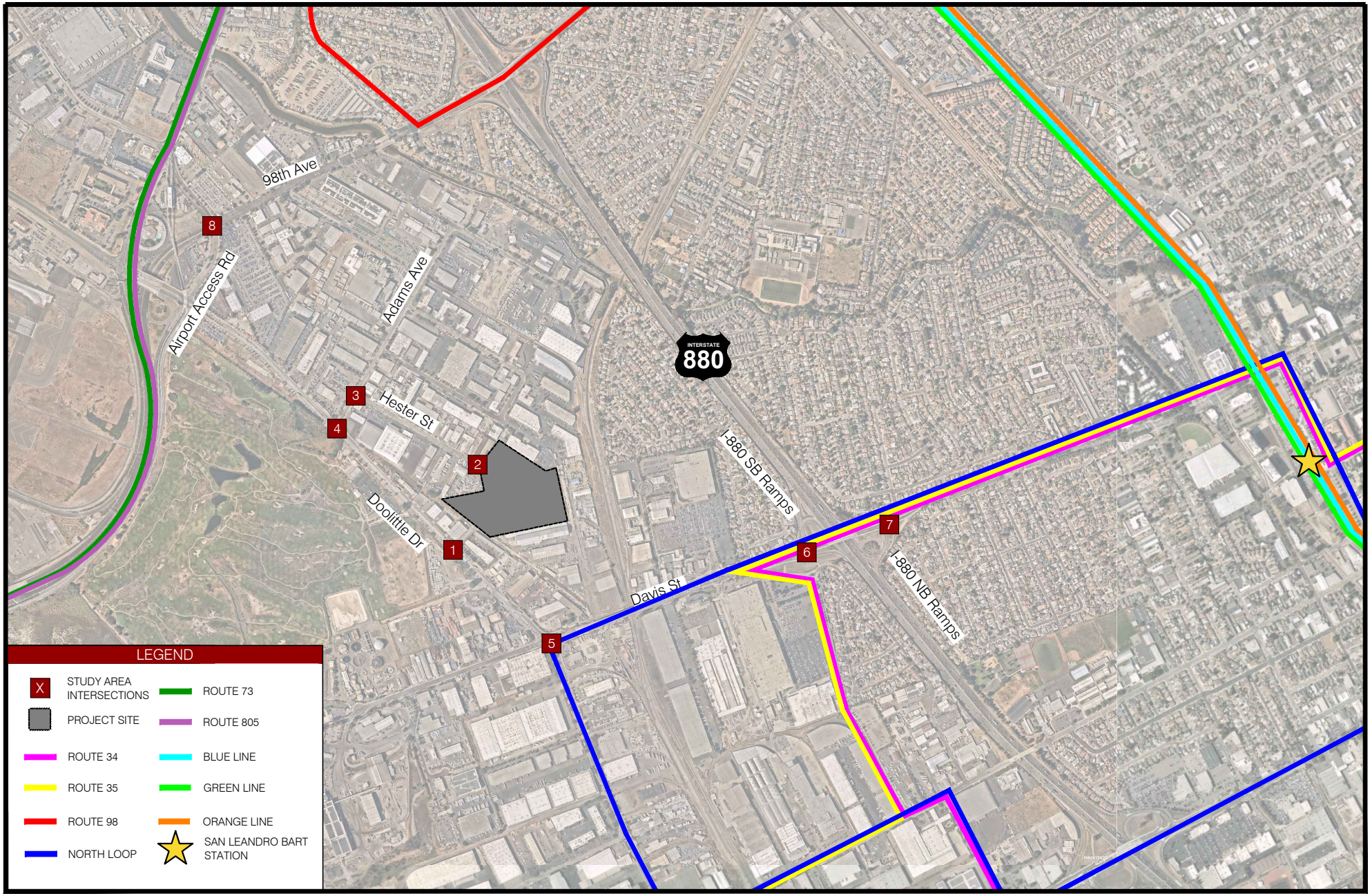

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FIGURE 14
TRANSIT FACILITIES

SIGHT DISTANCE

A sight distance analysis for the project driveways was conducted to determine if vehicles exiting the driveway would have adequate sight distance to observe conflicting traffic along the major roadway adjacent to the project site. Intersection sight distance for the project driveway was evaluated following methodology from the American Association of State Highway and Transportation Officials (AASHTO), *A Policy on Geometric Design of Highway and Street, 7th Edition*[5]. Sight distance for each project driveway was determined based on the proposed project site plan and the following AASHTO intersection sight distance criteria formula:

$$\text{Intersection Sight Distance} = 1.47 \times V_{major} \times t_g$$

Where V_{major} is the design speed of the major road and t_g is the time gap for the vehicle to exit the project driveway and enter the major road. No spot speed study was conducted; design speeds were used to determine sight distance.

Intersection #1 – Doolittle Drive and West Project Driveway

Using the time gap for passenger cars, the time gap is 8.5 seconds for a truck to make a right-turn movement onto Doolittle Drive and 10.2 seconds to make a left-turn movement. With a 50-mph design speed along Doolittle Drive, the sight distance criteria for trucks making a right-turn is 625 feet and the sight distance criteria for trucks making a left-turn is 750 feet. As shown in the **Figure 15**, the sight triangles at the West Project Driveway should be clear of obstructions for a vehicle exiting the driveway to observe oncoming northbound and southbound vehicles along Doolittle Drive.

[5] *A Policy on Geometric Design of Highway and Street, 7th Edition,* American Association of State Highway and Transportation Officials (AASHTO), 2018.

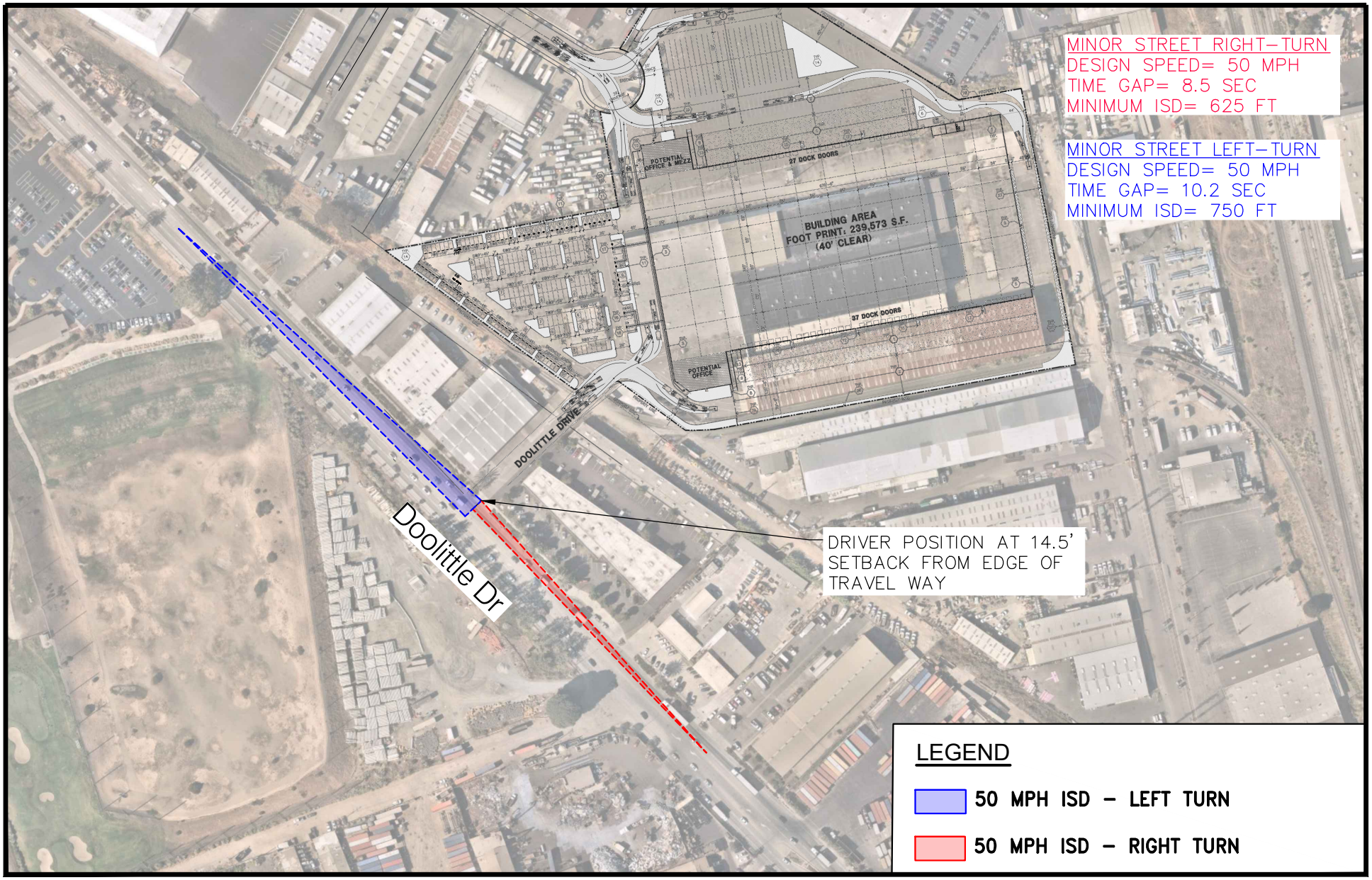

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FIGURE 15

INTERSECTION #1 INTERSECTION SIGHT DISTANCE

8. PARKING

This chapter summarizes the Project's parking requirements.

SAN LEANDRO PARKING REQUIREMENTS

Parking requirements for land uses within the City of San Leandro are provided in Chapter 4.08.108 of the San Leandro Municipal Code. This section includes parking requirements for vehicles and bicycles.

VEHICLE PARKING REQUIRED

Required parking for vehicles is based on land use. In accordance with the San Leandro Municipal Code, parking for office, warehousing, distributions, and storage facilities shall be provided at the following rates:

- Office: 1 space per 300 square feet
- Warehousing, Distributions and Storage Facilities: 1 space per 1,500 square feet

Assuming the project site has a 10,000-square foot office and a 229,573-square foot warehouse, the City requires 203 spaces. The project provides a total of 204 parking spaces and 59 trailer parking stalls, which provides adequate parking as required by the City.

The California Green Building Standard Code requires at least 10 percent of the total parking spaces to be Electric Vehicle (EV) Ready parking spaces. With the proposed 204 parking spaces, the project would be required to designate at least 21 EV Ready parking spaces. 21 EV spaces are proposed, which meets the requirement.

The 2010 Americans with Disabilities Act (ADA) Standards for Accessible Design requires at least seven accessible parking spaces for a parking facility with 201 to 300 parking spaces. With the proposed 204 parking spaces, the project would be required to designate at least seven accessible parking spaces. The project is proposing eight accessible parking spaces, which meets the requirement.

BICYCLE PARKING REQUIRED

Required parking for bicycles is based on type of land use. Bicycle parking for office, warehousing, distribution, and storage facilities is to be provided at the following rates:

- Short-term: 5% of the requirement for automobile parking spaces
- Long-term: 5% of the requirement for automobile parking spaces

With 204 parking spaces proposed, this results in 11 required long-term and 11 short-term bicycle parking spaces.

The site provides 12 long-term and 12 short-term bicycle parking spaces, which meets the City's requirement.

9. CONCLUSION

This section summarizes the results and recommendations of this TIA.

PROJECT RECOMMENDATIONS

OFF-SITE ROADWAY IMPROVEMENTS

The project does not propose any off-site roadway improvements associated with the project design.

PEDESTRIAN FACILITIES

Continuous sidewalks exist on both sides of Doolittle Drive, both sides of Adams Avenue, and on the east side of Hester Street. There are also existing signalized crossings in the north, east, and south directions at the intersection of Doolittle Drive and Davis Street, and existing signalized crossings in the north and east directions at the intersection of Doolittle Drive and Davis Street.

Within the project site, there are marked pedestrian crosswalks connecting the accessible parking spaces to the west side building sidewalk. There are sidewalks along the west side of the building which provide access to the office spaces.

BICYCLE FACILITIES

Bicycles will have access to the project site using the Class II bicycle lanes along Doolittle Drive and Adams Avenue. Therefore, no additional bicycle facilities are proposed. The project is proposing to include 12 short-term and 12 long-term bicycle parking spaces on-site, which satisfy the City's requirements.

TRANSIT FACILITIES

Alameda-Contra Costa Transit District (AC Transit) bus routes 34, 35, 73, 98, 805 operate within the study area, with the nearest bus stop located at the intersection of Westgate Parkway and Davis Street, which is approximately 0.9 miles southeast of the project site. The San Leandro LINKS shuttle is a free shuttle to and from the San Leandro BART station, which is 2.1 miles east of the project site, that operates a North Loop and South Loop. The North Loop has an existing stop located at Doolittle Drive and Davis Street. Pedestrians can travel between the LINKS bus stop and the project site using the existing sidewalks located along both sides of Davis Street. Since the LINKS route serves as a sufficient transit facility in proximity to the project along Davis Street to nearby complimentary uses, no additional transit facilities are recommended to be constructed by the project.

PARKING REQUIREMENTS

The project is proposing to provide 204 parking spaces and 59 trailer parking stalls. The City requires a minimum of 204 spaces. Therefore, the project does provide enough parking to satisfy the City's requirements.

The California Green Building Standard Code requires at least 10 percent of the total parking spaces to be Electric Vehicle (EV) Ready parking spaces. With the proposed 204 parking spaces, the project would be required to designate 21 EV Ready parking spaces. 21 EV spaces are proposed, which meets the requirement.

The 2010 Americans with Disabilities Act (ADA) Standards for Accessible Design requires at least seven accessible parking spaces for a parking facility with 201 to 300 parking spaces. With the proposed 204 parking spaces, the project would be required to designate at least seven accessible parking spaces. The project is proposing eight accessible parking spaces, which meets the requirement.

PROJECT DRIVEWAYS

The development of the proposed Project will access the following existing driveways:

- Doolittle Drive and West Project Driveway
  - Stop-controlled westbound movement for project driveway
  - Full access
- Hester Street and North Project Driveway
  - Stop-controlled eastbound and westbound movement for project driveway
  - Full access

PROJECT IMPACTS AND MITIGATIONS

As discussed previously in the Chapter 6, the project VMT/employee (i.e. 15.34 in 2020 and 16.08 in 2040) is not expected to exceed the threshold of significance for VMT/employee for Central Planning Area (i.e. 16.3 in 2020 and 16.2 in 2040) and the project will result in a less than significant transportation impact. No mitigation needed.

PROJECT DEFICIENCIES

LOS DEFICIENCIES

In cases when the project traffic worsens an intersection from an acceptable LOS to an unacceptable LOS or if the project traffic increases the intersection v/c by 0.05 for an intersection that is already operating unacceptably without the project, this is considered a project deficiency. Based on the results of the traffic analysis, the following intersection project deficiencies are noted:

- Intersection #5 – Doolittle Drive and Davis Street
  - Near Term Plus Project (AM peak hour)
  - Cumulative Plus Project (AM peak hour)

Project LOS Deficiency: Doolittle Drive and Davis Street (Intersection #5)

The intersection of Doolittle Drive and Davis Street will have an LOS deficiency in the Near Term Plus Project and Cumulative Plus Project for the AM peak hour.

Near Term Plus Project

In the Near Term Plus Project conditions, the intersection of Doolittle Drive and Davis Street will operate at an unacceptable LOS F with a delay of 127.4 seconds and a v/c ratio of 1.04 in the AM peak hour. The intersection operates at an unacceptable LOS F without the project with a delay of 110.7 seconds and a v/c ratio of 0.97 in the AM peak hour. Since the intersection operates at an unacceptable LOS for without project conditions and the addition of project trips causes the v/c ratio to increase by more than 0.04, this is a project deficiency.

Deficiency Improvement. Optimizing signal timings for this intersection would improve the delay to 89.7 seconds and the v/c ratio to 1.01 in the AM peak hour in the Near Term Plus Project condition. Since the v/c ratio would increase by less than 0.05, this would no longer be a deficiency with the proposed improvement. Traffic signal control analysis sheets can be found in **Appendix C**.

Cumulative Plus Project

In the Cumulative Plus Project conditions, the intersection of Doolittle Drive and Davis Street will operate at an unacceptable LOS F with a delay of 173.2 seconds and a v/c ratio of 1.27 in the AM peak hour. The intersection operates at an unacceptable LOS F without the project with a delay of 156.8 seconds and a v/c ratio of 1.20 in the AM peak hour. Since the intersection operates at an unacceptable LOS for without project conditions and the addition of project trips causes the v/c ratio to increase by more than 0.04, this is a project deficiency.

Deficiency Improvement. Optimizing signal timings for this intersection would improve the delay to 129.6 seconds and the v/c ratio to 1.22 in the AM peak hour in the Cumulative Plus Project condition. Since the v/c ratio would increase by less than 0.05, this would no longer be a deficiency with the proposed improvement. Traffic signal control analysis sheets can be found in **Appendix C**.

QUEUING DEFICIENCIES

In cases when the addition of project trips causes a queue to exceed the turn pocket length or increase by one or more vehicles for vehicle queues that already exceed the turn pocket length, an intersection project queuing deficiency was identified. Based on the results of the traffic analysis, no intersection project queuing deficiencies are noted.

ROADWAY SEGMENT DEFICIENCIES

In cases when the addition of project trips causes an acceptably operating roadway segment to operate at an unacceptable LOS F or increases the v/c of an unacceptably operating roadway segment by more than 0.02, a roadway segment project deficiency was identified. Based on the results of the traffic analysis, the following roadway segment project deficiencies are noted:

- Year 2020 Plus Project
    - Northbound Doolittle Drive from Davis Street to West Project Driveway
- Year 2040 Plus Project
    - Northbound Doolittle Drive from Davis Street to West Project Driveway
    - Southbound Doolittle Drive from West Project Driveway to Davis Street
    - Westbound Davis Street from I-880 SB Ramps to Doolittle Drive

Based on the Alameda CTC methodology, each roadway segment would need to be widened to add additional through lanes on Doolittle Drive and Davis Street. Since each roadway segment has adjacent land uses and is built out, it is infeasible to add additional travel lanes on Doolittle Drive and Davis Street. In addition, Davis Street between the I-880 SB Ramps and Doolittle Drive includes a bridge section that would make widening infeasible.

APPENDIX

A - URBAN CROSSROADS STUDY

B - ACTC CENTRAL PLANNING AREA VMT MAPS

C - SYNCHRO OUTPUTS

A- URBAN CROSSROADS STUDY

880 Doolittle

TRAFFIC ANALYSIS

CITY OF SAN LEANDRO

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OCTOBER 21, 2021

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LIST OF EXHIBITS

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LIST OF ABBREVIATED TERMS

(1)	Reference
ABAG	Association of Bay Area Governments
AC Transit	Alameda-Contra Costa Transit District
ADT	Average Daily Traffic
BART	Bay Area Rapid Transit
CA MUTCD	California Manual on Uniform Traffic Control Devices
Caltrans	California Department of Transportation
CMP	Congestion Management Program
E+P	Existing Plus Project
HCM	Highway Capacity Manual
ITE	Institute of Transportation Engineers
LOS	Level of Service
N/A	Not Applicable
NCHRP	National Cooperative Highway Research Program
NP	No Project (or Without Project)
PHF	Peak Hour Factor
Project	880 Doolittle
RTA	Riverside Transit Authority
sf	Square Feet
TA	Traffic Analysis
TSF	Thousand Square Feet
UPRR	Union Pacific Railroad
WP	With Project
v/c	Volume to Capacity
VMT	Vehicle Miles Traveled

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1 INTRODUCTION

This report presents the results of the traffic analysis (TA) for the proposed 880 Doolittle development (Project), which is located at 880 Doolittle Drive within the City of San Leandro as shown on Exhibit 1-1.

The purpose of this TA is to evaluate the potential deficiencies related to traffic and circulation system operations that may result from the development of the proposed Project, and to recommend improvements to mitigate potential deficiencies in order to achieve acceptable circulation system operations. This report has been prepared through consultation with City of San Leandro staff and their consultants.

1.1 SUMMARY OF FINDINGS

The following improvement has been identified as a cumulative traffic deficiency under Horizon Year (2040) traffic conditions:

- The intersection of Doolittle Drive and Project Driveway was found to operate at an acceptable LOS for Existing, E+P, and Horizon Year (2040) Without Project traffic conditions, however the intersection was found to operate at an unacceptable LOS during the peak hours under Horizon Year (2040) With Project traffic conditions. As such, a traffic signal has been recommended at this location and the Project should contribute fair share payment towards this improvement.

Additional details and intersection lane geometrics are provided in Section 1.7 *Site Access Improvements* of this report. The proposed Project will contribute to both existing and future year deficiencies, however, the net change in the proposed Project traffic is not anticipated to have a measurable effect with the exception of the intersection of the intersection of Doolittle Drive and Project Driveway.

1.2 PROJECT OVERVIEW

The Project is proposed to consist of a 106,190 square foot distribution warehouse use (square footage includes mezzanine space). Vehicular and truck traffic access will be provided via Hester Street and Doolittle Drive (see Exhibit 1-2). Specifically, all truck access to the site will occur off Hester Street, employee access is provided via both Hester Street and Doolittle Drive (via Project Driveway), and all van access is to occur off of Doolittle Drive (via Project Driveway). Regional access to the Project site is provided via the I-880 Freeway via 98th Avenue and Davis Street interchanges.

EXHIBIT 1-1: LOCATION MAP

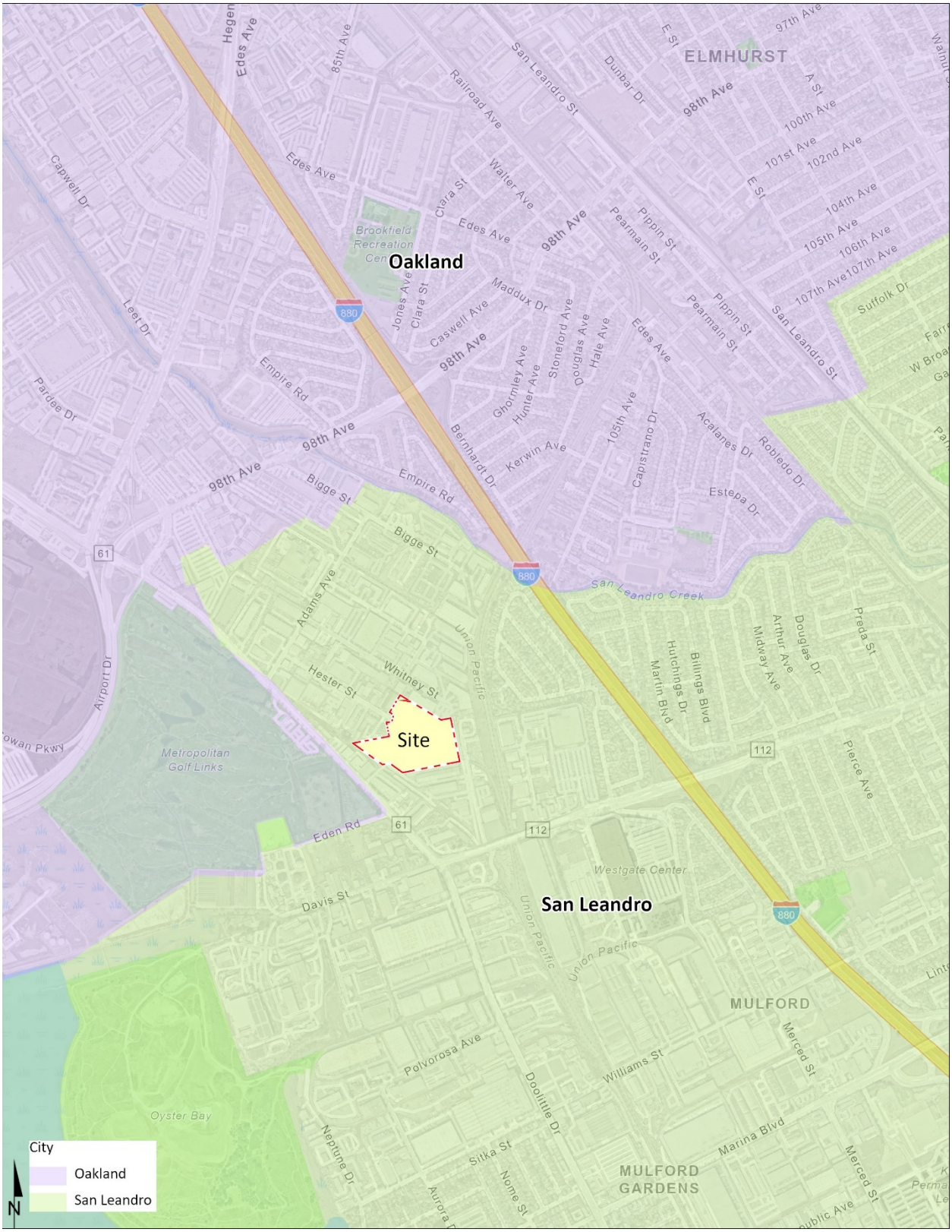
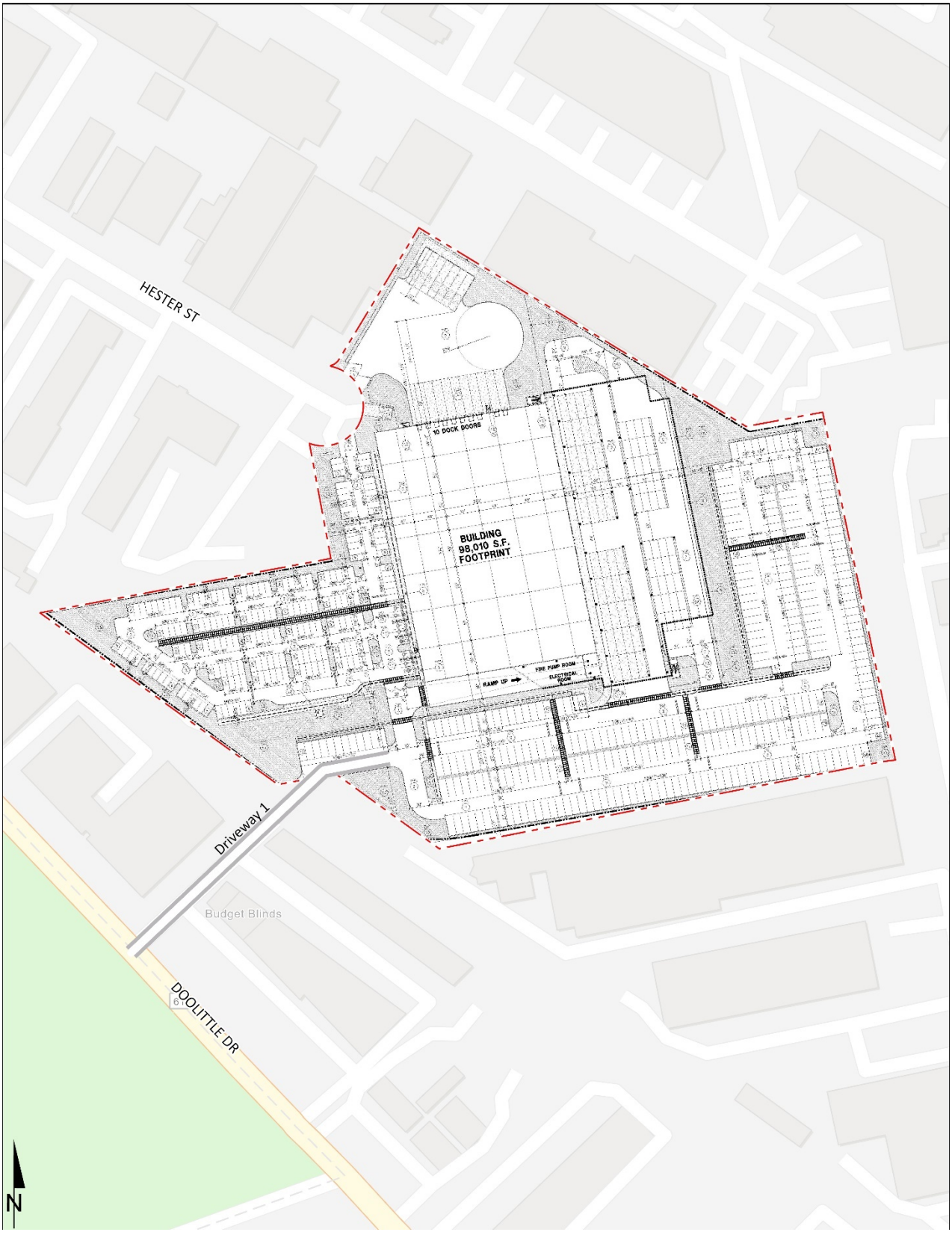


EXHIBIT 1-2: PRELIMINARY SITE PLAN



The trip generation estimates for the proposed Project have been developed using data provided by the future tenant. The Project is estimated to generate 1,136 two-way trips per day on a typical weekday with approximately 196 AM peak hour trips and 83 PM peak hour trips. The site is currently occupied by an existing use, as such, the Project is anticipated to generate 409 fewer two-way trips per day, with 32 net new AM peak hour trips and 58 fewer net PM peak hour trips. The assumptions and methods used to estimate the Project's trip generation characteristics are discussed in greater detail in Section 4.1 *Project Trip Generation* of this report.

1.3 ANALYSIS SCENARIOS

For the purposes of this traffic study, potential deficiencies to traffic and circulation have been assessed for each of the following conditions:

- Existing (2020)
- Existing Plus Project (E+P)
- Horizon Year (2040) Without and With Project

1.3.1 EXISTING (2020) CONDITIONS

Information for Existing (2020) conditions is disclosed to represent the baseline traffic conditions as they existed at the time this report was prepared. Due to the currently ongoing COVID-19 pandemic, 2015 traffic counts were adjusted by 0.772% per year (compounded annually) over 5 years to reflect 2020 baseline traffic conditions. This annual growth rate is based on the average Association of Bay Area Governments (ABAG) projected growth for employment, population, and households for San Leandro. The 2015 counts (adjusted to 2020) were then compared to the recently collected 2020 counts in order to determine the net changes and to develop an adjustment factor. The average of all applicable locations was calculated to be 127% for AM and 106% for the PM. As such, the locations where historic count data were not available, the 2020 counts that were recently collected were increased by 127% in the AM peak hour and 106% in the PM peak hour. For the locations where both historic and actual 2020 data is available, the final adjusted 2020 traffic volumes were developed by taking the higher of the 2 volumes (between either the adjusted 2015 or the actual 2020).

1.3.2 EXISTING PLUS PROJECT CONDITIONS

The Existing Plus Project (E+P) analysis determines any traffic operation and circulation system deficiencies that would occur on the existing roadway system in the scenario of the Project being placed upon Existing conditions. The net new traffic proposed to be generated by the Project has been utilized for the purposes of this TA (delta of the proposed Project and existing use).

1.3.3 HORIZON YEAR (2040) CONDITIONS

The City's traffic consultant has provided future long-range Horizon Year (2040) Without Project traffic forecasts based on the Alameda Countywide Travel Demand Model. Net new Project traffic has been added to develop the Horizon Year (2040) With Project traffic forecasts. A

comparison of Horizon Year (2040) Without and With Project traffic conditions will be used to identify long-range peak hour cumulative intersection operational deficiencies.

1.4 STUDY AREA

To ensure that this TA satisfies the City of San Leandro traffic study requirements, Urban Crossroads, Inc. has coordinated with City staff to determine the proposed study area for this TA. The 14 study area intersections shown on Exhibit 1-3 and listed in Table 1-1 were selected for this TA. It should be noted, the Project contributes fewer than 50 net new peak hour trips at all study area intersections.

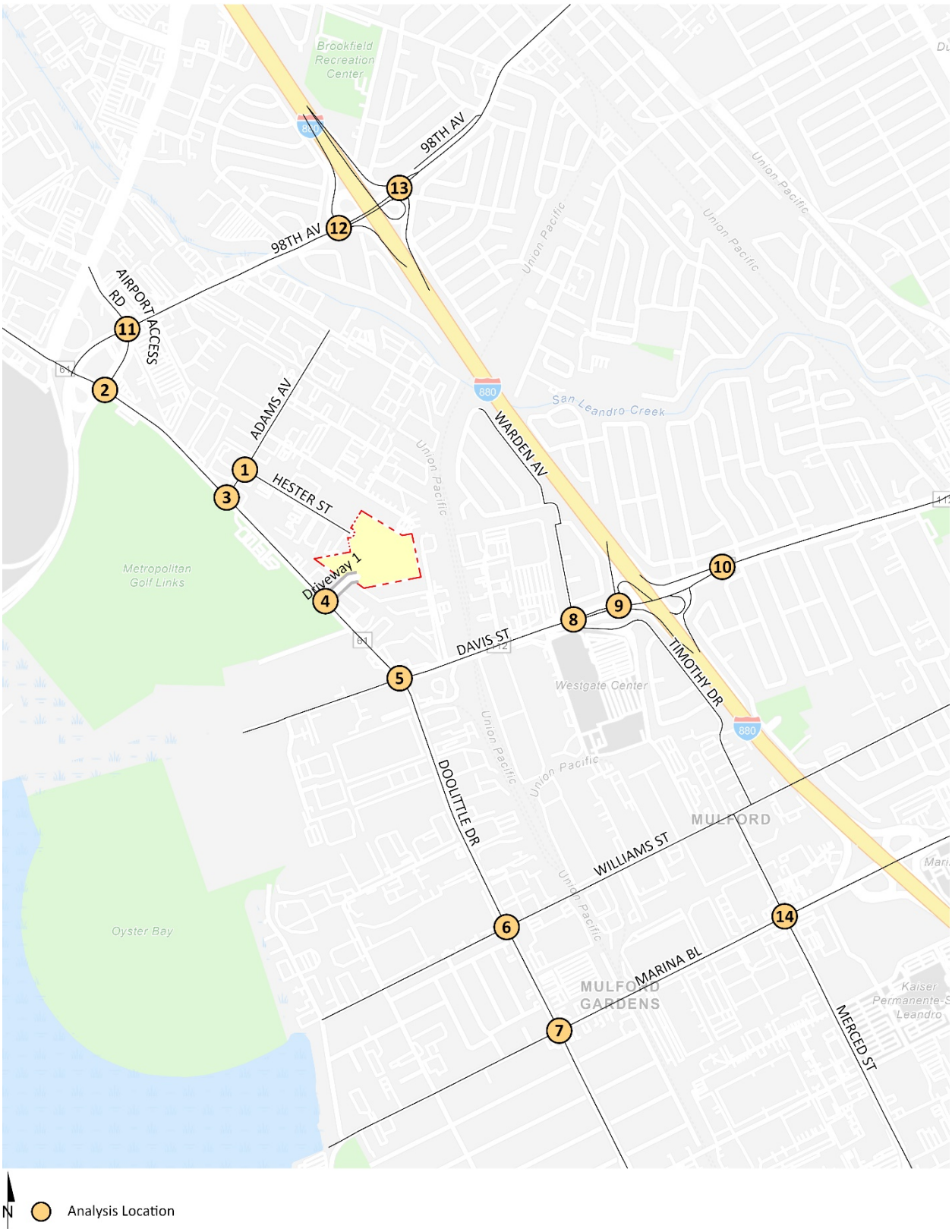
TABLE 1-1: INTERSECTION ANALYSIS LOCATIONS

ID	Intersection	Jurisdiction	CMP?
1	Hester St. & Adams Av.	City of San Leandro	No
2	Doolittle Dr. & Airport Access Rd.	City of Oakland	Yes
3	Doolittle Dr. & Adams Av.	City of San Leandro, City of Oakland	No
4	Doolittle Dr. & Project Dwy.	City of San Leandro, City of Oakland	No
5	Doolittle Dr. & Davis St.	City of San Leandro	Yes
6	Doolittle Dr. & Williams St.	City of San Leandro	No
7	Doolittle Dr. & Marina Bl.	City of San Leandro	Yes
8	Warden Av. & Davis St.	City of San Leandro	No
9	I-880 SB Ramps & Davis St.	City of San Leandro	Yes
10	I-880 NB Ramps & Davis St.	City of San Leandro	Yes
11	Airport Access Rd. & 98th Av.	City of Oakland	Yes
12	I-880 SB Ramps & 98th Av.	City of Oakland	Yes
13	I-880 NB Ramps & 98th Av.	City of Oakland	Yes
14	Merced St. & Marina Bl.	City of San Leandro	Yes

Note: A CMP intersection has been identified for any two CMP roadways that intersect one another.

The intent of a Congestion Management Program (CMP) is to more directly link land use, transportation, and air quality, thereby prompting reasonable growth management programs that will effectively utilize new transportation funds, alleviate traffic congestion and related deficiencies, and improve air quality. Counties within California have developed CMPs with varying methods and strategies to meet the intent of the CMP legislation. (1)

EXHIBIT 1-3: STUDY AREA



1.5 DEFICIENCIES

This section provides a summary of deficiencies by analysis scenario. Section 2 *Methodologies* provides information on the methodologies used in the analysis and Section 6 *Horizon Year (2040) Traffic Conditions* includes the detailed analysis. A summary of level of service (LOS) results for all analysis scenarios is presented on Table 1-2, which indicates that the following intersections will experience deficiencies under Existing and E+P traffic conditions:

- Doolittle Dr. & David St. (#5) – LOS E AM peak hour only
- Merced St. & Marina Bl. (#14) – LOS E PM peak hour only

As shown in Table 1-2, the following additional intersections are anticipated to operate at an unacceptable LOS during one or more peak hours under Horizon Year (2040) Without and With Project traffic conditions:

- Doolittle Dr. & Project Driveway (#4) – LOS E AM peak hour only (With Project only)
- Doolittle Dr. & Marina Bl. (#7) – LOS E PM peak hour only
- Airport Access Rd. & 98th Av. (#11) – LOS F PM peak hour only
- Merced St. & Marina Bl. (#14) – LOS E AM and PM peak hours

TABLE 1-2: SUMMARY OF LOS BY ANALYSIS SCENARIO

#	Intersection	Existing		E+P		2040 Without Project		2040 With Project	
		AM	PM	AM	PM	AM	PM	AM	PM
1	Hester St. & Adams Av.	A-D	A-D	A-D	A-D	A-D	A-D	A-D	A-D
2	Doolittle Dr. & Airport Access Rd.	A-D	A-D	A-D	A-D	A-D	A-D	A-D	A-D
3	Doolittle Dr. & Adams Av.	A-D	A-D	A-D	A-D	A-D	A-D	A-D	A-D
4	Doolittle Dr. & Project Dwy.	A-D	A-D	A-D	A-D	A-D	A-D	E	A-D
5	Doolittle Dr. & Davis St.	E	A-D	E	A-D	F	F	E	F
6	Doolittle Dr. & Williams St.	A-D	A-D	A-D	A-D	A-D	A-D	A-D	A-D
7	Doolittle Dr. & Marina Bl.	A-D	A-D	A-D	A-D	A-D	E	A-D	E
8	Warden Av. & Davis St.	A-D	A-D	A-D	A-D	A-D	A-D	A-D	A-D
9	I-880 SB Ramps & Davis St.	A-D	A-D	A-D	A-D	A-D	A-D	A-D	A-D
10	I-880 NB Ramps & Davis St.	A-D	A-D	A-D	A-D	A-D	A-D	A-D	A-D
11	Airport Access Rd. & 98th Av.	A-D	A-D	A-D	A-D	A-D	F	A-D	F
12	I-880 SB Ramps & 98th Av.	A-D	A-D	A-D	A-D	A-D	A-D	A-D	A-D
13	I-880 NB Ramps & 98th Av.	A-D	A-D	A-D	A-D	A-D	A-D	A-D	A-D
14	Merced St. & Marina Bl.	A-D	E	A-D	E	E	E	E	E

LOS=A-D LOS=E LOS=F

1.6 RECOMMENDATIONS

This section provides a summary of deficiencies by analysis scenario. Section 2 *Methodologies* provides information on the methodologies used in the analysis and Section 5 *E+P Traffic Conditions* and Section 6 *Horizon Year (2040) Traffic Conditions* includes the detailed analysis.

1.6.1 E+P CONDITIONS

The following study area intersections are anticipated to operate at an unacceptable LOS under E+P traffic conditions:

- Doolittle Dr. & Davis St. (#5) – LOS E AM peak hour only (consistent with Existing conditions)
- Merced St. & Marina Bl. (#14) – LOS E PM peak hour only (consistent with Existing conditions)

The addition of Project traffic at these two locations is anticipated to result in a change to the volume-to-capacity (v/c) ratio of less than 0.05. As such, no improvements have been recommended at these locations for E+P traffic conditions.

The following turning movements are anticipated to experience queuing issues for E+P traffic conditions and are consistent with existing deficient turning movements, however, the addition of Project traffic to these existing deficiencies result in nominal changes:

- Doolittle Dr. & Davis St. (#5) – Southbound left PM peak hour only
- Doolittle Dr. & Davis St. (#5) – Westbound right turn lane AM and PM peak hours
- Doolittle Dr. & Williams St. (#6) – Southbound left PM peak hour only
- Doolittle Dr. & Marina Bl. (#7) – Southbound left AM and PM peak hours
- Doolittle Dr. & Marina Bl. (#7) – Westbound left AM and PM peak hours
- Warden Av. & Davis St. (#8) – Southbound left AM peak hour only
- Airport Access Rd. & 98th Av. (#11) – Westbound left PM peak hour only

1.6.2 HORIZON YEAR (2040) CONDITIONS

The following study area intersections are anticipated to operate at a deficient LOS during one or both peak hours under Horizon Year (2040) Without Project traffic conditions:

- Doolittle Dr. & Davis St. (#5) – LOS F AM and PM peak hours
- Doolittle Dr. & Marina Bl. (#7) – LOS E PM peak hour only
- Airport Access Rd. & 98th Av. (#11) – LOS F PM peak hour only
- Merced St. & Marina Bl. (#14) – LOS E AM and PM peak hours

The addition of Project traffic is anticipated to have a significant effect on the intersection of Doolittle Drive and the Project Driveway only. The addition of Project traffic at the other two locations is anticipated to result in a change to the v/c ratio of less than 0.05. As such, no improvements have been recommended at those locations for Horizon Year (2040) With Project traffic conditions. Additional details and intersection lane geometrics are provided in Section 1.7 *Recommendations* of this report.

The following additional turning movements are anticipated to experience queuing issues for Horizon Year (2040) Without Project traffic conditions in addition to the existing deficient turning movements, however, the addition of Project traffic to these pre-project deficiencies result in nominal changes:

- Airport Access Rd. & 98th Av. (#11) – Southbound left PM peak hour only
- Merced St. & Marina Bl. (#14) – Westbound left AM peak hour only

1.7 SITE ACCESS IMPROVEMENTS

The recommended site access driveway improvements for the Project are described below. Exhibit 1-4 illustrates the site access improvements. Construction of on-site and site adjacent improvements shall occur in conjunction with adjacent Project development activity or as needed for Project access purposes.

Hester St. & Adams Av. (#1) – Maintain existing traffic control and lane geometrics at this intersection.

Hester St. & Project Driveway – This is a new Project driveway/access at the southern terminus of Hester Street. The southbound approach on Hester Street approaching the Project is an existing lane. There is also a new driveway proposed to the southeast corner of the cul-de-sac that will lead into the truck court. There is also a new driveway proposed to the southwest corner of the cul-de-sac that will lead to the passenger car parking lot. Both the Project access points at the southern terminus should be signed with stop controls for the exiting Project traffic.

Doolittle Dr. & Project Driveway (#4) – It is recommended the Project will install a traffic signal at Driveway 1 on Doolittle Drive but would defer the installation of the traffic signal to a future date when the intersection meets the appropriate California Manual on Uniform Traffic Control Devices (CA MUTCD) warrants. The intersection should be monitored, and a traffic signal installed when the appropriate warrants are met. No other lane improvements are recommended.

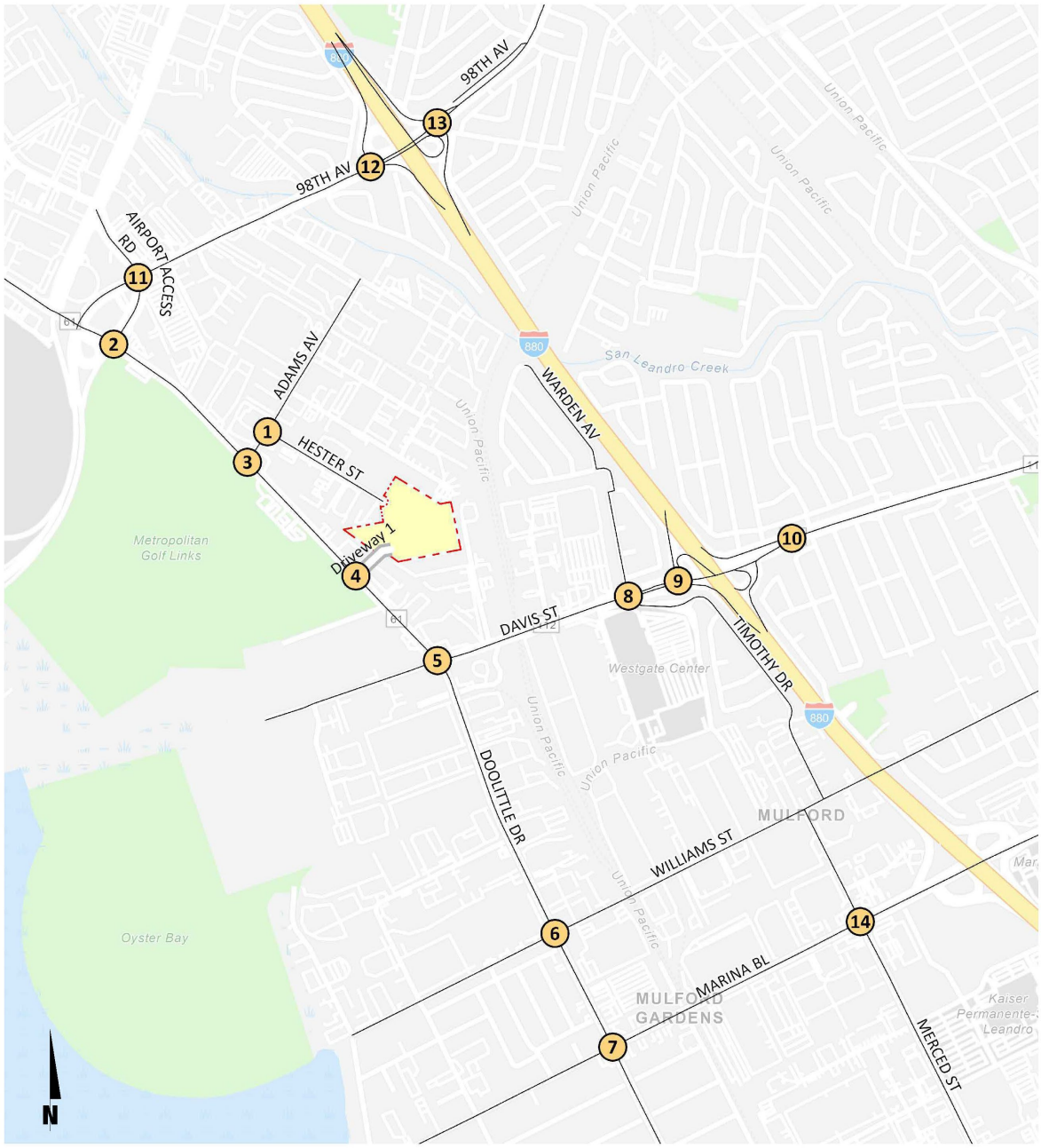
Site access improvements for the driveways at the southern terminus of Hester Street are also shown on Exhibit 1-4.

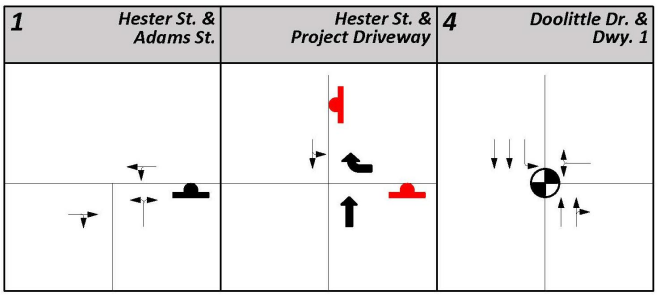
Wherever necessary, roadways adjacent to the Project, site access points and site-adjacent intersections will be constructed to be consistent with the identified roadway classifications and respective cross-sections in the City of San Leandro General Plan Circulation Element.

On-site traffic signing and striping should be implemented agreeable with the provisions of the California Manual on Uniform Traffic Control Devices (CA MUTCD) and in conjunction with detailed construction plans for the Project site.

Sight distance at each project access point should be reviewed with respect to standard City of San Leandro sight distance standards at the time of preparation of final grading, landscape, and street improvement plans.

EXHIBIT 1-4: SITE ACCESS RECOMMENDATIONS





= New Traffic Signal
= Stop Sign
= Stop Sign Improvement
= Existing Lane
= Lane Improvement

Note: The Project will install a traffic signal at Driveway 1 on Doolittle Drive but would defer the installation of the traffic signal to a future date when the intersection meets the appropriate CA MUTCD warrants. The intersection should be monitored and a traffic signal installed when the appropriate warrants are met.

1.8 QUEUING ANALYSIS AT THE PROJECT DRIVEWAYS

A queuing analysis was conducted for the Project Driveway on Doolittle Drive in addition to the intersection of Hester Street at Adams Avenue for Horizon Year (2040) With Project traffic conditions to determine the 95th percentile queues. The analysis was conducted for the weekday AM and weekday PM peak hours. The traffic modeling and signal timing optimization software package Synchro/SimTraffic (Version 10) has been utilized to assess queues at the aforementioned intersections.

Synchro is a macroscopic traffic software program that is based on the signalized and unsignalized intersection capacity analyses as specified in the Highway Capacity Manual (HCM). SimTraffic is designed to model networks of signalized and unsignalized intersections, with the primary purpose of checking and fine-tuning signal operations. SimTraffic uses the input parameters from Synchro to generate random simulations. The 95th percentile queue is not necessarily ever observed; it is simply based on statistical calculations (or Average Queue plus 1.65 standard deviations). Many jurisdictions utilize the 95th percentile queues for design purposes. SimTraffic simulations have been recorded 5 times, during the weekday AM and weekday PM peak hours, and have been seeded for 15-minute periods with 60-minute recording intervals. Queuing results are provided in Appendix 1.1. Analysis results are summarized in Table 1-3.

TABLE 1-3: SITE ACCESS PEAK HOUR QUEUING SUMMARY

#	Intersection	Movement	Available Stacking Distance (Feet)	2040 With Project 95th % Queue (ft)		2040 With Project Acceptable? [1]	
				AM	PM	AM	PM
1	Hester St. & Adams Av.	NBL/R	100	68	60	Yes	Yes
		EBT/R	135	4	0	Yes	Yes
		WBL/T	150	34	21	Yes	Yes
4	Doolittle Dr. & Project Driveway	NBT/R	300	168	169	Yes	Yes
		SBL	100	47	32	Yes	Yes
		SBT/R	300	186	160	Yes	Yes
		WBL/R	265	150	86	Yes	Yes

[1] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 25 feet (1 car length) of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table, where applicable.

As shown in Table 1-3, there are no queuing issues anticipated at the site access locations for Horizon Year (2040) With Project traffic conditions. Note there is an existing at-grade rail spur located approximately 265-feet east of Doolittle Drive along the Project Driveway. However, the 95th peak hour queues demonstrate that queues are not anticipated to extend back to the existing rail spur.

1.9 TRUCK ACCESS

Due to the typical wide turning radius of large trucks, a truck turning template has been overlaid on the site plan at the applicable driveway at the southern terminus of Hester Street in conjunction with the intersection of Hester Street at Adams Avenue in order to determine appropriate curb radii and to verify that trucks will have sufficient space to execute turning maneuvers. As shown on Exhibit 1-5, the existing and proposed curb radii are anticipated to accommodate the wide turning radius of heavy trucks (WB-67, which has a 53-foot trailer). As such, no modifications have been recommended.

1.10 VEHICLE PARKING

Based on the City's Municipal Code (Section 4.08.108) the Project's minimum parking is as follows:

- Office = 1 space / 300 square feet (sf) = 12,605 sf / 300 = 42 spaces
- Warehouse = 1 space / 1,000 sf = 93,585 sf / 1,500 = 94 spaces
- **Total of 136 spaces**

However, the Project is anticipated to provide the following parking spaces:

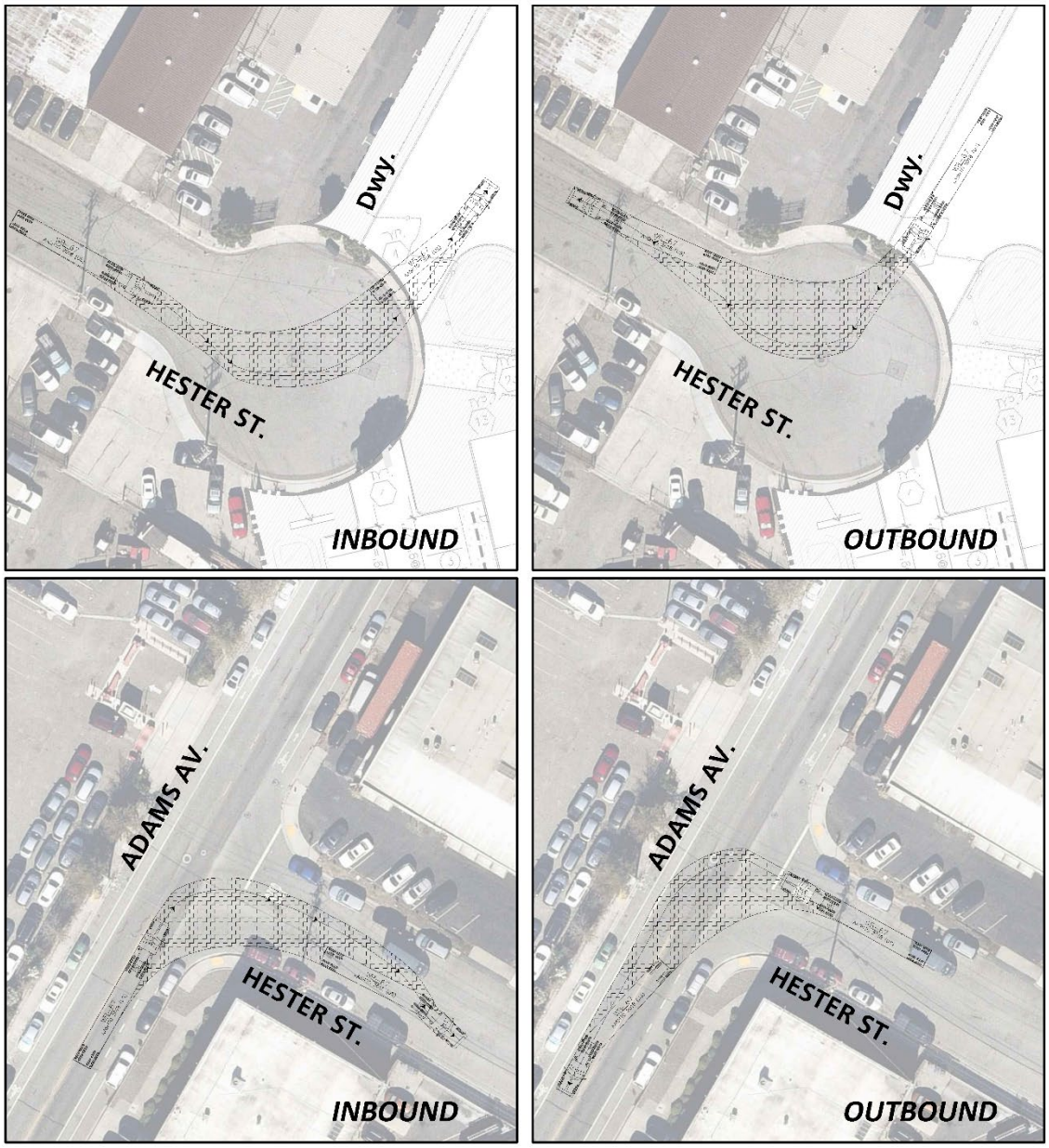
- Standard Stalls = 197 spaces
- Americans with Disabilities Act (ADA) Standard Stalls = 8 spaces
- ADA Van Stalls = 2 spaces
- Van Stalls = 434 spaces
- Van Staging = 40 spaces
- Van Loading = 36 spaces
- Trailer Stalls = 18 spaces
- **Total of 735 spaces**

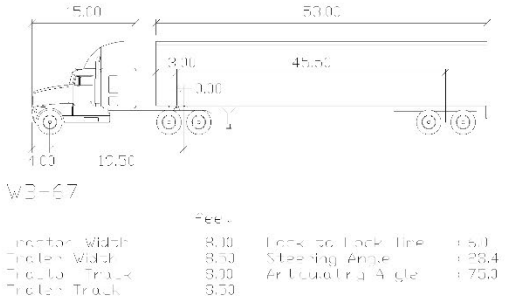
Although the City's Municipal Code does not account for the proposed van parking spaces, it has been verified that the proposed number of van stalls can accommodate the anticipated number of vans (434 stalls plus 2 ADA stalls). The Project is anticipated to generate 250 van trips per day which equates to 125 vans. The proposed number of van stalls (436) can adequately park the proposed 125 vans per day and the 125 van drivers that would park their personal vehicles near their vans. As such, the proposed Project exceeds the City's standard parking requirements based on both the standard stall spaces and total parking spaces.

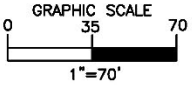
1.11 BICYCLE PARKING

Based on the City's Municipal Code (Section 4.08.128), the minimum bicycle parking is determined based on 5 percent of the vehicle parking, or 10 bicycle parking spaces (based on 207 standard vehicle parking spaces). The Project intends to accommodate 1 bike rack for every 2 spaces, or 104 bicycle racks based on a total of 207 standard vehicle parking spaces.

EXHIBIT 1-5: TRUCK TEMPLATES







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2 METHODOLOGIES

This section of the report presents the methodologies used to perform the traffic analyses summarized in this report. The methodologies described are generally consistent with City of San Leandro traffic study guidelines.

2.1 LEVEL OF SERVICE

Traffic operations of roadway facilities are described using the term "Level of Service" (LOS). LOS is a qualitative description of traffic flow based on several factors such as speed, travel time, delay, and freedom to maneuver. Six levels are typically defined ranging from LOS A, representing completely free-flow conditions, to LOS F, representing breakdown in flow resulting in stop-and-go conditions. LOS E represents operations at or near capacity, an unstable level where vehicles are operating with the minimum spacing for maintaining uniform flow.

2.2 INTERSECTION CAPACITY ANALYSIS

The definitions of LOS for interrupted traffic flow (flow restrained by the existence of traffic signals and other traffic control devices) differ slightly depending on the type of traffic control. The LOS is typically dependent on the quality of traffic flow at the intersections along a roadway. The Highway Capacity Manual (HCM) methodology expresses the LOS at an intersection in terms of delay time for the various intersection approaches. (2) The HCM uses different procedures depending on the type of intersection control.

2.2.1 SIGNALIZED INTERSECTIONS

The City of San Leandro and City of Oakland require signalized intersection operations analysis based on the methodology described in the HCM. (2) Intersection LOS operations are based on an intersection's average control delay. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. For signalized intersections, LOS is directly related to the average control delay per vehicle and is correlated to a LOS designation as described in Table 2-1. Study area intersections have been evaluated using the Synchro (Version 10) analysis software package.

Synchro is a macroscopic traffic software program that is based on the signalized intersection capacity analysis as specified in the HCM. Macroscopic level models represent traffic in terms of aggregate measures for each movement at the study intersections. Equations are used to determine measures of effectiveness such as delay and queue length. The level of service and capacity analysis performed by Synchro takes into consideration optimization and coordination of signalized intersections within a network.

TABLE 2-1: SIGNALIZED INTERSECTION LOS THRESHOLDS

Description	Average Control Delay (Seconds), V/C ≤ 1.0	Level of Service, V/C ≤ 1.0	Level of Service, V/C > 1.0
Operations with very low delay occurring with favorable progression and/or short cycle length.	0 to 10.00	A	F
Operations with low delay occurring with good progression and/or short cycle lengths.	10.01 to 20.00	B	F
Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	20.01 to 35.00	C	F
Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	35.01 to 55.00	D	F
Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	55.01 to 80.00	E	F
Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths	80.01 and up	F	F

Source: HCM 2000

The peak hour traffic volumes have been adjusted using a peak hour factor (PHF) to reflect peak 15-minute volumes. Common practice for LOS analysis is to use a peak 15-minute rate of flow. However, flow rates are typically expressed in vehicles per hour. The PHF is the relationship between the peak 15-minute flow rate and the full hourly volume (e.g., PHF = [Hourly Volume] / [4 x Peak 15-minute Flow Rate]). The use of a 15-minute PHF produces a more detailed analysis as compared to analyzing vehicles per hour. Existing PHFs have been used for Existing (2020) baseline, E+P, and Horizon Year (2040) traffic conditions.

2.2.2 UNSIGNALIZED INTERSECTIONS

The City of San Leandro and City of Oakland require the operations of unsignalized intersections be evaluated using the methodology described the HCM. (2) The LOS rating is based on the weighted average control delay expressed in seconds per vehicle (see Table 2-2).

TABLE 2-2: UNSIGNALIZED INTERSECTION LOS THRESHOLDS

Description	Average Control Delay Per Vehicle (Seconds)	Level of Service, V/C ≤ 1.0	Level of Service, V/C > 1.0
Little or no delays.	0 to 10.00	A	F
Short traffic delays.	10.01 to 15.00	B	F
Average traffic delays.	15.01 to 25.00	C	F
Long traffic delays.	25.01 to 35.00	D	F
Very long traffic delays.	35.01 to 50.00	E	F
Extreme traffic delays with intersection capacity exceeded.	> 50.00	F	F

Source: HCM 2000

At two-way or side-street stop-controlled intersections, LOS is calculated for each controlled movement and for the left turn movement from the major street, as well as for the intersection as a whole. For approaches composed of a single lane, the delay is computed as the average of all movements in that lane. The "worst case" movement delay and LOS is reported for the intersection. For all-way stop controlled intersections, LOS is computed for the intersection as a whole.

2.3 TRAFFIC SIGNAL WARRANT ANALYSIS METHODOLOGY

The term "signal warrants" refers to the list of established criteria used by the Caltrans and other public agencies to quantitatively justify or ascertain the potential need for installation of a traffic signal at an otherwise unsignalized intersection. This TA uses the signal warrant criteria presented in the latest edition of the California Department of Transportation (Caltrans) California Manual on Uniform Traffic Control Devices *(CA MUTCD)* for all study area intersections. (3)

The signal warrant criteria for Existing conditions are based upon several factors, including volume of vehicular and pedestrian traffic, frequency of accidents, and location of school areas. The Caltrans CA MUTCD indicates that the installation of a traffic signal should be considered if one or more of the signal warrants are met. (3) Specifically, this TA utilizes the Peak Hour Volume-based Warrant 3 as the appropriate representative traffic signal warrant analysis for existing study area intersections for all analysis scenarios. Warrant 3 is appropriate to use for this TA because it provides specialized warrant criteria for intersections with rural characteristics (e.g., located in communities with populations of less than 10,000 persons or with adjacent major streets operating above 40 miles per hour). For the purposes of this study, the speed limit was the basis for determining whether Urban or Rural warrants were used for a given intersection.

Future intersections that do not currently exist have been assessed regarding the potential need for new traffic signals based on future average daily traffic (ADT) volumes, using the Caltrans planning level ADT-based signal warrant analysis worksheets. Traffic signal warrant analyses were performed for the following study area intersection shown in Table 2-3:

TABLE 2-3: TRAFFIC SIGNAL WARRANT ANALYSIS LOCATIONS

ID	Intersection	Jurisdiction
1	Hester St. & Adams Av.	City of San Leandro
4	Doolittle Dr. & Project Dwy.	City of San Leandro, City of Oakland

Traffic signal warrant analyses were performed for all of the full access unsignalized study area intersections. The traffic signal warrant analyses for future conditions are presented in Section 5 *E+P Traffic Analysis* and Section 6 *Horizon Year (2040) Traffic Analysis* of this report.

It is important to note that a signal warrant defines the minimum condition under which the installation of a traffic signal might be warranted. Meeting this threshold condition does not require that a traffic control signal be installed at a particular location, but rather, that other traffic factors and conditions be evaluated in order to determine whether the signal is truly justified. It should also be noted that signal warrants do not necessarily correlate with LOS. An

intersection may satisfy a signal warrant condition and operate at or above acceptable LOS or operate below acceptable LOS and not meet a signal warrant.

2.4 QUEUING ANALYSIS

The 95th percentile queuing of vehicles has been assessed at the signalized study area intersections to determine potential queuing deficiencies for turn pockets (note the queuing at unsignalized intersections were addressed as part of the site access evaluation in Chapter 1). Specifically, the queuing analysis is utilized to identify any potential queuing and "spill back" into the adjacent through lanes.

The traffic progression analysis tool and HCM intersection analysis program, Synchro, has been used to assess the potential deficiencies/needs of the intersections with traffic added from the proposed Project. Storage (turn-pocket) length recommendations at the ramps have been based upon the 95th percentile queue resulting from the Synchro progression analysis. The footnote from the Synchro output sheets indicates if the 95th percentile cycle exceeds capacity. Traffic is simulated for two complete cycles of the 95th percentile traffic in Synchro in order to account for the effects of spillover between cycles. In practice, the 95th percentile queue shown will rarely be exceeded and the queues shown with the footnote are acceptable for the design of storage bays.

Although only the 95th percentile queue has been reported in the tables, the 50th percentile queue can be found in the appendix alongside the 95th percentile queue for each study area intersection. The queue length reported is for the lane with the highest queue in the lane group. The 50th percentile or average queue represents the typical queue length for peak hour traffic conditions, while the 95th percentile queue is derived from the average queue plus 1.65 standard deviations. The 95th percentile queue is not necessarily ever observed it is simply based on statistical calculations.

Similar to the peak hour operations analysis, turn pocket storage recommendations have only been recommended if the intersection operations analysis indicates a deficiency during the peak hours.

2.5 MINIMUM LEVEL OF SERVICE (LOS)

2.5.1 CITY OF SAN LEANDRO

The definition of an intersection deficiency has been obtained from the City of San Leandro' 2035 General Plan. LOS D or better is to be maintained at all City-controlled intersections. (4)

2.5.2 CITY OF OAKLAND

The definition of an intersection deficiency has been obtained from the City of Oakland's General Plan. LOS D or better is to be maintained at all City-controlled intersections outside of the Downtown Area and LOS E or better for intersections located within the Downtown Area. (5)

2.5.3 ALAMEDA CMP

The definition of an intersection deficiency has been obtained from the Alameda County 2018 Level of Service Monitoring Report. LOS E or better is to be maintained at CMP intersections, with the exception of the locations that were found to operate at LOS F in the base monitoring years of 1991 and 1992. (1)

2.5.4 CALTRANS

Although Caltrans has gone away from LOS and has focused their determination of traffic impacts and mitigation on vehicle miles traveled (VMT), a minimum LOS D has been utilized for Caltrans controlled ramp-to-arterial intersections for the purposes of this TA.

2.6 SIGNIFICANCE CRITERIA

This section outlines the methodology used in this analysis related to identifying circulation system deficiencies. The following deficiency criteria has been utilized for the study area intersections. To determine whether the addition of project-related traffic at a study intersection would result in a deficiency, the following will be utilized:

- A project-related deficiency is considered significant when a study intersection operates at an acceptable LOS for existing conditions (or pre-project conditions) and the addition of project trips causes the intersection to operate at an unacceptable LOS for existing plus project (E+P) traffic conditions.
- A project-related deficiency is considered significant when a study intersection operates at an unacceptable LOS for existing conditions (or pre-project conditions) and the addition of project trips causes the intersection v/c to increase by 0.05 or more.

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3 AREA CONDITIONS

This section provides a summary of the existing circulation network, the City of San Leandro General Plan Circulation Network, and a review of existing peak hour intersection operations, traffic signal warrant, and queuing analyses.

3.1 EXISTING CIRCULATION NETWORK

Pursuant to discussions with the City of San Leandro staff, the study area includes a total of 14 existing intersections as shown previously on Exhibit 1-3. Exhibit 3-1 illustrates the study area intersections located near the proposed Project and identifies the number of through traffic lanes for existing roadways and intersection traffic controls.

3.2 GENERAL PLAN CIRCULATION ELEMENTS

As noted previously, the Project site is located within the City of San Leandro however portions of the study area are lie within the City of Oakland. Exhibit 3-2 shows the City of San Leandro and City of Oakland General Plan Street Classifications.

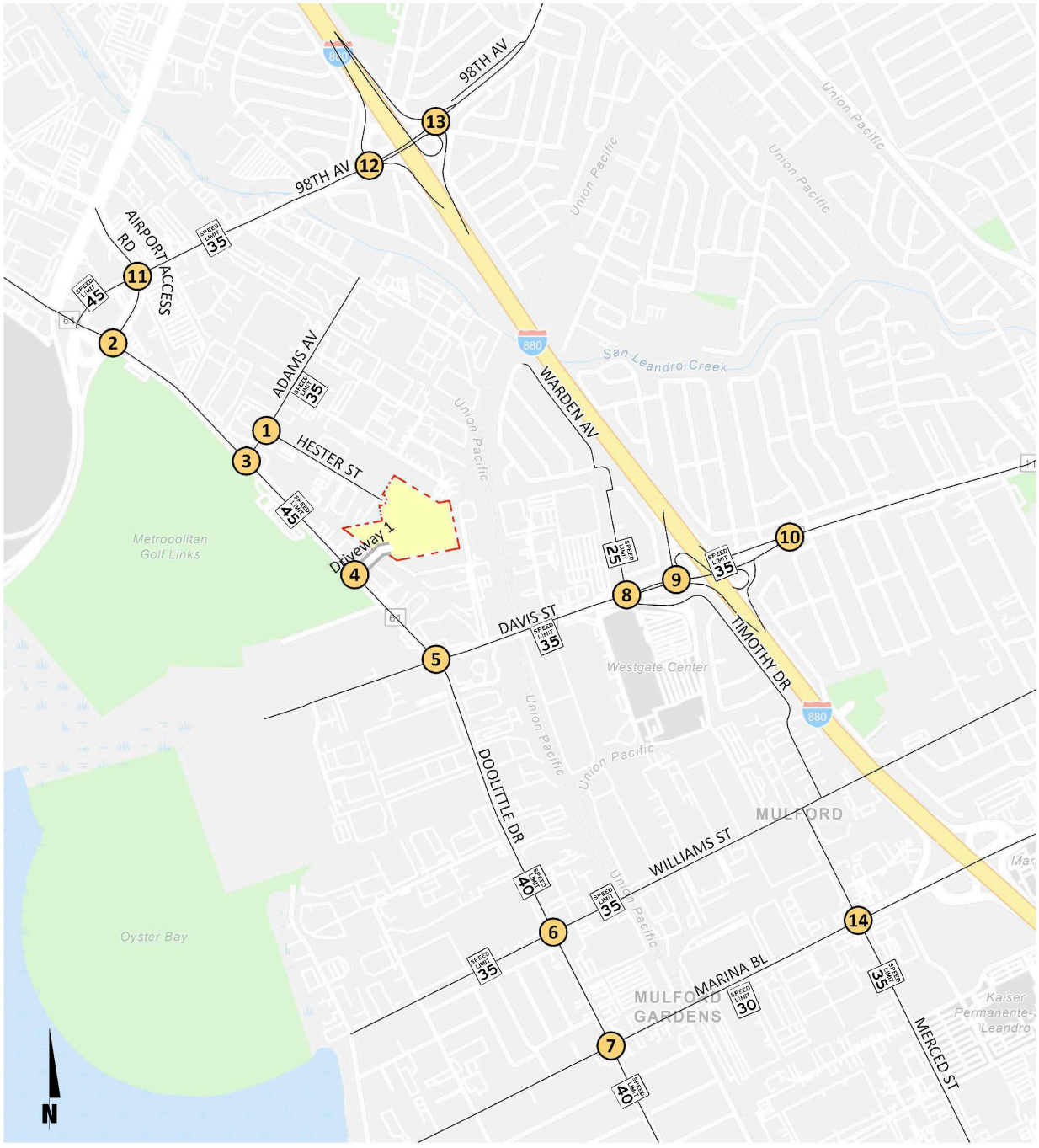
Arterials can accommodate two to six travel lanes. These facilities serve regional through traffic and connect the major destinations within the City to the freeway system. Access from abutting property is generally restricted. The following roadways are classified as an Arterial within the study area:

- Doolittle Dr.
- Davis St., east of Doolittle Dr.
- Marina Bl.
- Merced St.
- 98th Avenue

Collectors can accommodate two travel lanes with on-street parking and signalized intersections at major intersections. These facilities carry low volumes (less than 10,000 vehicles per day) and connect residential areas to arterials. The following roadways are classified as a Collector within the study area:

- Davis St., west of Doolittle Dr.
- Williams St.
- Timothy Dr./W. Gate Pkwy.
- Adams Av.

EXHIBIT 3-1: EXISTING NUMBER OF THROUGH LANES AND INTERSECTION CONTROLS



SPEED LIMIT 25 = *Speed Limit (MPH)*

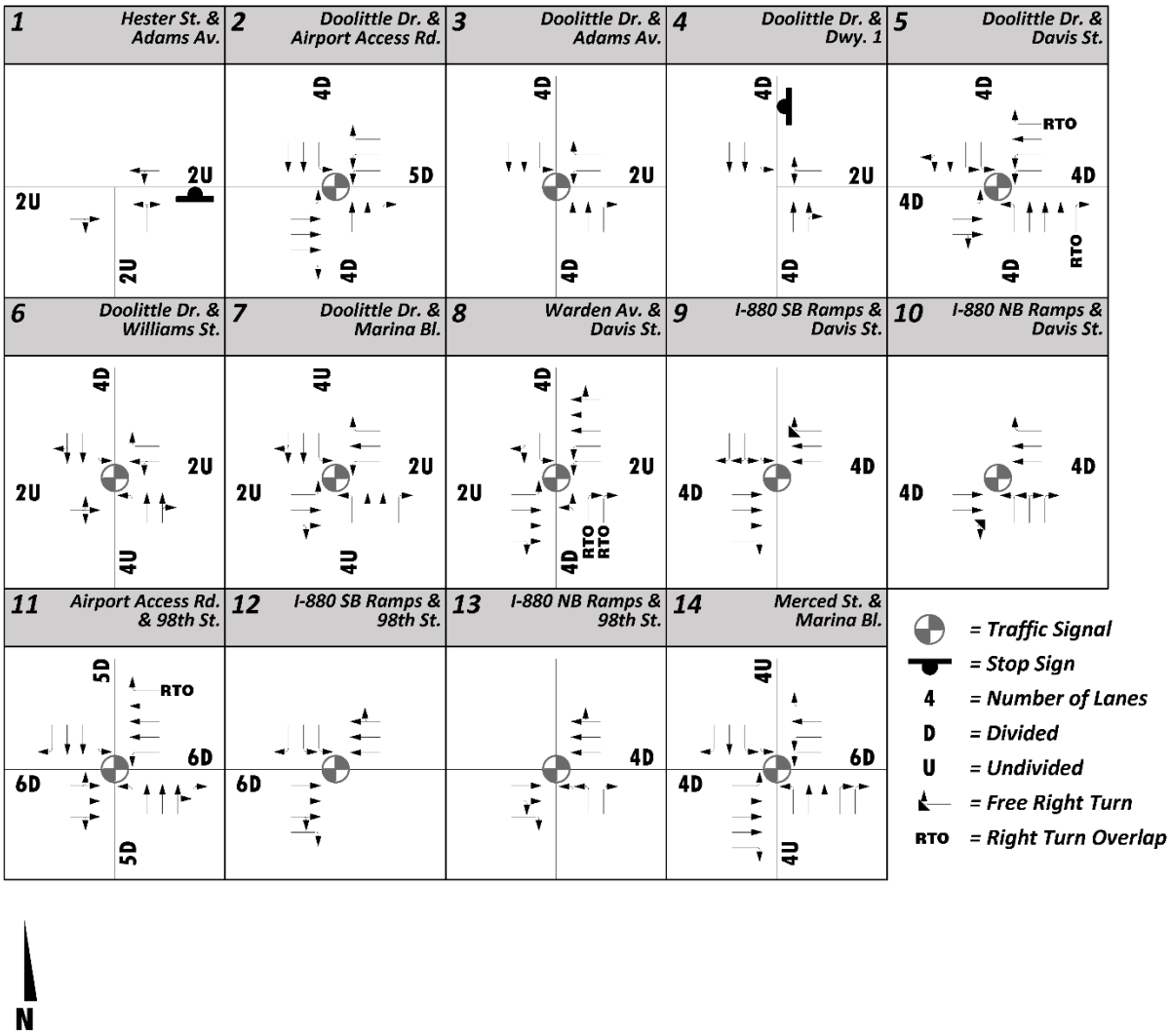
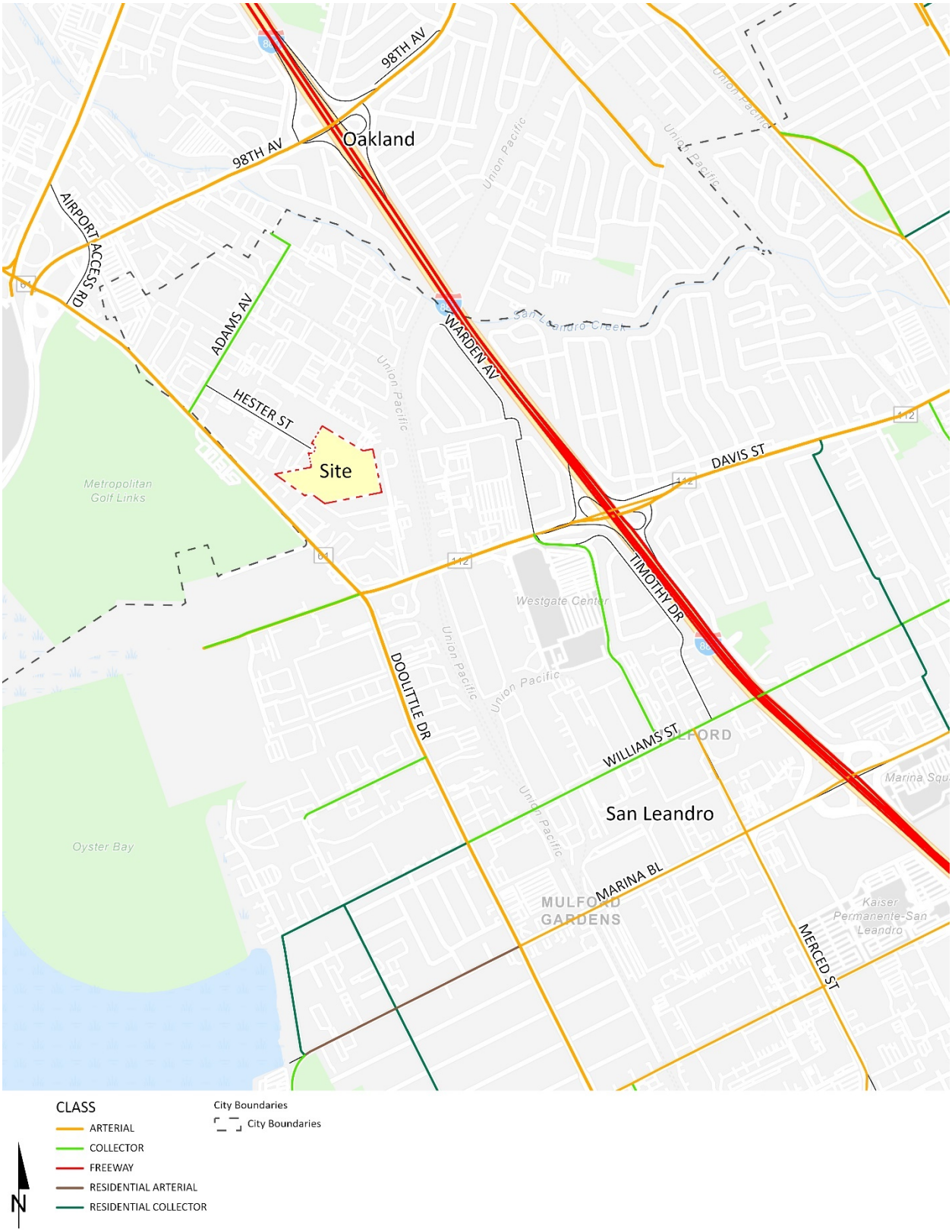

1 Hester St. & Adams Av.
2 Doolittle Dr. & Airport Access Rd.
3 Doolittle Dr. & Adams Av.
4 Doolittle Dr. & Dwy. 1
5 Doolittle Dr. & Davis St.
6 Doolittle Dr. & Williams St.
7 Doolittle Dr. & Marina Bl.
8 Warden Av. & Davis St.
9 I-880 SB Ramps & Davis St.
10 I-880 NB Ramps & Davis St.
11 Airport Access Rd. & 98th St.
12 I-880 SB Ramps & 98th St.
13 I-880 NB Ramps & 98th St.
14 Merced St. & Marina Bl.
= Traffic Signal
= Stop Sign
4 = Number of Lanes
D = Divided
U = Undivided
= Free Right Turn
RTO = Right Turn Overlap
N

EXHIBIT 3-2: CITY OF SAN LEANDRO & CITY OF OAKLAND GENERAL PLAN STREET CLASSIFICATION



Local Streets/Residential Collector can accommodate two travel lanes with on-street parking typically provided on one side only. These facilities are low-volume and low-speed roadways that connect individual parcels to either Collectors or Arterials. The following roadways are classified as a Local Street within the study area:

- Hester St.
- Warden Av.

3.3 TRUCK ROUTES

The City of San Leandro designated truck route map is shown on Exhibit 3-3. Doolittle Drive, Davis Street, Williams Street, Marina Boulevard, and Merced Street are identified as designated truck routes within the City. These designated truck route maps have been utilized to route truck traffic from the Project throughout the study area.

3.4 TRANSIT SERVICE

Mass transit routes within the study area are shown on Exhibit 3-4. The study area is currently served by Alameda-Contra Costa Transit District (AC Transit), the 3rd largest public bus system in California which serves 13 cities and unincorporated areas of Alameda and Contra Costa counties (364-square mile service area). AC Transit currently has 175,000 riders daily served by their 158 bus lines with approximately 5,400 bus stop locations. AC Transit Routes 34 and 35 runs along Davis Street from east of the I-880 Freeway to Timothy Drive/W. Gate Parkway to Williams Street and Merced Street within the City of San Leandro. AC Transit Route 98 runs along 98th Avenue from Empire Road to east of the I-880 Freeway within the City of Oakland.

The study area is also served by the San Francisco Bay Area Rapid Transit (BART). BART is a public rail transit system that connects the San Francisco Peninsula with communities located in East and South Bays. BART operates 131 miles of track with 50 stations and carry approximately 405,000 trips on an average weekday. The San Leandro BART station is located approximately 1-mile to the east of the I-880 Freeway south of Davis Street on San Leandro Boulevard. The station has connecting transit routes served by AC Transit, LINKS, and the FLEX shuttle. The lines served by the San Leandro BART station include:

- Dublin/Pleasanton to/from Daly City
- Richmond to/from Berryessa/North San Jose Station
- Daly City to/from Berryessa/North San Jose station
- MacArthur to/from Dublin/Pleasanton

The San Leandro LINKS shuttle is a free shuttle to and from BART. There is a North Loop and South Loop. The North Loop runs along Davis Street from the BART station to Marina Boulevard, Merced Street, Williams Street, Doolittle Drive, and Davis Street. There is an existing stop located at Doolittle Drive and Davis Street.

EXHIBIT 3-3: CITY OF SAN LEANDRO TRUCK ROUTES

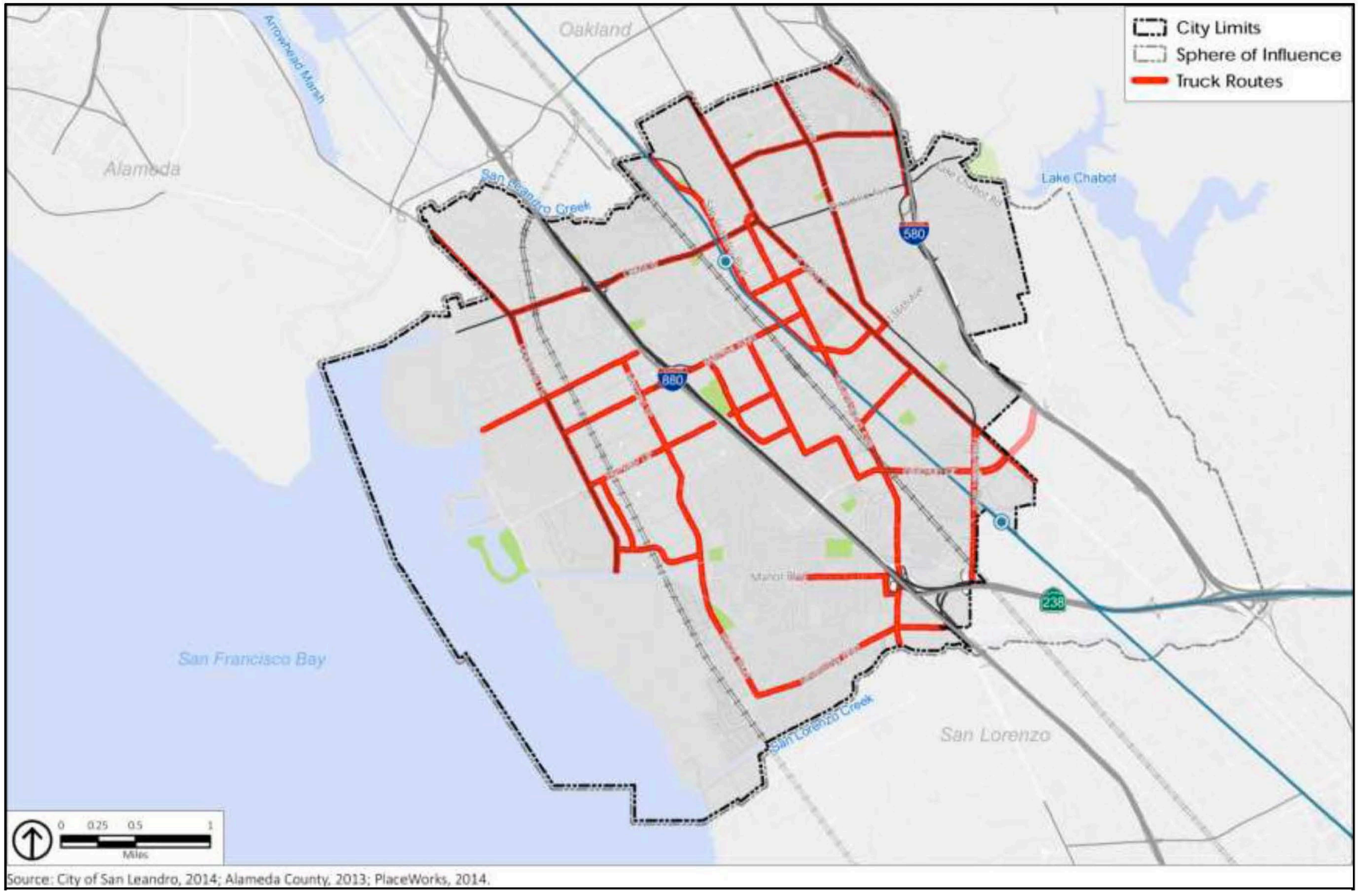


EXHIBIT 3-4: EXISTING TRANSIT ROUTES – AC TRANSIT AND BART

The FLEX Shuttle is a fixed route service similar to LINKS. There is a North Route and South Route through the City of San Leandro. The FLEX Shuttle serves seniors ages 50+ and persons with disabilities (aged 18+) who reside within the City. The North Route runs along portions of Williams Street, Doolittle Drive, Timothy Drive/W. Gate Parkway, and Davis Street (east of Timothy Drive).

There are no existing transit routes along Doolittle Drive near the project site although the San Leandro LINKS shuttle has a stop located at the intersection of Doolittle Drive and Davis Street. Transit service is reviewed and updated periodically to address ridership, budget, and community demand needs. Changes in land use can affect these periodic adjustments which may lead to either enhanced or reduced service where appropriate.

3.5 BICYCLE & PEDESTRIAN FACILITIES

In an effort to promote alternative modes of transportation, the City of San Leandro also includes the existing and proposed bicycle network (see Exhibit 3-5). As shown on Exhibit 3-5, the study area includes existing Class II bike lanes along Adams Street, Doolittle Drive, Williams Street and Merced Street. Class II bike lanes are proposed along Davis Street. Doolittle Drive is proposed as a Class IV bikeway (on-street bike lanes, separated from vehicular traffic via a physical separation). There is also a 5.2-mile shared-use path (Class I) located in the San Leandro Marina Park, which is part of the Bay Trail. The Class I path is an off-street facility that can be used by both bicyclists and pedestrians.

Exhibit 3-6 illustrates the existing pedestrian facilities, which includes sidewalks and crosswalk locations. Sidewalks exist throughout most of the study area with crosswalks provided at all signalized study area intersections.

3.6 EXISTING RAIL CROSSINGS

There are 3 major rail lines within the City of San Leandro (Oakland Subdivision, Niles Subdivision, Coastal Subdivision) and these lines connect industrial areas within the City to the Port of Oakland, other markets along the West Coast, and the other areas throughout the State/Nation. All rail lines are under the ownership of Union Pacific Railroad (UPRR). Amtrak also runs along the UPRR within the study area, however, there are no stops within the study area. There are 2 grade-separated railroad crossings within the study area: the overpass on Davis Street and the overpass at the intersection of Doolittle Drive and Airport Access Road. There are also a number of at-grade crossings from various spurs or the UPRR line within the study area:

- Project Driveway, approximately 265-feet east of Doolittle Drive
- Doolittle Drive, approximately 380-feet south of Davis Street
- Williams Street, approximately 840-feet east of Doolittle Drive
- Marina Boulevard, approximately 840-feet east of Doolittle Drive

A queuing analysis will also be prepared to determine whether there are queuing issues at each of the aforementioned at-grade railroad crossings with respect to the adjacent study area intersections. This analysis has been conducted for Horizon Year traffic conditions only.

EXHIBIT 3-5: CITY OF SAN LEANDRO BICYCLE & PEDESTRIAN PLAN

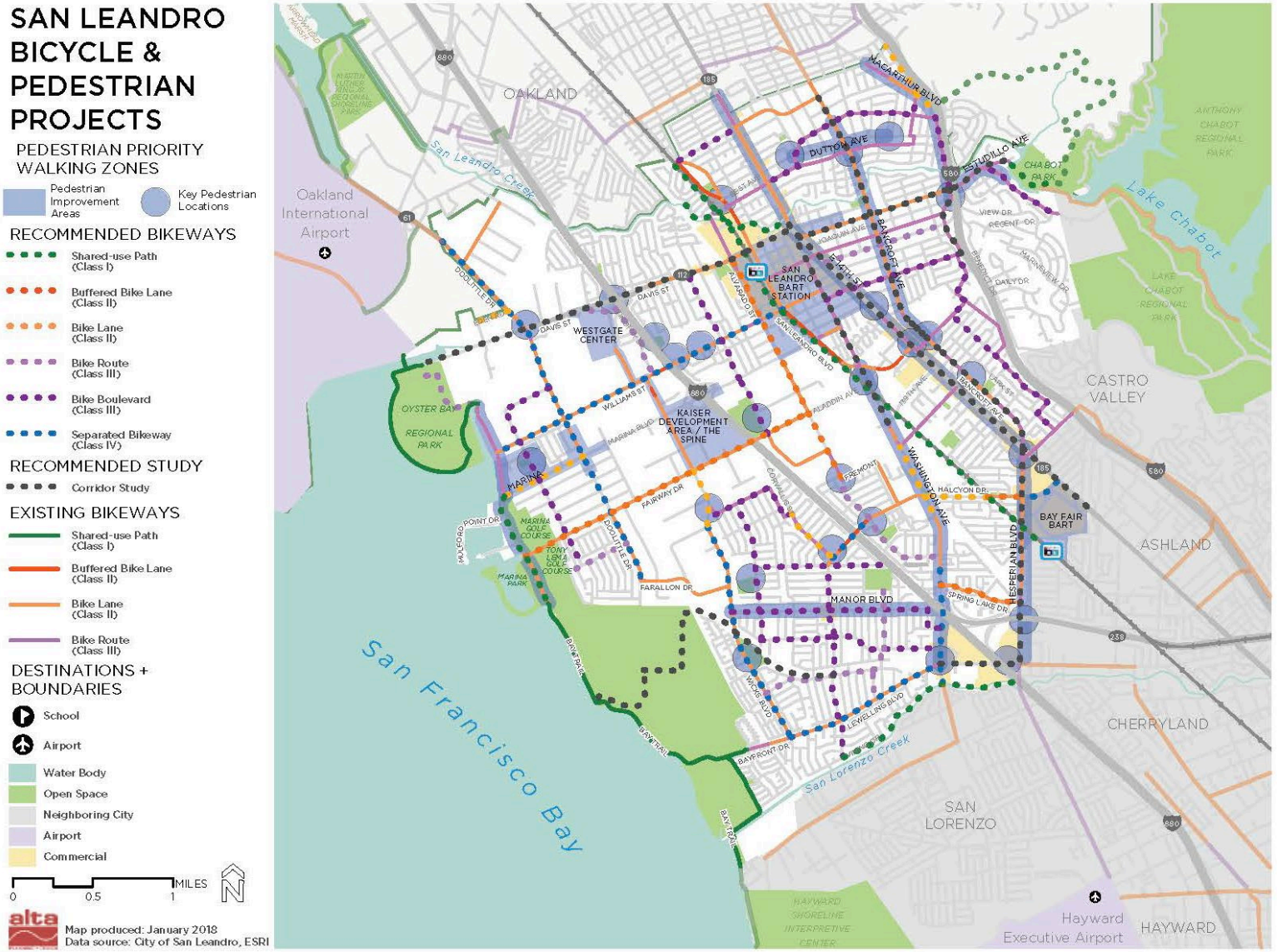
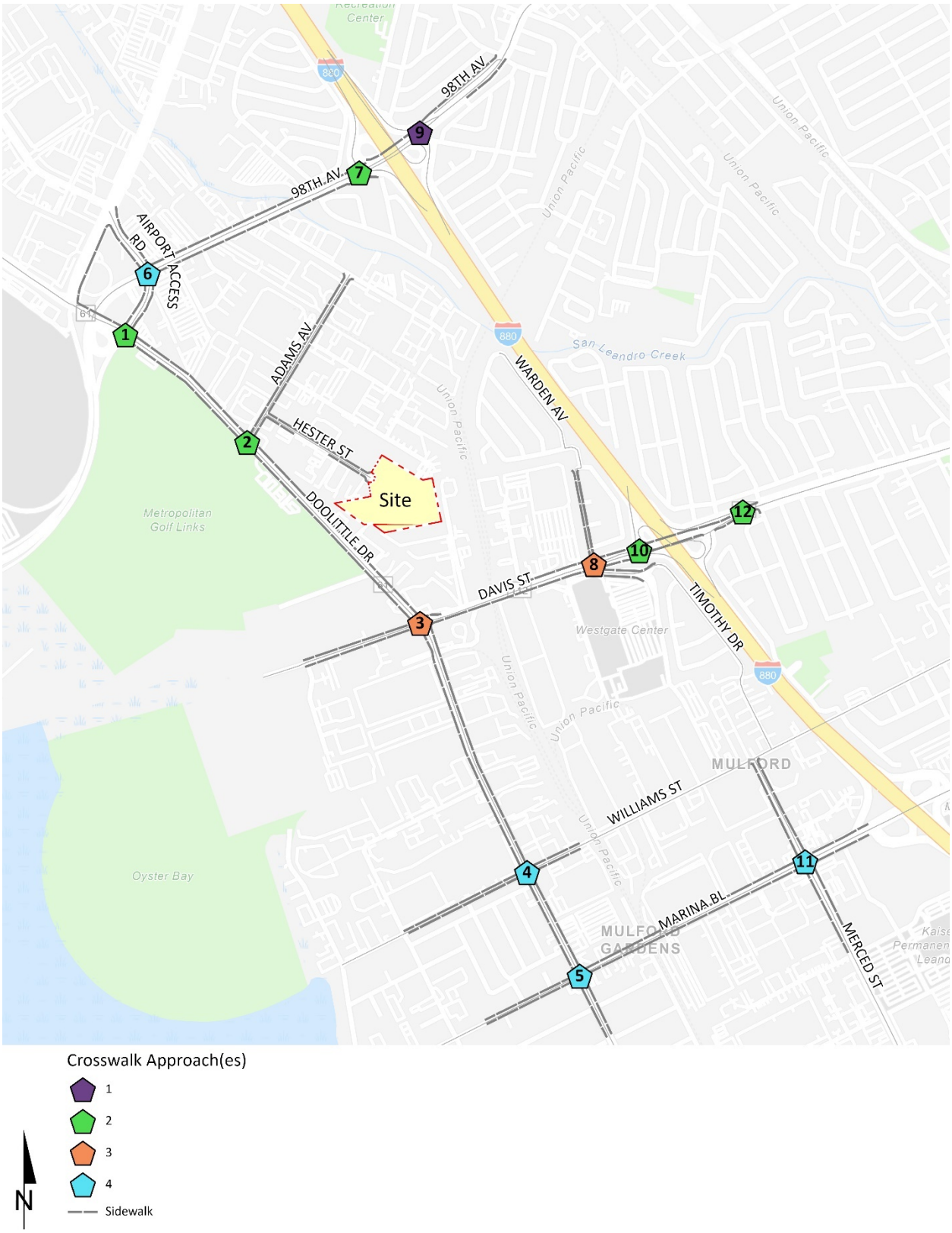


EXHIBIT 3-6: EXISTING PEDESTRIAN FACILITIES



3.7 EXISTING TRAFFIC COUNTS

Due to the currently ongoing COVID-19 pandemic, historic 2015 traffic counts were adjusted by 0.772% per year (compounded annually) over 5 years to reflect 2020 baseline traffic conditions. This annual growth rate is based on the average ABAG projected growth for employment, population, and households for San Leandro. The 2015 counts (adjusted to 2020) were then compared to the recently collected November 2020 counts in order to determine the net changes and to develop an adjustment factor. The average of all applicable locations was calculated to be 127% for AM and 106% for the PM. As such, the locations where historic count data were not available, the 2020 counts that were recently collected were increased by 127% in the AM peak hour and 106% in the PM peak hour. For the locations where both historic and actual 2020 data is available, the final adjusted 2020 traffic volumes used for the purposes of this TA were developed by taking the higher of the 2 volumes (between either the adjusted 2015 or the actual 2020). The following peak hours were selected for analysis for the November 2020 traffic counts:

- Weekday AM Peak Hour (peak hour between 7:00 AM and 11:00 AM)
- Weekday PM Peak Hour (peak hour between 4:00 PM and 7:00 PM)

The raw manual peak hour turning movement traffic count data sheets are included in Appendix 3.1. These raw turning volumes have been flow conserved between intersections with limited access, no access, and where there are currently no uses generating traffic. The traffic counts collected in November 2020 include the vehicle classifications as shown below:

- Passenger Cars
- 2-Axle Trucks
- 3-Axle Trucks
- 4 or More Axle Trucks

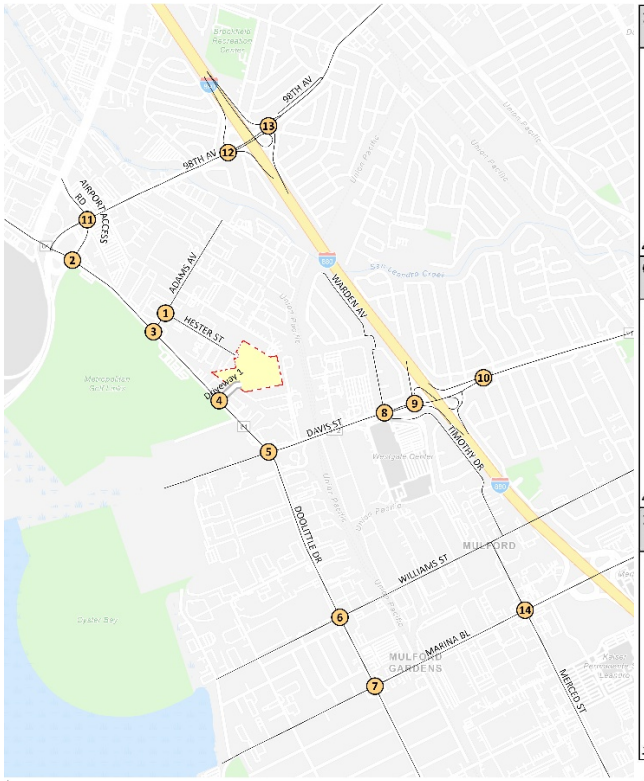
Truck traffic has been accounted for in the peak hour operations analysis by entering the percentage of heavy vehicles in the analysis software. The methodology used to derive the existing traffic counts have been reviewed and approved by City staff.

Existing weekday ADT volumes on arterial highways throughout the study area are shown on Exhibit 3-7. Existing ADT volumes were based upon factored intersection peak hour counts collected by Urban Crossroads, Inc. using the following formula for each intersection leg:

Weekday PM Peak Hour (Approach Volume + Exit Volume) x 12 = Leg Volume

Existing weekday AM and weekday PM peak hour intersection volumes are also shown on Exhibit 3-7.

EXHIBIT 3-7: EXISTING (2020) TRAFFIC VOLUMES



1 Hester St. & Adams Av.

			4,300
		← 102(151)	
		↰ 30(25)	
243(138) →			
67(18) ↴	13(48)		25(45) ↱
4,250			1,650

2 Doolittle Dr. & Airport Access Rd.

17,250			3,500
	617(593)		↰ 11(20)
	↓	↳	13(22)
79(70) ↳			↰ 184(75)
19(39) →		↑	↱
138(204) ↴		588(734)	108(135)
3,750			20,850

3 Doolittle Dr. & Adams Av.

24,700			4,950
	630(1100)		↰ 39(80)
	↓	↳	57(32)
			↰ 88(161)
		↑	↱
		756(847)	182(140)
27,000			

4 Doolittle Dr. & Project Dwy.

22,600			1,550
	1024(985)		↱ 24(40)
	↓	↳	18(12)
			↰ 38(35)
		↑	↱
		815(845)	44(41)
22,850			

5 Doolittle Dr. & Davis St.

28,900			20,450
	47(40)		↱ 766(473)
	308(770)		← 123(75)
	↓	↳	347(636)
45(61) ↳			↰ 245(180)
166(114) →		↑	↱
35(43) ↴		47(18)	780(429)
4,200			216(226)
			20,000

6 Doolittle Dr. & Williams St.

24,550			10,800
	51(58)		↱ 209(110)
	654(1055)		← 124(91)
	↓	↳	92(338)
96(62) ↳			↰ 92(123)
143(129) →		↑	↱
31(45) ↴		1006(422)	124(108)
4,950			21,350

7 Doolittle Dr. & Marina Bl.

18,850			17,050
	55(94)		↱ 302(159)
	514(713)		← 150(292)
	↓	↳	219(268)
55(52) ↳			↰ 143(231)
218(293) →		↑	↱
68(31) ↴		620(286)	258(179)
9,500			17,650

8 Warden Av. & Davis St.

3,200			40,400
	24(26)		↰ 46(108)
	58(23)		← 1312(942)
	↓	↳	122(67)
6(25) ↳			↰ 412(459)
882(1348) →		↑	↱
147(209) ↴		158(134)	361(544)
31,450			16,400

9 I-880 SB Ramps & Davis St.

16,650			35,200
	596(589)		↱ 402(426)
	↓	↳	209(408)
			← 1174(920)
849(1276) →			
516(683) ↴			
40,450			7,800

10 I-880 NB Ramps & Davis St.

4,250			34,500
			← 531(355)
			← 1107(922)
567(1119) →			↱
491(565) ↴			236(486)
36,250			17,700

11 Airport Access Rd. & 98th Av.

6,400			23,450
	8(4)		368(267)
	19(36)		← 742(504)
	↓	↳	53(67)
93(71) ↳			↰ 57(73)
629(897) →		↑	↱
1(7) ↴		11(10)	46(90)
17,900			4,350

12 I-880 SB Ramps & 98th Av.

15,050			34,800
	404(205)		↰ 622(503)
	↓	↳	← 1352(992)
564(913) →			
573(655) ↴			
32,550			7,850

13 I-880 NB Ramps & 98th Av.

16,700			32,300
			↰ 519(469)
			← 1073(990)
		↑	↱
456(983) →		900(506)	338(763)
373(501) ↴			
34,650			15,250

14 Merced St. & Marina Bl.

14,300			35,950
	44(58)		↰ 214(176)
	184(309)		← 521(613)
	↓	↳	186(315)
51(63) ↳			↰ 638(638)
454(671) →		↑	↱
41(76) ↴		52(70)	307(272)
18,600			23,350

##(##) AM(PM) Peak Hour Intersection Volumes

Average Daily Trips

3.8 INTERSECTION OPERATIONS ANALYSIS

Existing peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2.2 *Intersection Capacity Analysis* of this report. The intersection operations analysis results are summarized in Table 3-1 which indicates that the study area intersections are currently operating at an acceptable LOS during the peak hours (i.e., LOS D or better), with the exception of the following locations:

- Doolittle Dr. & Davis St. (#5) – LOS E AM peak hour only
- Merced St. & Marina Bl. (#14) – LOS E PM peak hour only

The intersection operations analysis worksheets are included in Appendix 3.2 of this TA.

TABLE 3-1: INTERSECTION ANALYSIS FOR EXISTING (2020) CONDITIONS

#	Intersection	Traffic Control[1]	Delay[2] (secs.)		Volume-to-Capacity (v/c)		Level of Service	
			AM	PM	AM	PM	AM	PM
1	Hester St. & Adams Av.	CSS	11.5	11.0	0.07	0.15	B	B
2	Doolittle Dr. & Airport Access Rd.	TS	20.4	18.3	0.54	0.47	C	B
3	Doolittle Dr. & Adams Av.	TS	9.7	11.0	0.46	0.67	A	B
4	Doolittle Dr. & Project Dwy.	CSS	16.0	15.0	0.18	0.18	C	C
5	Doolittle Dr. & Davis St.	TS	**74.4**	45.4	**0.96**	0.72	**E**	D
6	Doolittle Dr. & Williams St.	TS	25.2	30.7	0.85	0.83	C	C
7	Doolittle Dr. & Marina Bl.	TS	36.2	35.4	0.64	0.71	D	D
8	Warden Av. & Davis St.	TS	41.3	32.8	0.74	0.72	D	C
9	I-880 SB Ramps & Davis St.	TS	13.4	14.5	0.71	0.63	B	B
10	I-880 NB Ramps & Davis St.	TS	11.1	14.6	0.61	0.76	B	B
11	Airport Access Rd. & 98th Av.	TS	30.9	33.4	0.41	0.49	C	C
12	I-880 SB Ramps & 98th Av.	TS	17.9	12.4	0.84	0.58	B	B
13	I-880 NB Ramps & 98th Av.	TS	18.8	34.0	0.80	0.96	B	C
14	Merced St. & Marina Bl.	TS	43.2	**57.9**	0.81	**0.93**	D	**E**

* **BOLD** = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

[1] CSS = Cross-street Stop; TS = Traffic Signal

[2] Per the Highway Capacity Manual (HCM 2000), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

3.9 TRAFFIC SIGNAL WARRANTS ANALYSIS

Traffic signal warrants for Existing traffic conditions are based on existing peak hour intersection turning volumes. The following unsignalized study area intersection currently warrants a traffic signal for Existing (2020) traffic conditions based on PM peak hour volumes:

- Doolittle Dr. & Project Driveway (#4)

However, this intersection is currently operating at an acceptable LOS as a cross-street stop-controlled intersection. As such, installation of a traffic signal does not appear necessary from an operational perspective. Existing conditions traffic signal warrant analysis worksheets are provided in Appendix 3.3.

3.10 QUEUING ANALYSIS

A queuing analysis was performed for the signalized study area intersections to assess vehicle queues for the turn pockets that may potentially "spill back" into the adjacent through lanes. Queuing analysis findings are presented in Table 3-2 for Existing traffic conditions. As shown in Table 3-2, the following movements are currently experiencing queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows:

- Doolittle Dr. & Davis St. (#5) – Southbound left PM peak hour only currently spills out of the dual turn pockets and spills back into the adjacent southbound through lane. Due to existing driveways located to the north does not appear feasible as there are existing driveways where access would get affected by an extension of the turn pocket.
- Doolittle Dr. & Davis St. (#5) – Westbound right turn lane AM and PM peak hours currently spills out of the right turn pocket and spills back into the adjacent westbound through lane. The right turn pocket lies within the downgrade of the grade separation over the UPRR rail line and may not be feasible to accommodate additional storage.
- Doolittle Dr. & Williams St. (#6) – Southbound left PM peak hour only is accommodated within the existing two-way left turn lane (striped median) and does not conflict with southbound through traffic.
- Doolittle Dr. & Marina Bl. (#7) – Southbound left AM and PM peak hours currently spills out of the left turn pocket and into the adjacent southbound through lane. The left turn pocket storage cannot be extended due to the existing back-to-back left turn at Barrow Street.
- Doolittle Dr. & Marina Bl. (#7) – Westbound left AM and PM peak hours currently spills out of the left turn pocket and into the adjacent westbound through lane. The left turn pocket storage cannot be extended due to the proximity of the existing driveways to the east and potentially blocking driveway access.
- Warden Av. & Davis St. (#8) – Southbound left AM peak hour only currently spills out of the left turn pocket and into the adjacent southbound through lane. The left turn pocket storage cannot be extended due to the existing intersection of Laura Avenue to the north.
- Airport Access Rd. & 98th Av. (#11) – Westbound left PM peak hour only is accommodated within the existing two-way left turn lane (striped median) and does not conflict with westbound through traffic.

TABLE 3-2: PEAK HOUR TURN LANE QUEUING SUMMARY FOR EXISTING (2020) CONDITIONS

#	Intersection	Movement	Available Stacking Distance (Feet)	95th % Queue (ft)		Acceptable? [1]	
				AM	PM	AM	PM
2	Doolittle Dr. & Airport Access Rd.	NBR	385	9	21	Yes	Yes
		SBL	150	24	32	Yes	Yes
		EBL	200	83	71	Yes	Yes
		EBR	200	31	58	Yes	Yes
		WBL	135	72	32	Yes	Yes
3	Doolittle Dr. & Adams Av.	NBR	270	35	27	Yes	Yes
		SBL	230	52	35	Yes	Yes
		WBR	85	19	24	Yes	Yes
5	Doolittle Dr. & Davis St.	NBL	130	81	41	Yes	Yes
		NBR	180	48	46	Yes	Yes
		SBL	265	200	**458** [2]	Yes	**No**
		EBL	300	78	98	Yes	Yes
		WBL	235	213 [2]	168 [2]	Yes	Yes
		WBR	100	**916** [2]	**304**	**No**	**No**
6	Doolittle Dr. & Williams St.	NBL	90	48	39	Yes	Yes
		SBL	100	117 [2]	**354** [2]	Yes	**No**
		WBR	100	43	23	Yes	Yes
7	Doolittle Dr. & Marina Bl.	NBL	50	23	52	Yes	Yes
		NBR	100	95	39	Yes	Yes
		SBL	100	**305** [2]	**359** [2]	**No**	**No**
		EBL	120	73	76	Yes	Yes
		WBL	120	**223** [2]	**320** [2]	**No**	**No**
		WBR	850	64	47	Yes	Yes
8	Warden Av. & Davis St.	NBR	600	37	70	Yes	Yes
		SBL	50	**104**	70	**No**	Yes
		EBL	85	15	40	Yes	Yes
		WBL	250	225 [2]	225 [2]	Yes	Yes
9	I-880 SB Ramps & Davis St.	SBR	350	152	125	Yes	Yes
		WBR	550	35	44	Yes	Yes
10	I-880 NB Ramps & Davis St.	NBL	300	110	82	Yes	Yes
		EBR	800	91	0	Yes	Yes

#	Intersection	Movement	Available Stacking Distance (Feet)	95th % Queue (ft)		Acceptable? [1]	
				AM	PM	AM	PM
11	Airport Access Rd. & 98th Av.	NBL	60	27	24	Yes	Yes
		NBR	150	0	6	Yes	Yes
		SBL	100	97 [2]	121 [2]	Yes	Yes
		SBR	190	0	0	Yes	Yes
		WBL	100	104 [2]	**128 [2]**	Yes	**No**
		WBR	260	43	37	Yes	Yes
12	I-880 SB Ramps & 98th Av.	SBR	400	225 [2]	85	Yes	Yes
		EBR	290	40	41	Yes	Yes
13	I-880 NB Ramps & 98th Av.	NBL	675	208	79	Yes	Yes
14	Merced Av. & Marina Bl.	NBL	150	71	87	Yes	Yes
		NBR	415	206	293 [2]	Yes	Yes
		SBL	300	131 [2]	198 [2]	Yes	Yes
		SBR	150	0	0	Yes	Yes
		EBL	80	70	95 [2]	Yes	Yes
		EBR	50	0	0	Yes	Yes
		WBL	365	336 [2]	359 [2]	Yes	Yes

BOLD = 95th percentile queue exceeds the available storage.

[1] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 25 feet (1 car length) of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table, where applicable.

[2] 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Worksheets for Existing (2020) traffic conditions queuing analysis worksheets are provided in Appendix 3.4.

4 PROJECTED FUTURE TRAFFIC

The Project is proposed to consist of a 106,190 square foot distribution warehouse use (square footage includes mezzanine space). Vehicular and truck traffic access will be provided via Hester Street and Doolittle Drive (see Exhibit 1-2). Specifically, all truck access to the site will occur off Hester Street, employee access is provided via both Hester Street and Doolittle Drive (via Project Driveway), and all van access is to occur off of Doolittle Drive (via Project Driveway). Regional access to the Project site is provided via the I-880 Freeway via 98th Avenue and Davis Street interchanges.

4.1 PROJECT TRIP GENERATION

4.1.1 EXISTING TRIP GENERATION

Existing traffic counts were collected at 880 Doolittle Drive in order to determine the existing trips currently being generated on the site that would be replaced by the Project. Table 4-1 summarizes the counts collected at each driveway and the total for the site. Trip generation has been derived for passenger cars, vans (passenger cars), and trucks. An expanded summary of the existing driveway counts is provided in Appendix 4.1 of this TA.

TABLE 4-1: EXISTING EMPIRICAL DATA

	AM Peak Hour			PM Peak Hour			
Land Use	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**Daily**
Doolittle Access							
Passenger Cars:	61	30	91	17	61	78	792
Vans:	7	45	52	35	1	36	414
Truck Trips:	3	4	7	1	1	2	43
Total Trips[1]	**71**	**79**	**150**	**53**	**63**	**116**	**1,249**
Hester Access							
Passenger Cars:	12	1	13	4	19	23	245
Vans:	0	1	1	3	0	3	51
Truck Trips:	0	0	0	0	0	0	2
Total Trips[1]	**12**	**2**	**14**	**7**	**19**	**26**	**297**
Total							
Passenger Cars:	73	31	104	21	80	101	1,037
Vans:	7	46	53	38	1	39	465
Truck Trips:	3	4	7	1	1	2	45
Total Trips[1]	**83**	**80**	**164**	**60**	**82**	**142**	**1,546**

[1] Total Trips = Passenger Cars + Truck Trips.

4.1.2 PROPOSED PROJECT TRIP GENERATION

Trip generation represents the amount of traffic that is attracted and produced by a development and is based upon the specific land uses planned for a given project. Trip generation estimates for the proposed Project have been developed using tenant supplied data for the proposed facility. Since the trip generation is based on tenant supplied data, trip generation rates from the Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition, 2017, have not been utilized. Table 4-2 summarizes the Project's trip generation. The proposed Project is anticipated to generate 1,136 two-way trips per day with 196 AM peak hour trips and 83 PM peak hour trips.

TABLE 4-2: PROPOSED PROJECT TRIP GENERATION SUMMARY

	AM Peak Hour			PM Peak Hour			
Land Use	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**Daily**
Proposed Project							
Associates/Drivers:	59	0	59	0	0	0	506
Vans:	0	120	120	0	0	0	250
Flex Vehicles:	0	0	0	40	20	60	80
Self Service Kiosk:[1]	8	8	16	11	11	22	272
4+-axle Trucks:	0	1	1	1	0	1	28
Proposed Project Total	**67**	**129**	**196**	**52**	**31**	**83**	**1,136**

[1] Self service kiosk estimate shown is a maximum projection to conduct a conservative analysis. There is no point of sale associated with these trips.

4.1.3 NET NEW TRIP GENERATION

A comparison between the proposed Project trip generation estimates and the existing use is summarized on Table 4-3. For the purposes of this TA, the net new traffic generated by the proposed Project (less the traffic currently being generated by the site) will be evaluated. As shown in Table 4-3, the Project is anticipated to generate 409 fewer two-way trips per day than the existing use with 32 more AM peak hour trips and 58 fewer PM peak hour trips.

TABLE 4-3: TRIP GENERATION COMPARISON

	AM Peak Hour			PM Peak Hour			
Land Use	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**Daily**
Proposed Project							
Passenger Cars:	67	8	75	11	11	22	778
Vans/Flex Vehicles:	0	120	120	40	20	60	330
Total Truck Trips:	0	1	1	1	0	1	28
Proposed Project Total	**67**	**129**	**196**	**52**	**31**	**83**	**1,136**
Existing Passenger Cars:	73	31	104	21	80	101	1,037
Existing Vans:	7	46	53	38	1	39	465
Existing Trucks:	3	4	7	1	1	2	45
Existing Total:	**83**	**80**	**164**	**60**	**82**	**142**	**1,546**
Variance Passenger Cars:	-6	-23	-29	-10	-69	-79	-259
Variance Vans:	-7	74	67	2	19	21	-134
Variance Trucks:	-3	-3	-6	0	0	0	-17
Variance Total (Net New Traffic)	**-16**	**48**	**32**	**-8**	**-50**	**-58**	**-409**

4.2 PROJECT TRIP DISTRIBUTION

Trip distribution is the process of identifying the probable destinations, directions, or traffic routes that will be utilized by Project traffic. The potential interaction between the planned land uses and surrounding regional access routes are considered to identify the route where the Project traffic would distribute. The passenger car trip distribution patterns shown on Exhibit 4-1 are based on the select zone run distribution that was prepared by the City's traffic consultant. However, adjustments have been made to account for the Project access onto Doolittle in addition to other minor changes to routes based on ultimate destination and considerations to the surrounding roadway network. Exhibit 4-2 shows the delivery van/truck distributions and are consistent with the service area zip code data provided by the Project Applicant for the VMT analysis. Each of these distribution patterns was reviewed and approved by the City of San Leandro as part of the traffic study scoping process.

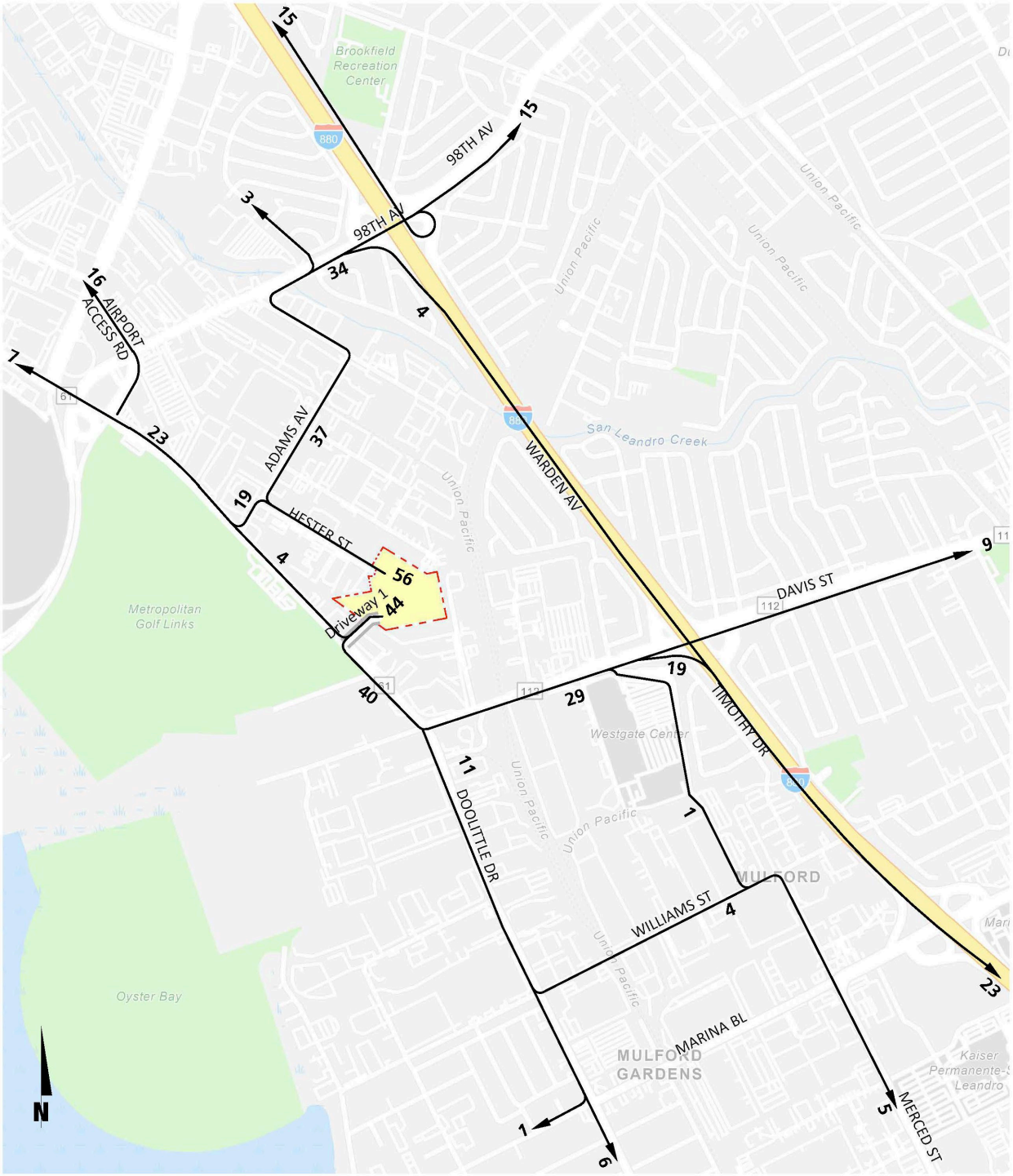
4.3 MODAL SPLIT

The traffic reducing potential of public transit, walking, or bicycling have not been considered in this TA. Essentially, the traffic projections are "conservative" in that these alternative travel modes might be able to reduce the forecasted traffic volumes (employee trips only).

4.4 PROJECT TRIP ASSIGNMENT

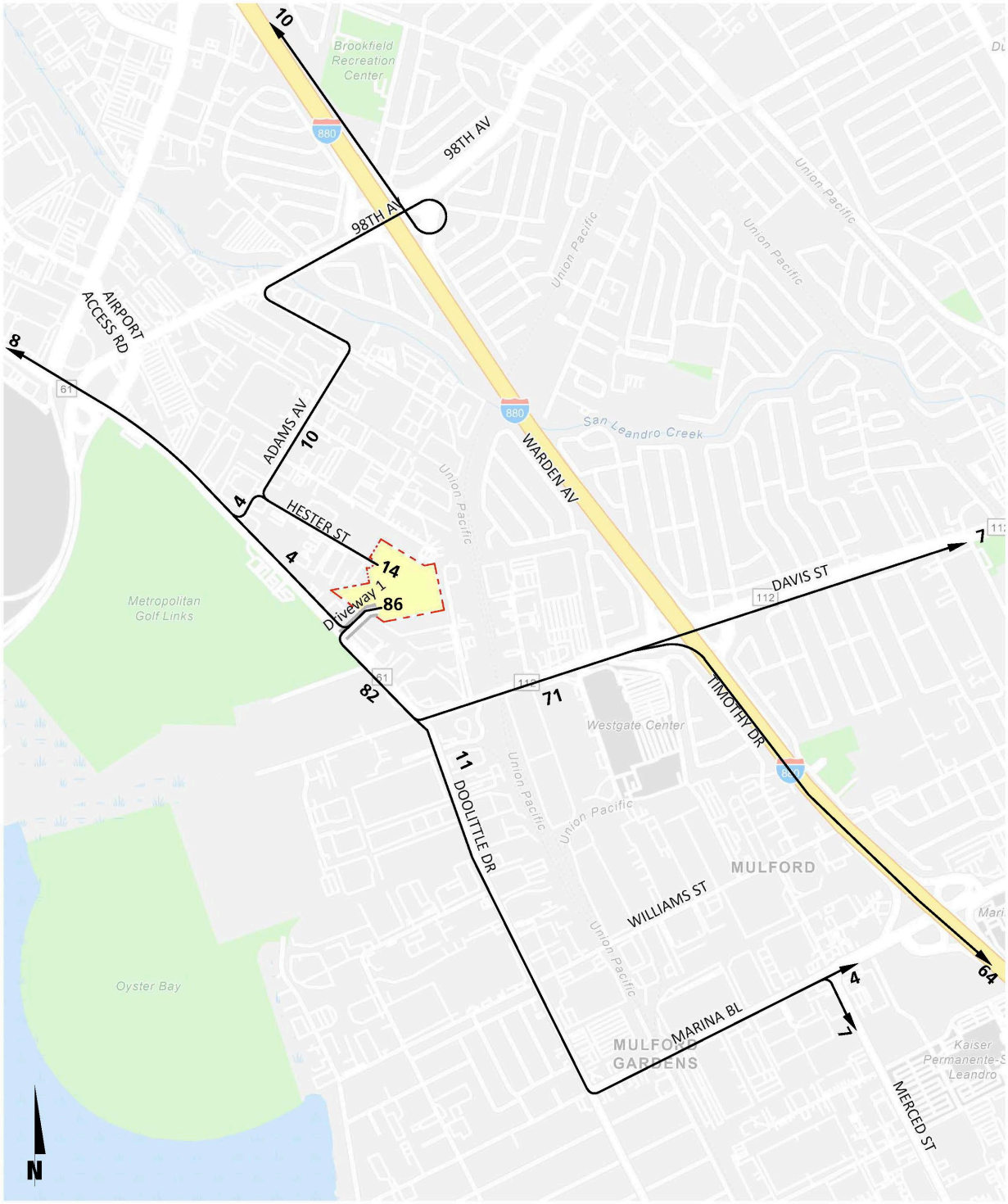
The assignment of traffic from the Project area to the adjoining roadway system is based upon the Project trip generation, trip distribution, and the arterial highway and local street system improvements that would be in place by the time of initial occupancy of the Project. Based on the identified Project traffic generation and trip distribution patterns, Project ADT and peak hour intersection turning movement volumes are shown on Exhibit 4-3.

EXHIBIT 4-1: PROJECT (PASSENGER CAR) TRIP DISTRIBUTION



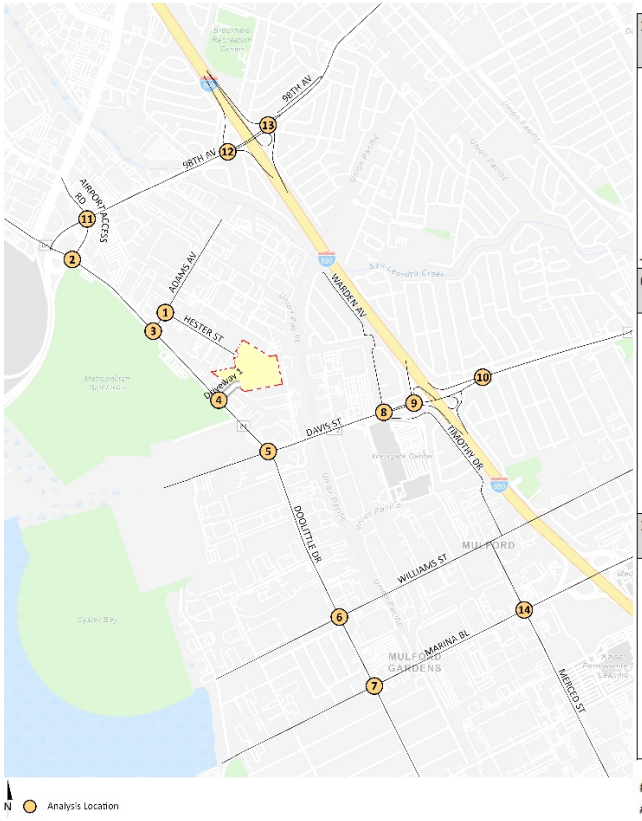
10 ***= Percent To/From Project***

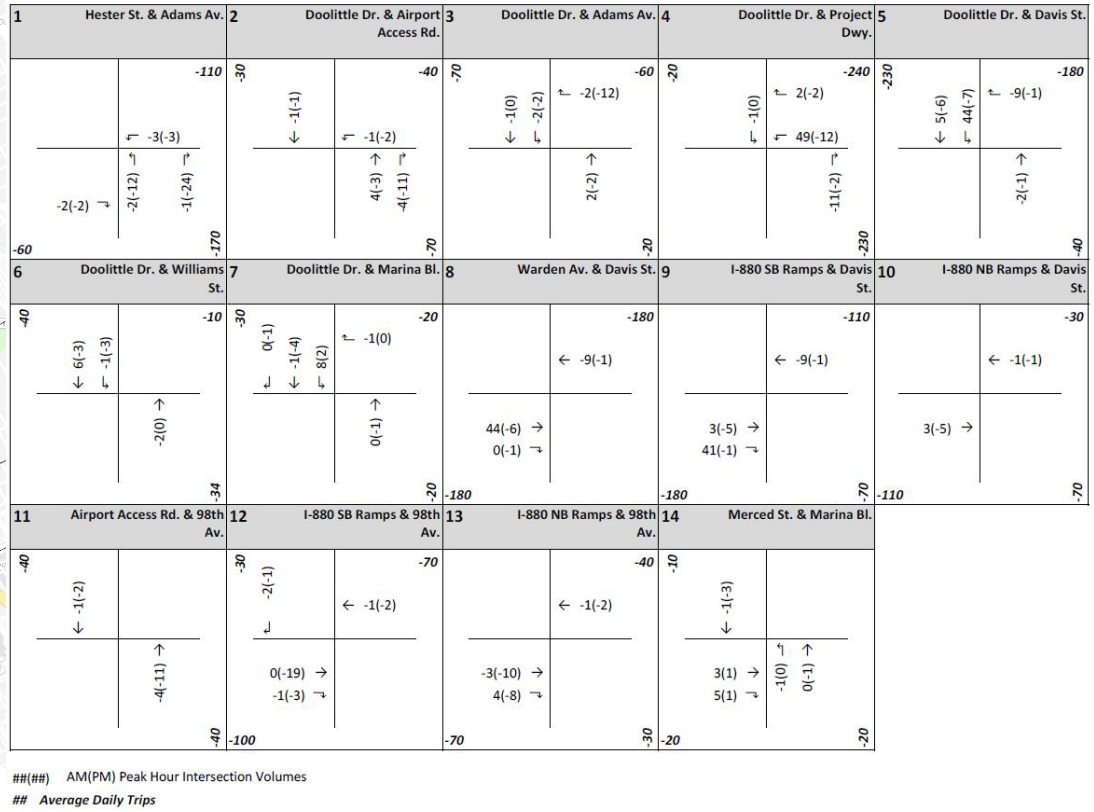
EXHIBIT 4-2: PROJECT (DELIVERY VAN/TRUCK) TRIP DISTRIBUTION



10 ***= Percent To/From Project***

EXHIBIT 4-3: PROJECT ONLY TRAFFIC VOLUMES





4.5 HORIZON YEAR (2040) TRAFFIC FORECASTS

The City's traffic consultant has provided future long-range Horizon Year (2040) Without Project traffic forecasts based on the Alameda Countywide Travel Demand Model using accepted procedures for model forecast refinement and smoothing for study area intersections located within the City of San Leandro. Traffic Counts

The traffic forecasts reflect the area-wide growth anticipated between Existing (2020) conditions and Horizon Year (2040) traffic conditions. In most instances the traffic model zone structure is not designed to provide accurate turning movements along arterial roadways unless refinement and reasonableness checking is performed. Therefore, the Horizon Year peak hour forecasts were refined using the model derived long range forecasts, base (validation) year model forecasts, along with existing baseline traffic (adjusted baseline).

The refined future peak hour approach and departure volumes obtained from the model output data are then entered into a spreadsheet program consistent with the National Cooperative Highway Research Program (NCHRP Report 255), along with initial estimates of turning movement proportions. A linear programming algorithm is used to calculate individual turning movements which match the known directional roadway segment forecast volumes computed in the previous step. This program computes a likely set of intersection turning movements from intersection approach counts and the initial turning proportions from each approach leg.

The future Horizon Year (2040) Without Project traffic forecasts provided by the City's traffic consultant are included in Appendix 4.2. The future Horizon Year (2040) Without Project peak hour turning movements were then reviewed by Urban Crossroads, Inc. for reasonableness, and in some cases, were adjusted to achieve flow conservation. Flow conservation checks ensure that traffic flow between two closely spaced intersections, such as two adjacent driveway locations, is verified in order to make certain that vehicles leaving one intersection are entering the adjacent intersection and that there is no unexplained loss of vehicles. The result of this traffic forecasting procedure is a series of traffic volumes which are suitable for traffic operations analysis. Lastly, net new Project traffic was then added to develop Horizon Year (2040) With Project traffic forecasts.

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5 E+P TRAFFIC ANALYSIS

This section discusses the traffic forecasts for Existing Plus Project (E+P) conditions and the resulting intersection operations, traffic signal warrant, and queuing analyses.

5.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for E+P conditions are consistent with those shown previously on Exhibit 3-1.

5.2 E+P TRAFFIC VOLUME FORECASTS

This scenario includes Existing (adjusted) traffic volumes plus net new Project traffic. The ADT and peak hour intersection turning movement volumes, which can be expected for E+P traffic conditions are shown on Exhibit 5-1.

5.3 INTERSECTION OPERATIONS ANALYSIS

E+P peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2 *Methodologies* of this TA. The intersection analysis results are summarized in Table 5-1, which indicates that there are no additional study area intersections anticipated to operate at an unacceptable LOS, in addition to the locations identified previously under Existing (2020) traffic conditions. The intersection operations analysis worksheets are included in Appendix 5.1 of this TA.

TABLE 5-1: INTERSECTION ANALYSIS FOR E+P CONDITIONS

			Existing (2020)						E+P							
			Delay[1] (secs.)		Volume-to-Capacity (v/c)		Level of Service		Delay[1] (secs.)		Volume-to-Capacity (v/c)		Level of Service		Change in v/c[3]	
#	Intersection	Traffic Control[2]	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
1	Hester St. & Adams Av.	CSS	11.5	11.0	0.07	0.15	B	B	12.0	10.9	0.07	0.10	B	B	--	--
2	Doolittle Dr. & Airport Access Rd.	TS	20.4	18.3	0.54	0.47	C	B	20.5	18.3	0.48	0.51	C	B	--	--
3	Doolittle Dr. & Adams St.	TS	9.7	11.0	0.46	0.67	A	B	9.6	10.8	0.46	0.67	A	B	--	--
4	Doolittle Dr. & Project Dwy.	CSS	16.0	15.0	0.18	0.18	C	C	33.8	17.1	0.41	0.18	D	C	--	--
5	Doolittle Dr. & Davis St.	TS	**74.4**	45.4	**0.96**	0.72	**E**	D	**71.5**	45.7	**0.92**	0.72	**E**	D	-0.04	--
6	Doolittle Dr. & Williams St.	TS	25.2	30.7	0.85	0.83	C	C	24.9	30.4	0.80	0.83	C	C	--	--
7	Doolittle Dr. & Marina Bl.	TS	36.2	35.4	0.64	0.71	D	D	37.9	36.4	0.65	0.75	D	D	--	--
8	Warden Av. & Davis St.	TS	41.3	32.8	0.74	0.72	D	C	42.3	32.9	0.74	0.72	D	C	--	--
9	I-880 SB Ramps & Davis St.	TS	13.4	14.5	0.71	0.63	B	B	13.3	14.5	0.71	0.63	B	B	--	--
10	I-880 NB Ramps & Davis St.	TS	11.1	14.6	0.61	0.76	B	B	11.1	14.6	0.61	0.76	B	B	--	--
11	Airport Access Rd. & 98th Av.	TS	30.9	33.4	0.41	0.49	C	C	30.9	33.5	0.41	0.49	C	C	--	--
12	I-880 SB Ramps & 98th Av.	TS	17.9	12.4	0.84	0.58	B	B	17.8	12.4	0.83	0.58	B	B	--	--
13	I-880 NB Ramps & 98th Av.	TS	18.8	34.0	0.80	0.96	B	C	18.8	34.7	0.80	0.96	B	C	--	--
14	Merced St. & Marina Bl.	TS	43.2	**57.9**	0.81	**0.93**	D	**E**	43.2	**58.0**	0.81	**0.93**	D	**E**	--	0.00

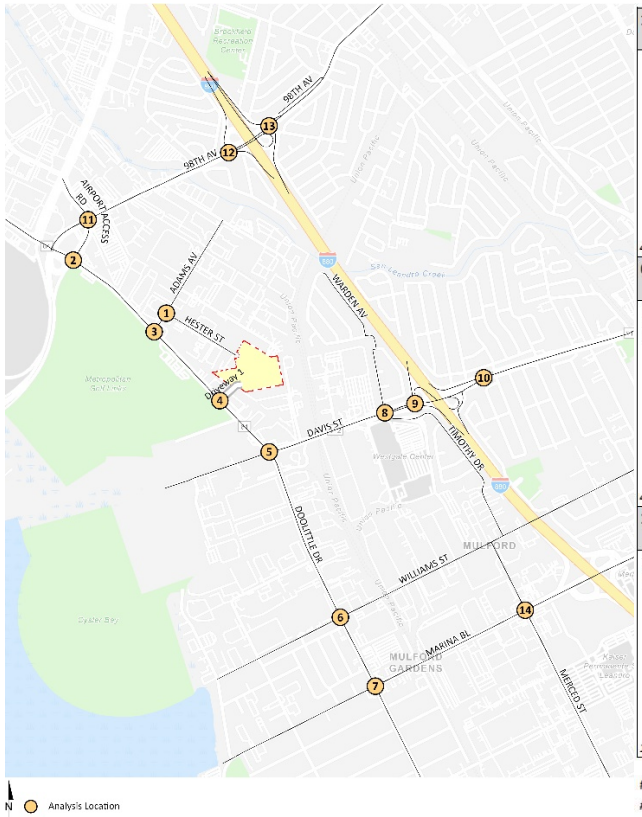
* **BOLD** = Level of Service (LOS) does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

[1] Per the Highway Capacity Manual (HCM 2000), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[2] CSS = Cross-street Stop; TS = Traffic Signal

[3] For intersections operating below LOS D, an impact would occur if new trips added by the project causes the v/c to increase by 0.05 or more.

EXHIBIT 5-1: E+P TRAFFIC VOLUMES



1 Hester St. & Adams Av. — *4,200*

	← 102(151)	*4,200*
	↰ 27(22)	
243(138) →	11(36) ↑	24(21) ↱
65(16) ↴		*1,450*

2 Doolittle Dr. & Airport Access Rd. — *3,450*

17,250 616(592) ↓	13(22) ↳	↰ 11(20)
79(70) ↳		↰ 183(73)
19(39) →	592(731) ↑	104(124) ↱
138(204) ↴		*20,800*
3,750		

3 Doolittle Dr. & Adams Av. — *4,900*

24,650 629(1100) ↓	55(30) ↳	↰ 37(68)
		↰ 88(161)
	758(845) ↑	182(140) ↱
		26,950

4 Doolittle Dr. & Project Dwy. — *1,300*

22,550 1024(985) ↓	17(12) ↳	↰ 26(38)
		↰ 87(23)
	815(845) ↑	33(39) ↱
		22,650

5 Doolittle Dr. & Davis St. — *20,250*

28,700 47(40) ↓	313(764) ↳	391(629) ↰ 757(472)
		↰ 123(75)
45(61) ↴		↰ 245(180)
166(114) →	47(18) ↑	778(428) ↱
35(43) ↴		216(226) *19,950*
4,200		

6 Doolittle Dr. & Williams St. — *10,800*

24,500 51(58) ↓	660(1052) ↳	91(335) ↰ 209(110)
		↰ 124(91)
96(62) ↴		↰ 92(123)
143(129) →	43(25) ↑	1004(422) ↱ 124(108)
31(45) ↴		*21,300*
4,950		

7 Doolittle Dr. & Marina Bl. — *17,050*

18,800 55(93) ↓	513(709) ↳	227(270) ↰ 301(159)
		↰ 150(292)
55(52) ↴		↰ 143(231)
218(293) →	10(30) ↑	620(285) ↱ 258(179)
68(31) ↴		*17,600*
9,500		

8 Warden Av. & Davis St. — *41,450*

3,300 24(26) ↓	58(23) ↳	122(67) ↰ 46(108)
		↰ 1303(941)
6(25) ↴		↰ 412(459)
926(1342) →	158(134) ↑	31(26) ↱ 361(544)
147(208) ↴		*16,750*
32,050		

9 I-880 SB Ramps & Davis St. — *36,250*

17,100 596(589) ↓	209(408) ↳	↰ 402(426)
		↰ 1165(919)
852(1271) →		
557(682) ↴		*8,100*
41,400		

10 I-880 NB Ramps & Davis St. — *34,550*

4,250		↰ 531(355)
		↰ 1106(921)
570(1114) →		↱ 236(486)
491(565) ↴		*17,600*
36,250		

11 Airport Access Rd. & 98th Av. — *23,450*

6,400 8(4) ↓	18(34) ↳	53(67) ↰ 368(267)
		↰ 742(504)
93(71) ↴		↰ 57(73)
629(897) →	11(10) ↑	42(79) ↱ 75(146)
1(7) ↴		*4,300*
17,900		

12 I-880 SB Ramps & 98th Av. — *35,700*

15,300 402(204) ↓	265(571) ↳	↰ 622(503)
		↰ 1351(990)
564(894) →		
572(652) ↴		*7,850*
33,050		

13 I-880 NB Ramps & 98th Av. — *38,400*

5,600		↰ 519(469)
		↰ 1072(988)
453(973) →	900(506) ↑	338(763) ↱
377(493) ↴		*21,200*
35,700		

14 Merced St. & Marina Bl. — *35,950*

14,300 44(58) ↓	183(306) ↳	186(315) ↰ 214(176)
		↰ 521(613)
51(63) ↴		↰ 638(638)
457(672) →	51(70) ↑	307(271) ↱ 448(583)
46(77) ↴		*23,350*
18,600		

##(##) AM(PM) Peak Hour Intersection Volumes

Average Daily Trips

5.4 TRAFFIC SIGNAL WARRANTS ANALYSIS

There are no other unsignalized study area intersections anticipated to meet peak hour volume-based traffic signal warrants under E+P traffic conditions in addition to the location previously warranted under Existing traffic conditions (see Appendix 5.2).

5.5 QUEUING ANALYSIS

A queuing analysis was performed for the signalized study area intersections to assess vehicle queues for the turn pockets that may potentially "spill back" into the adjacent through lanes. Queuing analysis findings are presented in Table 5-2 for E+P traffic conditions. As shown in Table 5-2, the following turning movements are anticipated to experience queuing issues for E+P traffic conditions and are consistent with existing deficient turning movements, however, the addition of Project traffic to these existing deficiencies result in nominal changes:

- Doolittle Dr. & Davis St. (#5) – Southbound left PM peak hour only
- Doolittle Dr. & Davis St. (#5) – Westbound right turn lane AM and PM peak hours
- Doolittle Dr. & Williams St. (#6) – Southbound left PM peak hour only
- Doolittle Dr. & Marina Bl. (#7) – Southbound left AM and PM peak hours
- Doolittle Dr. & Marina Bl. (#7) – Westbound left AM and PM peak hours
- Warden Av. & Davis St. (#8) – Southbound left AM peak hour only
- Airport Access Rd. & 98th Av. (#11) – Westbound left PM peak hour only

Worksheets for E+P traffic conditions queuing analysis worksheets are provided in Appendix 5.3.

5.6 RECOMMENDED IMPROVEMENTS

Improvement strategies have been recommended at intersections that have been identified as deficient under E+P traffic conditions and where the addition of Project traffic would have a significant effect. Improvements have been identified in an effort to achieve an acceptable LOS (i.e., LOS D or better).

TABLE 5-2: PEAK HOUR TURN LANE QUEUING SUMMARY FOR E+P CONDITIONS

#	Intersection	Movement	Available Stacking Distance (Feet)	Existing (2021) 95th % Queue (ft) AM	Existing (2021) 95th % Queue (ft) PM	Existing (2021) Acceptable? [1] AM	Existing (2021) Acceptable? [1] PM	E+P 95th % Queue (ft) AM	E+P 95th % Queue (ft) PM	E+P Acceptable? [1] AM	E+P Acceptable? [1] PM
2	Doolittle Dr. & Airport Access Rd.	NBR	385	9	21	Yes	Yes	8	16	Yes	Yes
		SBL	150	24	32	Yes	Yes	24	32	Yes	Yes
		EBL	200	83	71	Yes	Yes	83	71	Yes	Yes
		EBR	200	31	58	Yes	Yes	31	58	Yes	Yes
		WBL	135	72	32	Yes	Yes	72	31	Yes	Yes
3	Doolittle Dr. & Adams Av.	NBR	270	35	27	Yes	Yes	35	27	Yes	Yes
		SBL	230	52	35	Yes	Yes	51	34	Yes	Yes
		WBR	85	19	24	Yes	Yes	19	22	Yes	Yes
5	Doolittle Dr. & Davis St.	NBL	130	81	41	Yes	Yes	81	41	Yes	Yes
		NBR	180	48	46	Yes	Yes	48	46	Yes	Yes
		SBL	265	200	**458** [2]	Yes	**No**	264 [2]	**456** [2]	Yes	**No**
		EBL	300	78	98	Yes	Yes	78	98	Yes	Yes
		WBL	235	213 [2]	168 [2]	Yes	Yes	213 [2]	168 [2]	Yes	Yes
		WBR	100	**916** [2]	**304**	**No**	**No**	**894** [2]	**293**	**No**	**No**
6	Doolittle Dr. & Williams St.	NBL	90	48	39	Yes	Yes	48	39	Yes	Yes
		SBL	100	117 [2]	**354** [2]	Yes	**No**	116 [2]	**352** [2]	Yes	**No**
		WBR	100	43	23	Yes	Yes	43	23	Yes	Yes
7	Doolittle Dr. & Marina Bl.	NBL	50	23	52	Yes	Yes	23	52	Yes	Yes
		NBR	100	95	39	Yes	Yes	95	39	Yes	Yes
		SBL	100	**305** [2]	**359** [2]	**No**	**No**	**320** [2]	**363** [2]	**No**	**No**
		EBL	120	73	76	Yes	Yes	73	76	Yes	Yes
		WBL	120	**223** [2]	**320** [2]	**No**	**No**	**223** [2]	**320** [2]	**No**	**No**
		WBR	850	64	47	Yes	Yes	63	47	Yes	Yes
8	Warden Av. & Davis St.	NBR	600	37	70	Yes	Yes	38	70	Yes	Yes
		SBL	50	**104**	70	**No**	Yes	**104**	70	**No**	Yes
		EBL	85	15	40	Yes	Yes	15	40	Yes	Yes
		WBL	250	225 [2]	225 [2]	Yes	Yes	225 [2]	225 [2]	Yes	Yes

#	Intersection	Movement	Available Stacking Distance (Feet)	Existing (2021) 95th % Queue (ft) AM	Existing (2021) 95th % Queue (ft) PM	Existing (2021) Acceptable? [1] AM	Existing (2021) Acceptable? [1] PM	E+P 95th % Queue (ft) AM	E+P 95th % Queue (ft) PM	E+P Acceptable? [1] AM	E+P Acceptable? [1] PM
9	I-880 SB Ramps & Davis St.	SBR	350	152	125	Yes	Yes	152	125	Yes	Yes
		WBR	550	35	44	Yes	Yes	35	44	Yes	Yes
10	I-880 NB Ramps & Davis St.	NBL	300	110	82	Yes	Yes	108	82	Yes	Yes
		EBR	800	91	0	Yes	Yes	0	0	Yes	Yes
11	Airport Access Rd. & 98th Av.	NBL	60	27	24	Yes	Yes	27	24	Yes	Yes
		NBR	150	0	6	Yes	Yes	0	6	Yes	Yes
		SBL	100	97 [2]	121 [2]	Yes	Yes	97 [2]	121 [2]	Yes	Yes
		SBR	190	0	0	Yes	Yes	0	0	Yes	Yes
		WBL	100	104 [2]	**128 [2]**	Yes	**No**	104 [2]	**128 [2]**	Yes	**No**
		WBR	260	43	37	Yes	Yes	43	37	Yes	Yes
12	I-880 SB Ramps & 98th Av.	SBR	400	225 [2]	85	Yes	Yes	254 [2]	88	Yes	Yes
		EBR	290	40	41	Yes	Yes	40	40	Yes	Yes
13	I-880 NB Ramps & 98th Av.	NBL	675	208	79	Yes	Yes	208	79	Yes	Yes
14	Merced Av. & Marina Bl.	NBL	150	71	87	Yes	Yes	70	88	Yes	Yes
		NBR	415	206	293 [2]	Yes	Yes	206	293 [2]	Yes	Yes
		SBL	300	131 [2]	198 [2]	Yes	Yes	131 [2]	198 [2]	Yes	Yes
		SBR	150	0	0	Yes	Yes	0	0	Yes	Yes
		EBL	80	70	95 [2]	Yes	Yes	70	95 [2]	Yes	Yes
		EBR	50	0	0	Yes	Yes	0	0	Yes	Yes
		WBL	365	336 [2]	359 [2]	Yes	Yes	336 [2]	359 [2]	Yes	Yes

BOLD = 95th percentile queue exceeds the available storage.

[1] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 25 feet (1 car length) of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table, where applicable.

[2] 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

5.6.1 Recommended Improvements To Address Deficiencies At Intersections

As shown previously in Table 5-1, the addition of Project traffic at the two deficient locations is anticipated to result in a change to the v/c ratio of less than 0.05. As such, no improvements have been recommended at these locations for E+P traffic conditions.

5.6.2 Recommended Improvements To Address Deficiencies On Queues

As shown previously in Table 5-2, there are movements anticipated to experience queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows under E+P traffic conditions. However, these are existing queuing issues, and the addition of Project traffic is anticipated to have a nominal effect on the peak hour queues. As discussed previously in Section 3.10 *Queuing Analysis*, improvements at some of the turn lanes would not be feasible given the physical surroundings. The peak hour intersection operations analyses for these study area intersections show that the addition of Project traffic is not anticipated to have a significant effect (v/c increase of less than 0.05). As such, consistent with the peak hour intersection operations analyses, no improvements have been recommended to address the peak hour queuing deficiencies.

6 HORIZON YEAR (2040) TRAFFIC ANALYSIS

This section discusses the methods used to develop Horizon Year (2040) traffic forecasts and the resulting intersection operations, traffic signal warrant, and queuing analyses.

6.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for Horizon Year (2040) conditions are consistent with those shown previously on Exhibit 3-1.

6.2 HORIZON YEAR (2040) WITHOUT PROJECT TRAFFIC VOLUME FORECASTS

This scenario includes the refined post-processed volumes obtained from the Alameda Countywide Travel Demand Model (see Section 4.5 *Horizon Year (2040) Traffic Forecasts* of this TA for a detailed discussion on the post-processing methodology). The weekday ADT and weekday AM and PM peak hour volumes which can be expected for Horizon Year (2040) Without Project traffic conditions are shown on Exhibit 6-1.

6.3 HORIZON YEAR (2040) WITH PROJECT TRAFFIC VOLUME FORECASTS

This scenario includes the refined post-processed volumes obtained from the Alameda Countywide Travel Demand Model plus net new Project traffic. The weekday ADT and weekday AM and PM peak hour volumes which can be expected for Horizon Year (2040) With Project traffic conditions are shown on Exhibit 6-2.

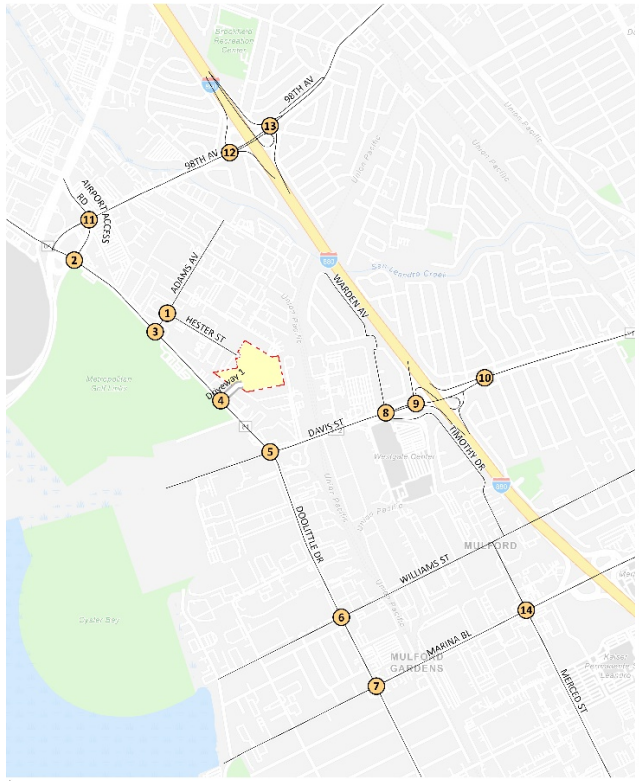
6.4 INTERSECTION OPERATIONS ANALYSIS

LOS calculations were conducted for the study intersections to evaluate their operations under Horizon Year (2040) Without Project conditions with roadway and intersection geometrics consistent with Section 6.1 *Roadway Improvements*. As shown in Table 6-1, the following study area intersections are anticipated to operate at an unacceptable LOS during the peak hours under Horizon Year (2040) Without Project traffic conditions:

- Doolittle Dr. & Davis St. (#5) – LOS F AM and PM peak hours
- Doolittle Dr. & Marina Bl. (#7) – LOS E PM peak hour only
- Airport Access Rd. & 98th Av. (#11) – LOS F PM peak hour only
- Merced St. & Marina Bl. (#14) – LOS E AM and PM peak hours

The addition of Project traffic is anticipated to have a significant effect on the intersection of Doolittle Drive and the Project Driveway only. The intersection operations analysis worksheets for Horizon Year (2040) Without and With Project traffic conditions are included in Appendix 6.1 and Appendix 6.2 of this TA, respectively.

EXHIBIT 6-1: HORIZON YEAR (2040) WITHOUT PROJECT TRAFFIC VOLUMES



1 Hester St. & Adams Av.

			4,400
	← 102(153)		
	↰ 37(27)		
255(138) →	↑ 13(64)	↱ 28(45)	
75(20) ↴			
4,400			1,800

2 Doolittle Dr. & Airport Access Rd.

17,250			3,950
↲ 624(593)	↓	↳ 32(22)	↰ 11(20)
			↰ 184(104)
79(70) →	↑	↱	
19(39) →			
195(350) ↴			
4,650			24,050

3 Doolittle Dr. & Adams Av.

24,800			5,150
↲ 691(1115)	↓	↳ 57(32)	↰ 39(82)
			↰ 88(178)
	↑	↱ 810(1166)	
		202(141)	
			30,450

4 Doolittle Dr. & Project Dwy.

22,800			1,550
↲ 1086(1016)	↓	↳ 18(12)	↰ 24(40)
			↰ 38(35)
	↑ 891(1166)	↱ 44(41)	
			25,750

5 Doolittle Dr. & Davis St.

30,850			26,600
↲ 47(40)	↓ 308(926)	↳ 454(636)	↰ 790(816)
			← 132(88)
			↰ 266(180)
45(61) →			
179(144) →	↑ 71(19)	↱ 834(429)	
36(46) ↴		310(291)	
4,700			22,300

6 Doolittle Dr. & Williams St.

26,000			11,550
↲ 51(58)	↓ 654(1244)	↳ 94(338)	↰ 303(127)
			← 126(97)
			↰ 92(124)
96(80) →	↑	↱	
148(129) →	43(25)	1103(455)	124(108)
31(45) ↴			
5,400			21,900

7 Doolittle Dr. & Marina Bl.

22,750			20,100
↲ 57(103)	↓ 514(782)	↳ 220(380)	↰ 315(161)
			← 261(444)
			↰ 143(231)
92(58) →	↑	↱	
327(297) →	10(31)	669(310)	258(179)
68(36) ↴			
10,350			18,350

8 Warden Av. & Davis St.

3,550			48,000
↲ 24(26)	↓ 66(31)	↳ 142(73)	↰ 46(126)
			← 1414(1276)
			↰ 432(451)
6(25) →	↑	↱	
1069(1486) →	158(165)	363(635)	
169(232) ↴	31(29)		
32,600			18,750

9 I-880 SB Ramps & Davis St.

17,850			39,550
↲ 651(601)	↓	↳ 225(524)	↰ 407(430)
			← 1240(1252)
1008(1544) →			
567(650) ↴			
43,900			7,800

10 I-880 NB Ramps & Davis St.

4,250			37,750
			← 572(392)
			← 1178(1088)
644(1395) →		↱	
589(672) ↴		248(486)	
41,500			20,100

11 Airport Access Rd. & 98th Av.

6,650			27,400
↲ 20(4)	↓ 19(36)	↳ 53(74)	368(267)
			← 1183(666)
			↰ 57(86)
93(71) →	↑	↱	
680(1315) →	11(10)	46(90)	104(146)
1(7) ↴			
20,700			4,350

12 I-880 SB Ramps & 98th Av.

18,050			35,550
↲ 587(327)	↓	↳ 265(571)	↰ 627(497)
			← 1359(1041)
564(1127) →			
621(655) ↴			
35,100			7,850

13 I-880 NB Ramps & 98th Av.

16,700			32,400
			↰ 519(469)
			← 1086(999)
	↑	↱	
455(985) →	900(539)	363(763)	
374(713) ↴			
39,500			15,550

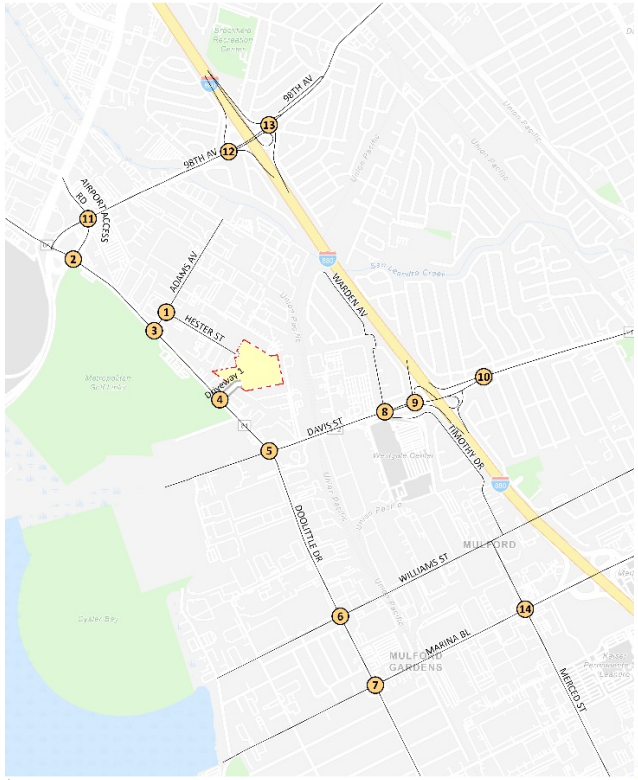
14 Merced St. & Marina Bl.

15,250			40,150
↲ 45(60)	↓ 209(358)	↳ 186(315)	↰ 278(191)
			← 683(774)
			↰ 781(638)
52(66) →	↑	↱	
560(774) →	60(81)	448(641)	
47(98) ↴	307(315)		
21,600			26,600

##(##) AM(PM) Peak Hour Intersection Volumes

Average Daily Trips

EXHIBIT 6-2: HORIZON YEAR (2040) WITH PROJECT TRAFFIC VOLUMES



N ○ Analysis Location

1 Hester St. & Adams Av.

			4,250
		← 102(153)	
		↰ 34(24)	
		↱	
	→ 255(138)		
	↳ 73(18)	11(52)	27(21)
4,350			1,650

2 Doolittle Dr. & Airport Access Rd.

17,250			3,900
	↳ 623(592)		↰ 11(20)
	↓ 32(22)		↰ 183(102)
	↳		
	→ 79(70)	↰	↑ ↱
	→ 19(39)		
	↳ 195(350)	655(1067)	104(124)
4,650			24,000

3 Doolittle Dr. & Adams Av.

24,750			5,100
	↳ 690(1115)		↰ 37(70)
	↓ 55(30)		↰ 88(178)
	↳		
		↰	↑ ↱
		812(1164)	202(141)
			30,400

4 Doolittle Dr. & Project Dwy.

22,800			1,300
	↳ 1086(1016)		↰ 26(38)
	↓ 17(12)		↰ 87(23)
	↳		
		↰	↑ ↱
		891(1166)	33(39)
			25,550

5 Doolittle Dr. & Davis St.

30,650			26,400
	↳ 47(40)		↰ 781(815)
	↓ 313(920)		← 132(88)
	↳ 498(629)		↰ 266(180)
	↲		
	→ 45(61)	↰	↑ ↱
	→ 179(144)		
	↳ 36(46)	71(19)	832(428) 310(291)
4,700			22,250

6 Doolittle Dr. & Williams St.

25,950			11,550
	↳ 51(58)		← 303(127)
	↓ 660(1241)		← 126(97)
	↳ 93(335)		↰ 92(124)
	↲		
	→ 96(80)	↰	↑ ↱
	→ 148(129)	43(25)	1101(455) 124(108)
	↳ 31(45)		
5,400			21,850

7 Doolittle Dr. & Marina Bl.

22,750			20,100
	↳ 57(102)		↰ 314(161)
	↓ 513(778)		← 261(444)
	↳ 228(382)		↰ 143(231)
	↲		
	→ 92(58)	↰	↑ ↱
	→ 327(297)	10(31)	669(309) 258(179)
	↳ 68(36)		
10,350			18,350

8 Warden Av. & Davis St.

3,650			49,250
	↳ 24(26)		↰ 46(126)
	↓ 66(31)		← 1405(1275)
	↳ 142(73)		↰ 432(451)
	↲		
	→ 6(25)	↰	↑ ↱
	→ 1113(1480)	158(165)	31(29) 363(635)
	↳ 169(231)		
33,200			19,150

9 I-880 SB Ramps & Davis St.

18,300			40,750
	↳ 651(601)		↰ 407(430)
	↲ 225(524)		← 1231(1251)
	↲		
		↰	↑ ↱
	→ 1011(1539)		
	↳ 608(649)		
44,950			8,100

10 I-880 NB Ramps & Davis St.

4,250			37,850
			↰ 572(392)
			← 1177(1087)
			↱
	→ 647(1390)		
	↳ 589(672)		248(486)
41,550			20,000

11 Airport Access Rd. & 98th Av.

6,650			27,400
	↳ 20(4)		368(267)
	↓ 18(34)		← 1183(666)
	↳ 53(74)		↰ 57(86)
	↲		
	→ 93(71)	↰	↑ ↱
	→ 680(1315)	11(10)	42(79) 104(146)
	↳ 1(7)		
20,700			4,300

12 I-880 SB Ramps & 98th Av.

18,350			36,400
	↳ 585(326)		↰ 627(497)
	↳ 265(571)		← 1358(1039)
	↲		
		↰	↑ ↱
	→ 564(1108)		
	↳ 620(652)		
35,650			7,850

13 I-880 NB Ramps & 98th Av.

5,600			38,550
			↰ 519(469)
			← 1085(997)
		↰	↱
	→ 452(975)		
	↳ 378(705)	900(539)	363(763)
35,250			21,650

14 Merced St. & Marina Bl.

15,250			40,150
	↳ 45(60)		↰ 278(191)
	↓ 208(355)		← 683(774)
	↳ 186(315)		↰ 781(638)
	↲		
	→ 52(66)	↰	↑ ↱
	→ 563(775)	59(81)	307(314) 448(641)
	↳ 52(99)		
21,550			26,600

##(##) AM(PM) Peak Hour Intersection Volumes

Average Daily Trips

TABLE 6-1: INTERSECTION ANALYSIS FOR HORIZON YEAR (2040) CONDITIONS

#	Intersection	Traffic Control[2]	2040 Without Project Delay[1] (secs.) AM	PM	Volume-to-Capacity (v/c) AM	PM	Level of Service AM	PM	2040 With Project Delay[1] (secs.) AM	PM	Volume-to-Capacity (v/c) AM	PM	Level of Service AM	PM	Change in v/c[3] AM	PM
1	Hester St. & Adams Av.	CSS	11.7	11.4	0.08	0.18	B	B	12.2	11.3	0.08	0.13	B	B	--	--
2	Doolittle Dr. & Airport Access Rd.	TS	22.0	22.3	0.59	0.66	C	C	22.1	22.4	0.59	0.66	C	C	--	--
3	Doolittle Dr. & Adams St.	TS	9.8	14.6	0.48	0.77	A	B	9.7	14.4	0.48	0.76	A	B	--	--
4	Doolittle Dr. & Project Dwy.	CSS	16.8	20.4	0.19	0.26	C	C	**38.5**	25.6	**0.56**	0.27	**E**	D	**0.37**	--
5	Doolittle Dr. & Davis St.[4]	TS	**79.3**	**88.5**	**1.01**	**0.99**	**F**	**F**	**79.6**	**84.9**	**0.99**	**0.97**	**E**	**F**	-0.02	-0.02
6	Doolittle Dr. & Williams St.	TS	28.0	33.4	0.89	0.90	C	C	27.7	33.1	0.89	0.90	C	C	--	--
7	Doolittle Dr. & Marina Bl.	TS	38.5	**61.0**	0.77	**0.94**	D	**E**	40.3	**62.4**	0.78	**0.94**	D	**E**	--	0.00
8	Warden Av. & Davis St.	TS	46.4	37.2	0.79	0.79	D	D	47.1	37.5	0.81	0.79	D	D	--	--
9	I-880 SB Ramps & Davis St.	TS	14.2	17.8	0.76	0.82	B	B	14.2	17.9	0.76	0.83	B	B	--	--
10	I-880 NB Ramps & Davis St.	TS	11.3	20.1	0.67	0.86	B	C	11.2	19.9	0.67	0.86	B	B	--	--
11	Airport Access Rd. & 98th Av.	TS	31.7	**86.9**	0.48	**0.66**	C	**F**	31.1	**87.2**	0.47	**0.66**	C	**F**	--	0.00
12	I-880 SB Ramps & 98th Av.	TS	28.1	13.3	0.99	0.62	C	B	27.9	13.3	0.99	0.62	C	B	--	--
13	I-880 NB Ramps & 98th Av.	TS	19.1	37.2	0.80	0.97	B	D	19.1	36.4	0.80	0.97	B	D	--	--
14	Merced St. & Marina Bl.	TS	**66.9**	**62.7**	**0.94**	**1.00**	**E**	**E**	**67.1**	**62.8**	0.94	**1.00**	**E**	**E**	0.00	0.00

* **BOLD** = Level of Service (LOS) does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

[1] Per the Highway Capacity Manual (HCM 2000), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[2] CSS = Cross-street Stop; TS = Traffic Signal

[3] For intersections operating below LOS D, an impact would occur if new trips added by the project causes the v/c to increase by 0.05 or more.

[4] Per the HCM methodology, if volume-to-capacity exceeds 1.00 then the level of service is LOS F.

6.5 TRAFFIC SIGNAL WARRANTS ANALYSIS

There is no other unsignalized study area intersections anticipated to meet peak hour volume-based traffic signal warrants under Horizon Year (2040) Without and With Project traffic conditions in addition to the location previously warranted under Existing traffic conditions (see Appendix 6.3 and Appendix 6.4).

6.6 QUEUING ANALYSIS

A queuing analysis was performed for the signalized study area intersections to assess vehicle queues for the turn pockets that may potentially "spill back" into the adjacent through lanes. Queuing analysis findings are presented in Table 6-2 for Horizon Year (2040) Without and With Project traffic conditions. As shown in Table 6-2, the following turning movements are anticipated to experience queuing issues for Horizon Year (2040) Without Project traffic conditions (see Appendix 6.5):

- Doolittle Dr. & Davis St. (#5) – Southbound left PM peak hour only
- Doolittle Dr. & Davis St. (#5) – Westbound right turn lane AM and PM peak hours
- Doolittle Dr. & Williams St. (#6) – Southbound left PM peak hour only
- Doolittle Dr. & Marina Bl. (#7) – Southbound left AM and PM peak hours
- Doolittle Dr. & Marina Bl. (#7) – Westbound left AM and PM peak hours
- Warden Av. & Davis St. (#8) – Southbound left AM peak hour only

TABLE 6-2: PEAK HOUR TURN LANE QUEUING SUMMARY FOR HORIZON YEAR (2040) CONDITIONS

#	Intersection	Movement	Available Stacking Distance (Feet)	2040 Without Project				2040 With Project			
				95th % Queue (ft)		Acceptable?[1]		95th % Queue (ft)		Acceptable?[1]	
				AM	PM	AM	PM	AM	PM	AM	PM
2	Doolittle Dr. & Airport Access Rd.	NBR	385	9	21	Yes	Yes	8	16	Yes	Yes
		SBL	150	44	32	Yes	Yes	44	32	Yes	Yes
		EBL	200	83	71	Yes	Yes	83	71	Yes	Yes
		EBR	200	67	150 [2]	Yes	Yes	66	158 [2]	Yes	Yes
		WBL	135	72	42	Yes	Yes	72	41	Yes	Yes
3	Doolittle Dr. & Adams Av.	NBR	270	37	27	Yes	Yes	37	27	Yes	Yes
		SBL	230	52	35	Yes	Yes	51	34	Yes	Yes
		WBR	85	19	24	Yes	Yes	18	23	Yes	Yes
5	Doolittle Dr. & Davis St.	NBL	130	124 [2]	43	Yes	Yes	124 [2]	43	Yes	Yes
		NBR	180	75	52	Yes	Yes	76	52 [2]	Yes	Yes
		SBL	265	**305** [2]	**458** [2]	**No**	**No**	**365** [2]	**456** [2]	**No**	**No**
		EBL	300	78	98	Yes	Yes	78	98	Yes	Yes
		WBL	235	235 [2]	168 [2]	Yes	Yes	235 [2]	168 [2]	Yes	Yes
		WBR	100	**964** [2]	**954** [2]	**No**	**No**	**942** [2]	**934** [2]	**No**	**No**
6	Doolittle Dr. & Williams St.	NBL	90	48	39	Yes	Yes	48	39	Yes	Yes
		SBL	100	121 [2]	**354** [2]	Yes	**No**	119 [2]	**352** [2]	Yes	**No**
		WBR	100	96	32	Yes	Yes	96	32	Yes	Yes
7	Doolittle Dr. & Marina Bl.	NBL	50	23	52	Yes	No	23	52	Yes	Yes
		NBR	100	105	39	Yes	Yes	105	39	Yes	Yes
		SBL	100	**306** [2]	**545** [2]	**No**	**No**	**322** [2]	**550** [2]	**No**	**No**
		EBL	120	139 [2]	82	Yes	Yes	139 [2]	82	Yes	Yes
		WBL	120	**223** [2]	**320** [2]	**No**	**No**	**223** [2]	**320** [2]	**No**	**No**
		WBR	850	96	48	Yes	Yes	96	48	Yes	Yes
8	Warden Av. & Davis St.	NBR	600	51	112	Yes	Yes	52	112	Yes	Yes
		SBL	50	**119**	75	**No**	Yes	**119**	75	**No**	Yes
		EBL	85	15	40	Yes	Yes	15	40	Yes	Yes
		WBL	250	237 [2]	220 [2]	Yes	Yes	237 [2]	220 [2]	Yes	Yes

#	Intersection	Movement	Available Stacking Distance (Feet)	2040 Without Project				2040 With Project			
				95th % Queue (ft)		Acceptable? [1]		95th % Queue (ft)		Acceptable? [1]	
				AM	PM	AM	PM	AM	PM	AM	PM
9	I-880 SB Ramps & Davis St.	SBR	350	199 [2]	142	Yes	Yes	198 [2]	142	Yes	Yes
		WBR	550	35	44	Yes	Yes	35	44	Yes	Yes
10	I-880 NB Ramps & Davis St.	NBL	300	110	118	Yes	Yes	108	118	Yes	Yes
		EBR	800	0	0	Yes	Yes	0	0	Yes	Yes
11	Airport Access Rd. & 98th Av.	NBL	60	27	24	Yes	Yes	27	24	Yes	Yes
		NBR	150	0	6	Yes	Yes	0	6	Yes	Yes
		SBL	100	97 [2]	**135 [2]**	Yes	**No**	97 [2]	**135 [2]**	Yes	**No**
		SBR	190	0	0	Yes	Yes	0	0	Yes	Yes
		WBL	100	104 [2]	**154 [2]**	Yes	**No**	104 [2]	**492 [2]**	Yes	**No**
		WBR	260	43	37	Yes	Yes	43	37	Yes	Yes
12	I-880 SB Ramps & 98th Av.	SBR	400	432 [2]	131	Yes [3]	Yes	430 [2]	159	Yes [3]	Yes
		EBR	290	41	44	Yes	Yes	41	43	Yes	Yes
13	I-880 NB Ramps & 98th Av.	NBL	675	208	84	Yes	Yes	208	84	Yes	Yes
14	Merced Av. & Marina Bl.	NBL	150	80	98	Yes	Yes	79	99	Yes	Yes
		NBR	415	206	340 [2]	Yes	Yes	206	340 [2]	Yes	Yes
		SBL	300	131 [2]	198 [2]	Yes	Yes	131 [2]	198 [2]	Yes	Yes
		SBR	150	0	0	Yes	Yes	0	0	Yes	Yes
		EBL	80	71	102 [2]	Yes	Yes	71	102 [2]	Yes	Yes
		EBR	50	0	3	Yes	Yes	0	3	Yes	Yes
		WBL	365	**442 [2]**	359 [2]	**No**	Yes	**442 [2]**	359 [2]	**No**	Yes

BOLD = 95th percentile queue exceeds the available storage.

[1] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 25 feet (1 car length) of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table, where applicable.

[2] 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

[3] Although 95th percentile queue is anticipated to exceed the available storage for the turn lane, the adjacent through lane has sufficient storage to accommodate any spillover without spilling back and affecting the I-880 Freeway mainline.

- Airport Access Rd. & 98th Av. (#11) – Southbound left PM peak hour only
- Airport Access Rd. & 98th Av. (#11) – Westbound left PM peak hour only
- Merced St. & Marina Bl. (#14) – Westbound left AM peak hour only

The addition of Project traffic to these pre-project deficiencies is anticipated to result in nominal changes (see Appendix 6.6). There are no new queuing deficiencies anticipated as a result of Project traffic.

6.7 RAILROAD QUEUING ANALYSIS

The queuing analysis results for the at-grade railroad crossings have also been summarized on Table 6-3 for Horizon Year (2040) With Project traffic conditions only. As shown in Table 6-3, only the westbound through movement at Doolittle Drive and Marina Boulevard may potentially extend back to the at-grade railroad crossing. It should be noted that while the 95th percentile queue indicates a queuing issue in the PM peak hour only, the average (50th percentile) peak hour queue does not. The 95th percentile queue, while typically used for design purposes, in reality occurs approximately 5 percent of the time. The existing railroad crossing has striping and signing for advance notification of the crossing in both directions of travel on Marina Boulevard. In addition, the crossing itself is equipped with mast arms and warning lights. A potential recommendation for the City to improve peak hour queues in the westbound approach would be to modify the signal timing at Doolittle Drive and Marina Boulevard to clear any queues in advance of approaching trains. Worksheets for Horizon Year (2040) traffic conditions queuing analysis worksheets are provided in Appendix 6.7.

TABLE 6-3: AT-GRADE RAILROAD CROSSING PEAK HOUR QUEUING SUMMARY

#	Intersection	Movement	Available Stacking Distance (Feet)	2040 With Project			
				95th % Queue (ft)		Acceptable?[1]	
				AM	PM	AM	PM
4	Doolittle Dr. & Project Driveway	WBL/R	265	150	86	Yes	Yes
5	Doolittle Dr. & Davis St. (SR-112)	NBT	380	265	103	Yes	Yes
6	Doolittle Dr. & Williams St.	WBT	840	222	346	Yes	Yes
7	Doolittle Dr. & Marina Bl.	WBT	840	419	**932**	Yes	**No**

BOLD = 95th percentile queue exceeds the available storage.

[1] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 25 feet (1 car length) of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table, where applicable.

6.8 RECOMMENDED IMPROVEMENTS

Improvement strategies have been recommended at intersections that have been identified as deficient under Horizon Year (2040) Without and With Project traffic conditions and where the addition of Project traffic would have a significant effect. Improvements have been identified in an effort to achieve an acceptable LOS (i.e., LOS D or better).

6.8.1 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES AT INTERSECTIONS

The effectiveness of the recommended improvement strategies to address Horizon Year (2040) With Project traffic deficiencies are presented in Table 6-4. As noted previously, the addition of Project traffic is anticipated to have a significant effect on the intersection of Doolittle Drive and the Project Driveway only. The addition of Project traffic at the other four deficient locations is anticipated to result in a change to the v/c ratio of less than 0.05. As such, no improvements have been recommended at those locations for Horizon Year (2040) With Project traffic conditions. It is recommended that the Project contribute fair share payment towards the recommended improvement (signalization). Worksheets for Horizon Year (2040) With Project conditions, with improvements, HCM calculation worksheets are provided in Appendix 6.8.

TABLE 6-4: INTERSECTION ANALYSIS FOR HORIZON YEAR (2040) CONDITIONS WITH IMPROVEMENTS

			Intersection Approach Lanes[1]												Delay[2] (secs.)		Level of Service	
		Traffic	Northbound			Southbound			Eastbound			Westbound						
#	Intersection	Control[3]	L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
4	Doolittle Dr. & Project Dwy.																	
	Without Improvements	CSS	0	2	0	1	2	0	0	0	0	0	1	0	**38.5**	25.6	**E**	D
	With Improvements	**TS**	0	2	0	1	2	0	0	0	0	0	1	0	9.4	7.4	A	A

* **BOLD** = Level of Service (LOS) does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right

[2] Per the Highway Capacity Manual (HCM 2000), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] CSS = Cross-Street Stop; TS = Traffic Signal; **TS** = Improvement

Table 6-5 provides the fair share calculation for the intersection of Doolittle Drive and Project Driveway. As stated above, the Project should contribute fair share payment towards the identified improvement at this location.

TABLE 6-5: PROJECT FAIR SHARE CALCULATIONS

#	Intersection		Existing	Project	Horizon Year (2040) With Project	Total New Traffic	Project % of New Traffic
4	Doolittle Dr. & Project Dwy.						
		AM:	1,963	39	2,140	177	**22.0%**
		PM:	1,958	-16	2,294	336	0.0%

BOLD = Denotes highest fair share percentage.

6.8.2 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES ON QUEUES

As shown previously in Table 6-2, there are movements anticipated to experience queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows under Horizon Year (2040) traffic conditions. However, these are pre-project queuing issues, and the addition of Project traffic is anticipated to have a nominal effect on the peak hour queues. The peak hour intersection operations analysis for these study area intersections show that the addition of Project traffic is not anticipated to have a significant effect (v/c increase of less than 0.05). Similarly, the addition of Project traffic is also not anticipated to have a significant effect to the PM peak hour queue identified at the intersection of Doolittle Drive and Marina Boulevard on Table 6-3. As such, consistent with the peak hour intersection operations analyses, no improvements have been recommended to address the peak hour queuing deficiencies.

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7 REFERENCES

1. **Alameda County Transportation Commission.** *2018 Level of Service Monitoring Report.* Alameda County : Iteris, Inc., December 2018.
2. **Transportation Research Board.** *Highway Capacity Manual (HCM).* s.l. : National Academy of Sciences, 2000.
3. **Caltrans.** California Manual on Uniform Traffic Control Devices (MUTCD). [book auth.] California Department of Transportation. *California Manual on Uniform Traffic Control Devices (CAMUTCD).* 2017.
4. **City of San Leandro.** *San Leandro 2035 General Plan.* City of San Leandro : s.n., Adopted September 19, 2016.
5. **City of Oakland.** *Envision Oakland: City of Oakland General Plan.* City of Oakland : s.n., March 1998.

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B- ACTC CENTRAL PLANNING AREA VMT MAP

Vehicle Miles Traveled Per Employee
Central Planning Area

Central Planning Area Average (Target -15%): 19.2 (16.3)
Alameda County Average (Target -15%): 15.9 (13.5)

Data Source: Alameda Countywide Travel Model, Plan Bay Area 2040 version, May 2019

Vehicle miles traveled (VMT) = home-based trips (home-based work, school, shopping/errands, social/recreation) at transportation analysis zone (TAZ) containing residence site

VMT also includes estimates of non-home trips generated by residents at the non-residential end of the home-based trip (e.g. lunch trips from workplace)

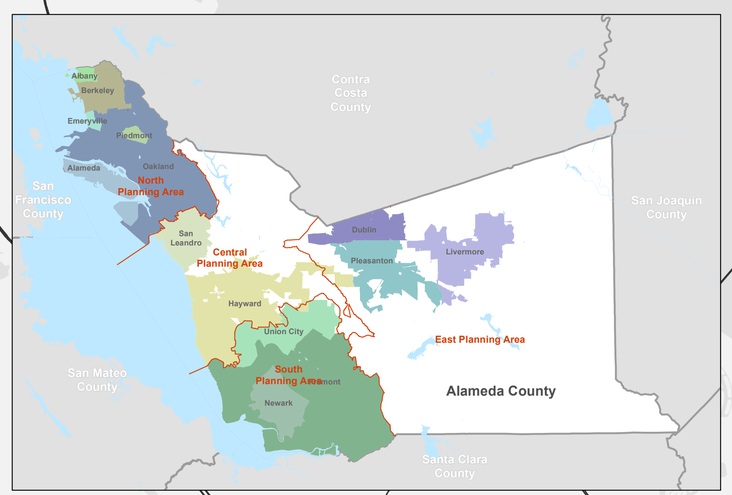
VMT per capita = home-based VMT at residence TAZ divided by total population in TAZ

VMT includes all travel within 9-county Bay Area plus San Joaquin County plus estimates of travel distances beyond the 10-county model area

TAZs with zero values (white) did not have population in the 2020 model

2020 Vehicle Miles Traveled per Employee by TAZ

- > 25.00
- 20.01 - 25.00
- 15.01 - 20.00
- 10.01 - 15.00
- 0.01 - 10.00
- 0.00



0 1 2 3 4 Miles

ALAMEDA County Transportation Commission

Alameda County Vehicle Miles of Travel (VMT) from Alameda Countywide Model
Year 2040

2040 VMT by City

City	Population	Household VMT	VMT/Capita	Employment	Employee VMT	VMT/Employee
Alameda	95,451	1,481,856	15.5	42,793	784,739	18.3
Alameda County	14,951	607,768	40.7	3,356	106,172	31.6
Albany	20,684	296,838	14.4	5,313	128,467	24.2
Ashland	31,245	495,916	15.9	3,381	76,696	22.7
Berkeley	141,229	1,617,236	11.5	121,710	1,566,754	12.9
Castro Valley	63,012	1,594,380	25.3	13,641	309,278	22.7
Cherryland	13,530	214,462	15.9	1,702	39,848	23.4
Dublin	80,567	1,928,070	23.9	28,752	390,985	13.6
Emeryville	34,640	279,816	8.1	19,818	297,394	15.0
Fremont	279,534	5,696,285	20.4	118,617	2,093,184	17.6
Hayward	188,515	3,556,157	18.9	75,880	1,423,579	18.8
Livermore	111,523	3,606,029	32.3	53,083	861,662	16.2
Newark	51,768	1,055,939	20.4	22,871	412,749	18.0
Oakland	632,032	7,608,601	12.0	273,838	4,113,381	15.0
Piedmont	11,222	201,917	18.0	1,905	50,586	26.6
Pleasanton	91,844	2,424,144	26.4	74,589	1,209,697	16.2
San Leandro	108,465	1,822,008	16.8	53,925	938,059	17.4
San Lorenzo	31,412	582,257	18.5	5,038	119,863	23.8
Union City	81,258	1,682,360	20.7	28,575	419,408	14.7
Total	**2,082,882**	**36,752,038**	**17.6**	**948,787**	**15,342,500**	**16.2**

2040 VMT by County Planning Area

Planning Area	Population	VMT_HH	VMT/Capita	Employment	VMT_EMP	VMT/Employee
Central	449,474	8,688,886	19.3	155,296	2,965,019	19.1
East	286,842	8,172,267	28.5	158,268	2,516,869	15.9
North	935,258	11,486,264	12.3	465,377	6,941,322	14.9
South	411,308	8,404,621	20.4	169,846	2,919,290	17.2
Total	**2,082,882**	**36,752,038**	**17.6**	**948,787**	**15,342,500**	**16.2**

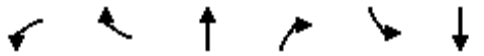
2040 VMT by County

County	Population	Household VMT	VMT/Capita	Employment	Employee VMT	VMT/Employee
San Francisco	1,167,689	11,650,405	10.0	872,499	10,136,949	11.6
San Mateo	915,365	12,471,097	13.6	472,056	10,593,123	22.4
Santa Clara	2,532,772	36,180,473	14.3	1,289,874	26,377,230	20.4
Alameda	2,082,882	36,752,038	17.6	948,787	15,342,500	16.2
Contra Costa	1,385,902	33,135,623	23.9	497,765	9,229,910	18.5
Solano	509,796	15,238,660	29.9	150,981	3,150,727	20.9
Napa	158,040	4,787,877	30.3	83,364	2,121,900	25.5
Sonoma	596,627	25,597,907	42.9	243,588	5,252,439	21.6
Marin	277,254	7,730,790	27.9	134,960	3,326,875	24.7
Total	**9,626,327**	**183,544,870**	**19.1**	**4,693,874**	**85,531,653**	**18.2**

Household VMT = All home-based productions plus proportional share of Non-Home-Based trips at destinations
Employee VMT = Home-Based Work attractions

TAZ	COUNTY	VMT_EMP	JURIS	REGION
597.00	4.00	16.08	San Leandro	Central

C- SYNCHRO OUTPUT



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	14	2	828	11	18	1040
Future Volume (Veh/h)	14	2	828	11	18	1040
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	16	2	941	12	20	1182
Pedestrians	1					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)			750			512
pX, platoon unblocked	0.93	0.90			0.90	
vC, conflicting volume	1579	478			954	
vC1, stage 1 conf vol	948					
vC2, stage 2 conf vol	631					
vCu, unblocked vol	1110	184			716	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	100			98	
cM capacity (veh/h)	359	746			800	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	18	627	326	20	591	591
Volume Left	16	0	0	20	0	0
Volume Right	2	0	12	0	0	0
cSH	381	1700	1700	800	1700	1700
Volume to Capacity	0.05	0.37	0.19	0.02	0.35	0.35
Queue Length 95th (ft)	4	0	0	2	0	0
Control Delay (s)	14.9	0.0	0.0	9.6	0.0	0.0
Lane LOS	B			A		
Approach Delay (s)	14.9	0.0		0.2		
Approach LOS	B					

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	38.7%	ICU Level of Service	A
Analysis Period (min)	15		

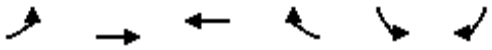
Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	14	2	828	11	18	1040
Future Vol, veh/h	14	2	828	11	18	1040
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	0	0	14	9	0	17
Mvmt Flow	16	2	941	13	20	1182

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1580	478	0	0	955	0
Stage 1	949	-	-	-	-	-
Stage 2	631	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	102	539	-	-	728	-
Stage 1	341	-	-	-	-	-
Stage 2	498	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	99	538	-	-	727	-
Mov Cap-2 Maneuver	279	-	-	-	-	-
Stage 1	341	-	-	-	-	-
Stage 2	484	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.9	0	0.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	297	727	-
HCM Lane V/C Ratio	-	-	0.061	0.028	-
HCM Control Delay (s)	-	-	17.9	10.1	-
HCM Lane LOS	-	-	C	B	-
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	0	0	10	46	12
Future Volume (Veh/h)	10	0	0	10	46	12
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	12	0	0	12	53	14
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	125	113	120	0	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	125	113	120	0	0	
tC, single (s)	7.2	6.7	6.7	6.4	4.2	
tC, 2 stage (s)						
tF (s)	3.6	4.1	4.1	3.4	2.3	
p0 queue free %	98	100	100	99	97	
cM capacity (veh/h)	789	728	721	1048	1542	

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	12	12	67
Volume Left	12	0	53
Volume Right	0	12	14
cSH	789	1048	1542
Volume to Capacity	0.02	0.01	0.03
Queue Length 95th (ft)	1	1	3
Control Delay (s)	9.6	8.5	5.9
Lane LOS	A	A	A
Approach Delay (s)	9.6	8.5	5.9
Approach LOS	A	A	

Intersection Summary			
Average Delay	6.7		
Intersection Capacity Utilization	17.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	247	52	5	102	6	14
Future Volume (Veh/h)	247	52	5	102	6	14
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	287	60	6	119	7	16
Pedestrians				1		
Lane Width (ft)				12.0		
Walking Speed (ft/s)				3.5		
Percent Blockage				0		
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	426					
pX, platoon unblocked						
vC, conflicting volume			347		448	318
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			347		448	318
tC, single (s)			4.1		6.5	6.4
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.5
p0 queue free %			100		99	98
cM capacity (veh/h)			1201		551	682

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	347	125	23
Volume Left	0	6	7
Volume Right	60	0	16
cSH	1700	1201	636
Volume to Capacity	0.20	0.00	0.04
Queue Length 95th (ft)	0	0	3
Control Delay (s)	0.0	0.4	10.9
Lane LOS		A	B
Approach Delay (s)	0.0	0.4	10.9
Approach LOS			B

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	26.5%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	247	52	5	102	6	14
Future Vol, veh/h	247	52	5	102	6	14
Conflicting Peds, #/hr	0	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	8	2	4	14	10	20
Mvmt Flow	287	60	6	119	7	16

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	347	0	448	318
Stage 1	-	-	-	-	317	-
Stage 2	-	-	-	-	131	-
Critical Hdwy	-	-	4.14	-	6.5	6.4
Critical Hdwy Stg 1	-	-	-	-	5.5	-
Critical Hdwy Stg 2	-	-	-	-	5.5	-
Follow-up Hdwy	-	-	2.236	-	3.59	3.48
Pot Cap-1 Maneuver	-	-	1201	-	554	683
Stage 1	-	-	-	-	721	-
Stage 2	-	-	-	-	876	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1201	-	551	682
Mov Cap-2 Maneuver	-	-	-	-	551	-
Stage 1	-	-	-	-	721	-
Stage 2	-	-	-	-	872	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	10.9
HCM LOS			B

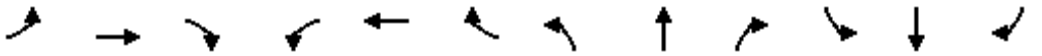
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	637	-	-	1201	-
HCM Lane V/C Ratio	0.037	-	-	0.005	-
HCM Control Delay (s)	10.9	-	-	8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	88	32	740	185	41	637
Future Volume (vph)	88	32	740	185	41	637
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.2	5.2	5.8	5.8	4.6	5.8
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	1.00	1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1467	1282	3312	1346	1687	3223
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1467	1282	3312	1346	1687	3223
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	93	34	779	195	43	671
RTOR Reduction (vph)	0	28	0	92	0	0
Lane Group Flow (vph)	93	6	779	103	43	671
Confl. Peds. (#/hr)	1			2		
Confl. Bikes (#/hr)				3		
Heavy Vehicles (%)	23%	26%	9%	17%	7%	12%
Turn Type	Perm	Perm	NA	Perm	Prot	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2		
Actuated Green, G (s)	11.5	11.5	32.6	32.6	1.9	39.1
Effective Green, g (s)	11.5	11.5	32.6	32.6	1.9	39.1
Actuated g/C Ratio	0.19	0.19	0.53	0.53	0.03	0.63
Clearance Time (s)	5.2	5.2	5.8	5.8	4.6	5.8
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	273	239	1752	712	52	2045
v/s Ratio Prot			c0.24		c0.03	0.21
v/s Ratio Perm	c0.06	0.00		0.08		
v/c Ratio	0.34	0.03	0.44	0.14	0.83	0.33
Uniform Delay, d1	21.8	20.5	8.9	7.4	29.7	5.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.0	0.8	0.4	64.4	0.4
Delay (s)	22.5	20.5	9.7	7.8	94.1	5.6
Level of Service	C	C	A	A	F	A
Approach Delay (s)	22.0		9.4			10.9
Approach LOS	C		A			B

Intersection Summary			
HCM 2000 Control Delay	10.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	61.6	Sum of lost time (s)	15.6
Intersection Capacity Utilization	46.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	169	36	249	125	748	48	783	219	326	299	47
Future Volume (vph)	45	169	36	249	125	748	48	783	219	326	299	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	5.2		4.6	5.2	4.6	4.6	5.4	4.6	4.6	5.8	
Lane Util. Factor	1.00	0.95		0.97	1.00	1.00	1.00	0.91	1.00	0.97	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1211	2280		3019	1357	1495	1318	4673	1238	3242	2998	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1211	2280		3019	1357	1495	1318	4673	1238	3242	2998	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	49	186	40	274	137	822	53	860	241	358	329	52
RTOR Reduction (vph)	0	17	0	0	0	101	0	0	137	0	9	0
Lane Group Flow (vph)	49	209	0	274	137	721	53	860	104	358	372	0
Confl. Peds. (#/hr)									1	1		
Confl. Bikes (#/hr)			1									3
Heavy Vehicles (%)	49%	55%	48%	16%	40%	8%	37%	11%	29%	8%	15%	34%
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8	1	5	2	3	1	6	
Permitted Phases						8			2			
Actuated Green, G (s)	8.4	20.6		6.4	18.6	40.1	4.9	40.2	46.6	21.5	56.4	
Effective Green, g (s)	8.4	20.6		6.4	18.6	40.1	4.9	40.2	46.6	21.5	56.4	
Actuated g/C Ratio	0.08	0.19		0.06	0.17	0.37	0.05	0.37	0.43	0.20	0.52	
Clearance Time (s)	4.6	5.2		4.6	5.2	4.6	4.6	5.4	4.6	4.6	5.8	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	93	432		178	232	552	59	1731	531	642	1558	
v/s Ratio Prot	0.04	0.09		c0.09	0.10	c0.26	0.04	c0.18	0.01	0.11	0.12	
v/s Ratio Perm						0.22			0.07			
v/c Ratio	0.53	0.48		1.54	0.59	1.31	0.90	0.50	0.19	0.56	0.24	
Uniform Delay, d1	48.1	39.2		51.0	41.4	34.2	51.6	26.3	19.3	39.2	14.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	5.3	0.9		268.8	4.0	150.6	80.5	1.0	0.2	1.1	0.4	
Delay (s)	53.4	40.1		319.8	45.4	184.8	132.0	27.4	19.5	40.3	14.6	
Level of Service	D	D		F	D	F	F	C	B	D	B	
Approach Delay (s)		42.4			199.3			30.5			27.1	
Approach LOS		D			F			C			C	

Intersection Summary			
HCM 2000 Control Delay	91.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	108.5	Sum of lost time (s)	20.2
Intersection Capacity Utilization	95.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	169	36	249	125	748	48	783	219	326	299	47
Future Volume (veh/h)	45	169	36	249	125	748	48	783	219	326	299	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1174	1085	1189	1663	1307	1781	1352	1737	1470	1781	1678	1396
Adj Flow Rate, veh/h	49	186	40	274	137	822	53	860	241	358	329	52
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	49	55	48	16	40	8	37	11	29	8	15	34
Cap, veh/h	54	395	83	180	319	567	61	1858	561	433	1310	205
Arrive On Green	0.05	0.23	0.23	0.06	0.24	0.24	0.05	0.39	0.39	0.13	0.48	0.48
Sat Flow, veh/h	1118	1691	355	3072	1307	1510	1287	4742	1245	3291	2752	430
Grp Volume(v), veh/h	49	112	114	274	137	822	53	860	241	358	189	192
Grp Sat Flow(s),veh/h/ln	1118	1031	1015	1536	1307	1510	1287	1581	1245	1646	1594	1588
Q Serve(g_s), s	4.8	10.2	10.6	6.4	9.7	26.7	4.5	14.7	14.4	11.6	7.7	7.9
Cycle Q Clear(g_c), s	4.8	10.2	10.6	6.4	9.7	26.7	4.5	14.7	14.4	11.6	7.7	7.9
Prop In Lane	1.00		0.35	1.00		1.00	1.00		1.00	1.00		0.27
Lane Grp Cap(c), veh/h	54	241	237	180	319	567	61	1858	561	433	759	756
V/C Ratio(X)	0.91	0.46	0.48	1.53	0.43	1.45	0.87	0.46	0.43	0.83	0.25	0.25
Avail Cap(c_a), veh/h	150	330	325	180	319	567	74	1858	561	643	759	756
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.9	36.0	36.2	51.5	35.0	34.2	51.8	24.7	20.5	46.3	17.1	17.1
Incr Delay (d2), s/veh	37.4	1.4	1.5	262.6	0.9	212.5	55.8	0.8	2.4	5.7	0.8	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	2.6	2.7	9.0	3.1	47.9	2.3	5.4	4.4	5.0	2.9	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	89.3	37.4	37.7	314.2	35.9	246.7	107.6	25.6	22.9	52.0	17.8	17.9
LnGrp LOS	F	D	D	F	D	F	F	C	C	D	B	B
Approach Vol, veh/h		275			1233			1154			739	
Approach Delay, s/veh		46.8			238.3			28.8			34.4	
Approach LOS		D			F			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.0	48.7	11.0	30.8	9.8	57.9	9.9	31.9
Change Period (Y+Rc), s	4.6	* 5.8	4.6	5.2	4.6	5.8	4.6	5.2
Max Green Setting (Gmax), s	21.4	* 37	6.4	35.0	6.3	52.1	14.7	26.7
Max Q Clear Time (g_c+I1), s	13.6	16.7	8.4	12.6	6.5	9.9	6.8	28.7
Green Ext Time (p_c), s	0.8	6.5	0.0	1.3	0.0	2.3	0.0	0.0

Intersection Summary		
HCM 6th Ctrl Delay		107.4
HCM 6th LOS		F

Notes

User approved pedestrian interval to be less than phase max green.

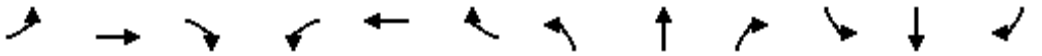
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	851	510	0	1167	408	0	0	0	212	0	601
Future Volume (vph)	0	851	510	0	1167	408	0	0	0	212	0	601
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0		5.0	5.0				5.8	5.8	5.8
Lane Util. Factor		0.91	1.00		0.95	1.00				0.95	0.91	0.95
Frpb, ped/bikes		1.00	0.97		1.00	0.98				1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00				1.00	1.00	1.00
Frt		1.00	0.85		1.00	0.85				1.00	0.86	0.85
Flt Protected		1.00	1.00		1.00	1.00				0.95	1.00	1.00
Satd. Flow (prot)		4803	1355		3312	1488				1618	1386	1434
Flt Permitted		1.00	1.00		1.00	1.00				0.95	1.00	1.00
Satd. Flow (perm)		4803	1355		3312	1488				1618	1386	1434
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	877	526	0	1203	421	0	0	0	219	0	620
RTOR Reduction (vph)	0	0	267	0	0	214	0	0	0	0	32	32
Lane Group Flow (vph)	0	877	259	0	1203	207	0	0	0	197	288	290
Confl. Peds. (#/hr)	2		7	7		2						
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	8%	16%	0%	9%	6%	0%	0%	0%	6%	0%	7%
Turn Type		NA	Perm		NA	Perm				Split	NA	Perm
Protected Phases		2			6					4	4	
Permitted Phases			2			6						4
Actuated Green, G (s)		28.2	28.2		28.2	28.2				18.3	18.3	18.3
Effective Green, g (s)		28.2	28.2		28.2	28.2				18.3	18.3	18.3
Actuated g/C Ratio		0.49	0.49		0.49	0.49				0.32	0.32	0.32
Clearance Time (s)		5.0	5.0		5.0	5.0				5.8	5.8	5.8
Vehicle Extension (s)		3.0	3.0		3.0	3.0				3.0	3.0	3.0
Lane Grp Cap (vph)		2363	666		1629	732				516	442	457
v/s Ratio Prot		0.18			c0.36					0.12	c0.21	
v/s Ratio Perm			0.19			0.14						0.20
v/c Ratio		0.37	0.39		0.74	0.28				0.38	0.65	0.63
Uniform Delay, d1		9.0	9.1		11.6	8.6				15.1	16.8	16.6
Progression Factor		1.00	1.00		1.00	1.00				1.00	1.00	1.00
Incremental Delay, d2		0.1	0.4		1.8	0.2				2.1	7.3	6.6
Delay (s)		9.1	9.5		13.4	8.8				17.3	24.0	23.2
Level of Service		A	A		B	A				B	C	C
Approach Delay (s)		9.3			12.2			0.0			22.1	
Approach LOS		A			B			A			C	

Intersection Summary			
HCM 2000 Control Delay	13.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	57.3	Sum of lost time (s)	10.8
Intersection Capacity Utilization	66.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	569	495	0	1116	539	452	0	240	0	0	0
Future Volume (vph)	0	569	495	0	1116	539	452	0	240	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	4.0		5.0	5.0	5.8	5.8	5.8			
Lane Util. Factor		0.95	1.00		0.95	1.00	0.95	0.91	0.95			
Frpb, ped/bikes		1.00	0.98		1.00	0.98	1.00	1.00	1.00			
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Frt		1.00	0.85		1.00	0.85	1.00	0.98	0.85			
Flt Protected		1.00	1.00		1.00	1.00	0.95	0.96	1.00			
Satd. Flow (prot)		3471	1420		3438	1533	1504	1440	1447			
Flt Permitted		1.00	1.00		1.00	1.00	0.95	0.96	1.00			
Satd. Flow (perm)		3471	1420		3438	1533	1504	1440	1447			
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	587	510	0	1151	556	466	0	247	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	290	0	24	148	0	0	0
Lane Group Flow (vph)	0	587	510	0	1151	266	247	220	74	0	0	0
Confl. Peds. (#/hr)	2		7	7		2						
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	0%	4%	11%	0%	5%	3%	14%	0%	6%	0%	0%	0%
Turn Type		NA	Free		NA	Perm	Perm	NA	Perm			
Protected Phases		2			6			8				
Permitted Phases			Free			6	8		8			
Actuated Green, G (s)		27.6	57.7		27.6	27.6	19.3	19.3	19.3			
Effective Green, g (s)		27.6	57.7		27.6	27.6	19.3	19.3	19.3			
Actuated g/C Ratio		0.48	1.00		0.48	0.48	0.33	0.33	0.33			
Clearance Time (s)		5.0			5.0	5.0	5.8	5.8	5.8			
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)		1660	1420		1644	733	503	481	484			
v/s Ratio Prot		0.17			c0.33							
v/s Ratio Perm			0.36			0.17	c0.16	0.15	0.05			
v/c Ratio		0.35	0.36		0.70	0.36	0.49	0.46	0.15			
Uniform Delay, d1		9.4	0.0		11.8	9.5	15.3	15.1	13.5			
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2		0.1	0.7		1.4	0.3	3.4	3.1	0.7			
Delay (s)		9.6	0.7		13.2	9.8	18.7	18.2	14.1			
Level of Service		A	A		B	A	B	B	B			
Approach Delay (s)		5.5			12.1			17.1			0.0	
Approach LOS		A			B			B			A	

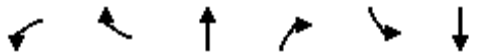
Intersection Summary			
HCM 2000 Control Delay	11.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	57.7	Sum of lost time (s)	10.8
Intersection Capacity Utilization	57.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	93	639	1	57	754	368	11	29	76	53	6	8
Future Volume (vph)	93	639	1	57	754	368	11	29	76	53	6	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8		4.6	5.0	4.6	4.6	5.0	5.0	4.6	5.0	5.0
Lane Util. Factor		0.91		1.00	0.91	1.00	1.00	0.86	0.86	1.00	0.95	1.00
Frpb, ped/bikes		1.00		1.00	1.00	1.00	1.00	0.99	0.99	1.00	1.00	1.00
Flpb, ped/bikes		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00		1.00	1.00	0.85	1.00	0.91	0.85	1.00	1.00	0.85
Flt Protected		0.99		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		4800		1656	4940	1495	1081	4224	1280	1719	3610	1214
Flt Permitted		0.72		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		3499		1656	4940	1495	1081	4224	1280	1719	3610	1214
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	107	734	1	66	867	423	13	33	87	61	7	9
RTOR Reduction (vph)	0	0	0	0	0	240	0	26	25	0	0	5
Lane Group Flow (vph)	0	842	0	66	867	183	13	51	18	61	7	4
Confl. Peds. (#/hr)									2	2		
Heavy Vehicles (%)	3%	8%	0%	9%	5%	8%	67%	3%	7%	5%	0%	33%
Turn Type	pm+pt	NA		Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases	4					8			2			6
Actuated Green, G (s)		27.8		4.1	37.3	42.4	0.9	41.1	41.1	5.1	45.3	45.3
Effective Green, g (s)		27.8		4.1	37.3	42.4	0.9	41.1	41.1	5.1	45.3	45.3
Actuated g/C Ratio		0.28		0.04	0.38	0.43	0.01	0.42	0.42	0.05	0.46	0.46
Clearance Time (s)		5.8		4.6	5.0	4.6	4.6	5.0	5.0	4.6	5.0	5.0
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		991		69	1878	646	9	1769	536	89	1667	560
v/s Ratio Prot				c0.04	0.18	0.01	0.01	0.01		c0.04	0.00	
v/s Ratio Perm		c0.24				0.11			c0.01			c0.00
v/c Ratio		0.85		0.96	0.46	0.28	1.44	0.03	0.03	0.69	0.00	0.01
Uniform Delay, d1		33.2		46.9	22.9	18.0	48.6	16.8	16.8	45.7	14.2	14.3
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		6.9		92.3	0.2	0.2	474.2	0.0	0.1	19.7	0.0	0.0
Delay (s)		40.1		139.2	23.0	18.3	522.8	16.8	16.9	65.4	14.2	14.3
Level of Service		D		F	C	B	F	B	B	E	B	B
Approach Delay (s)		40.1			27.2			66.3			54.7	
Approach LOS		D			C			E			D	

Intersection Summary			
HCM 2000 Control Delay	34.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	98.1	Sum of lost time (s)	20.0
Intersection Capacity Utilization	80.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	4	10	858	12	6	991
Future Volume (Veh/h)	4	10	858	12	6	991
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	4	11	923	13	6	1066
Pedestrians	4					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)			750			512
pX, platoon unblocked	0.88	0.93			0.93	
vC, conflicting volume	1478	472			940	
vC1, stage 1 conf vol	934					
vC2, stage 2 conf vol	545					
vCu, unblocked vol	905	280			783	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	98			99	
cM capacity (veh/h)	371	670			781	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	15	615	321	6	533	533
Volume Left	4	0	0	6	0	0
Volume Right	11	0	13	0	0	0
cSH	551	1700	1700	781	1700	1700
Volume to Capacity	0.03	0.36	0.19	0.01	0.31	0.31
Queue Length 95th (ft)	2	0	0	1	0	0
Control Delay (s)	11.7	0.0	0.0	9.6	0.0	0.0
Lane LOS	B			A		
Approach Delay (s)	11.7	0.0		0.1		
Approach LOS	B					

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	37.4%	ICU Level of Service	A
Analysis Period (min)	15		

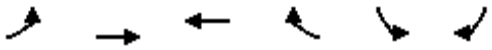
Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	10	858	12	6	991
Future Vol, veh/h	4	10	858	12	6	991
Conflicting Peds, #/hr	0	0	0	4	4	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	7	8	0	6
Mvmt Flow	4	11	923	13	6	1066

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1479	472	0	0	940	0
Stage 1	934	-	-	-	-	-
Stage 2	545	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	119	544	-	-	737	-
Stage 1	348	-	-	-	-	-
Stage 2	551	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	118	542	-	-	734	-
Mov Cap-2 Maneuver	295	-	-	-	-	-
Stage 1	347	-	-	-	-	-
Stage 2	547	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.5	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	437	734	-
HCM Lane V/C Ratio	-	-	0.034	0.009	-
HCM Control Delay (s)	-	-	13.5	9.9	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0	-



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	38	0	0	37	14	3
Future Volume (Veh/h)	38	0	0	37	14	3
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	43	0	0	42	16	3
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	76	34	35	0	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	76	34	35	0	0	
tC, single (s)	7.1	6.5	6.5	6.2	4.1	
tC, 2 stage (s)						
tF (s)	3.5	4.0	4.0	3.3	2.2	
p0 queue free %	95	100	100	96	99	
cM capacity (veh/h)	870	849	847	1082	1617	

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	43	42	19
Volume Left	43	0	16
Volume Right	0	42	3
cSH	870	1082	1617
Volume to Capacity	0.05	0.04	0.01
Queue Length 95th (ft)	4	3	1
Control Delay (s)	9.4	8.5	6.1
Lane LOS	A	A	A
Approach Delay (s)	9.4	8.5	6.1
Approach LOS	A	A	

Intersection Summary			
Average Delay	8.4		
Intersection Capacity Utilization	18.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	138	1	16	153	39	34
Future Volume (Veh/h)	138	1	16	153	39	34
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	155	1	18	172	44	38
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	426					
pX, platoon unblocked						
vC, conflicting volume			156		364	156
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			156		364	156
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		93	96
cM capacity (veh/h)			1412		624	890

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	156	190	82
Volume Left	0	18	44
Volume Right	1	0	38
cSH	1700	1412	724
Volume to Capacity	0.09	0.01	0.11
Queue Length 95th (ft)	0	1	10
Control Delay (s)	0.0	0.8	10.6
Lane LOS		A	B
Approach Delay (s)	0.0	0.8	10.6
Approach LOS			B

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	30.5%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	2.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	138	1	16	153	39	34
Future Vol, veh/h	138	1	16	153	39	34
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	89	89	89	89	89	89
Heavy Vehicles, %	26	24	4	6	4	2
Mvmt Flow	155	1	18	172	44	38

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	156	0	364	156
Stage 1	-	-	-	-	156	-
Stage 2	-	-	-	-	208	-
Critical Hdwy	-	-	4.14	-	6.44	6.22
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	-	-	2.236	-	3.536	3.318
Pot Cap-1 Maneuver	-	-	1412	-	631	890
Stage 1	-	-	-	-	867	-
Stage 2	-	-	-	-	822	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1412	-	622	890
Mov Cap-2 Maneuver	-	-	-	-	622	-
Stage 1	-	-	-	-	867	-
Stage 2	-	-	-	-	810	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	10.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	723	-	-	1412	-
HCM Lane V/C Ratio	0.113	-	-	0.013	-
HCM Control Delay (s)	10.6	-	-	7.6	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0	-

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	154	80	830	142	15	1111
Future Volume (vph)	154	80	830	142	15	1111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.2	5.2	5.8	5.8	4.6	5.8
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	1.00	1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1641	1538	3505	1260	1504	3374
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1641	1538	3505	1260	1504	3374
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	183	95	988	169	18	1323
RTOR Reduction (vph)	0	79	0	75	0	0
Lane Group Flow (vph)	183	16	988	94	18	1323
Confl. Peds. (#/hr)				1	1	
Confl. Bikes (#/hr)				5		
Heavy Vehicles (%)	10%	5%	3%	25%	20%	7%
Turn Type	Perm	Perm	NA	Perm	Prot	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2		
Actuated Green, G (s)	9.9	9.9	33.0	33.0	0.9	38.5
Effective Green, g (s)	9.9	9.9	33.0	33.0	0.9	38.5
Actuated g/C Ratio	0.17	0.17	0.56	0.56	0.02	0.65
Clearance Time (s)	5.2	5.2	5.8	5.8	4.6	5.8
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	273	256	1947	700	22	2186
v/s Ratio Prot			0.28		0.01	c0.39
v/s Ratio Perm	c0.11	0.01		0.07		
v/c Ratio	0.67	0.06	0.51	0.13	0.82	0.61
Uniform Delay, d1	23.2	20.8	8.2	6.3	29.2	6.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.3	0.1	0.9	0.4	109.6	1.3
Delay (s)	29.5	20.9	9.1	6.7	138.7	7.3
Level of Service	C	C	A	A	F	A
Approach Delay (s)	26.6		8.8			9.1
Approach LOS	C		A			A

Intersection Summary			
HCM 2000 Control Delay	10.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	59.4	Sum of lost time (s)	15.6
Intersection Capacity Utilization	48.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	116	44	180	76	458	18	422	230	606	772	40
Future Volume (vph)	61	116	44	180	76	458	18	422	230	606	772	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	5.2		4.6	5.2	4.6	4.6	5.4	4.6	4.6	5.8	
Lane Util. Factor	1.00	0.95		0.97	1.00	1.00	1.00	0.91	1.00	0.97	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.96		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1188	2886		3045	1226	1568	1543	5036	1474	3335	3274	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1188	2886		3045	1226	1568	1543	5036	1474	3335	3274	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	69	132	50	205	86	520	20	480	261	689	877	45
RTOR Reduction (vph)	0	37	0	0	0	145	0	0	146	0	2	0
Lane Group Flow (vph)	69	145	0	205	86	375	20	480	115	689	920	0
Confl. Peds. (#/hr)			5	5					2	2		
Confl. Bikes (#/hr)			1						5			1
Heavy Vehicles (%)	52%	18%	23%	15%	55%	3%	17%	3%	8%	5%	7%	55%
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8	1	5	2	3	1	6	
Permitted Phases						8			2			
Actuated Green, G (s)	9.5	20.6		6.5	17.6	39.2	2.3	42.3	48.8	21.6	61.2	
Effective Green, g (s)	9.5	20.6		6.5	17.6	39.2	2.3	42.3	48.8	21.6	61.2	
Actuated g/C Ratio	0.09	0.19		0.06	0.16	0.35	0.02	0.38	0.44	0.19	0.55	
Clearance Time (s)	4.6	5.2		4.6	5.2	4.6	4.6	5.4	4.6	4.6	5.8	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	101	536		178	194	554	32	1922	649	650	1808	
v/s Ratio Prot	0.06	c0.05		c0.07	0.07	c0.13	0.01	0.10	0.01	c0.21	c0.28	
v/s Ratio Perm						0.11			0.07			
v/c Ratio	0.68	0.27		1.15	0.44	0.68	0.62	0.25	0.18	1.06	0.51	
Uniform Delay, d1	49.2	38.7		52.1	42.2	30.4	53.8	23.4	18.8	44.6	15.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	17.4	0.3		114.2	1.6	3.3	32.4	0.3	0.1	52.3	1.0	
Delay (s)	66.6	38.9		166.3	43.8	33.7	86.2	23.7	18.9	96.9	16.5	
Level of Service	E	D		F	D	C	F	C	B	F	B	
Approach Delay (s)		46.5			68.3			23.7			50.9	
Approach LOS		D			E			C			D	

Intersection Summary			
HCM 2000 Control Delay	48.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	110.8	Sum of lost time (s)	20.2
Intersection Capacity Utilization	83.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	61	116	44	180	76	458	18	422	230	606	772	40
Future Volume (veh/h)	61	116	44	180	76	458	18	422	230	606	772	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1129	1633	1559	1678	1085	1856	1648	1856	1781	1826	1796	1085
Adj Flow Rate, veh/h	69	132	50	205	86	520	20	480	261	689	877	45
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	52	18	23	15	55	3	17	3	8	5	7	55
Cap, veh/h	78	556	201	174	254	661	32	1663	572	634	1634	84
Arrive On Green	0.07	0.25	0.25	0.06	0.23	0.23	0.02	0.33	0.33	0.19	0.50	0.50
Sat Flow, veh/h	1076	2220	802	3100	1085	1562	1570	5066	1484	3374	3298	169
Grp Volume(v), veh/h	69	90	92	205	86	520	20	480	261	689	454	468
Grp Sat Flow(s),veh/h/ln	1076	1552	1471	1550	1085	1562	1570	1689	1484	1687	1706	1761
Q Serve(g_s), s	7.2	5.3	5.7	6.4	7.5	26.7	1.4	8.0	15.0	21.4	20.8	20.8
Cycle Q Clear(g_c), s	7.2	5.3	5.7	6.4	7.5	26.7	1.4	8.0	15.0	21.4	20.8	20.8
Prop In Lane	1.00		0.55	1.00		1.00	1.00		1.00	1.00		0.10
Lane Grp Cap(c), veh/h	78	389	369	174	254	661	32	1663	572	634	845	872
V/C Ratio(X)	0.89	0.23	0.25	1.18	0.34	0.79	0.62	0.29	0.46	1.09	0.54	0.54
Avail Cap(c_a), veh/h	139	477	452	174	254	661	87	1663	572	634	845	872
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.4	34.0	34.1	53.8	36.3	28.5	55.4	28.4	26.2	46.3	19.8	19.8
Incr Delay (d2), s/veh	25.8	0.3	0.3	124.1	0.8	6.2	17.7	0.4	2.6	61.9	2.4	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	2.0	2.1	5.5	2.0	13.0	0.7	3.2	5.6	14.2	8.4	8.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	78.1	34.3	34.5	177.8	37.1	34.8	73.1	28.8	28.8	108.1	22.2	22.1
LnGrp LOS	E	C	C	F	D	C	E	C	C	F	C	C
Approach Vol, veh/h		251			811			761			1611	
Approach Delay, s/veh		46.4			71.2			30.0			58.9	
Approach LOS		D			E			C			E	

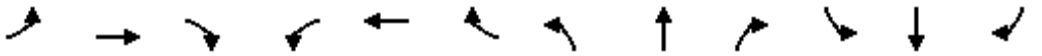
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	26.0	43.2	11.0	33.8	6.9	62.3	12.9	31.9
Change Period (Y+Rc), s	4.6	* 5.8	4.6	5.2	4.6	5.8	4.6	5.2
Max Green Setting (Gmax), s	21.4	* 37	6.4	35.0	6.3	52.1	14.7	26.7
Max Q Clear Time (g_c+I1), s	23.4	17.0	8.4	7.7	3.4	22.8	9.2	28.7
Green Ext Time (p_c), s	0.0	3.8	0.0	1.1	0.0	6.2	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	54.5
HCM 6th LOS	D

Notes

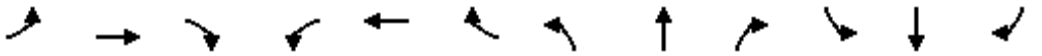
User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



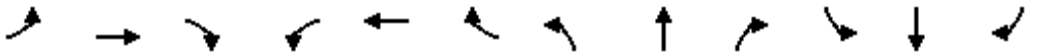
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1284	666	0	916	433	0	0	0	414	0	595
Future Volume (vph)	0	1284	666	0	916	433	0	0	0	414	0	595
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0		5.0	5.0				5.8	5.8	5.8
Lane Util. Factor		0.91	1.00		0.95	1.00				0.95	0.91	0.95
Frpb, ped/bikes		1.00	0.98		1.00	0.98				1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00				1.00	1.00	1.00
Frt		1.00	0.85		1.00	0.85				1.00	0.88	0.85
Flt Protected		1.00	1.00		1.00	1.00				0.95	0.99	1.00
Satd. Flow (prot)		5085	1515		3505	1563				1698	1432	1447
Flt Permitted		1.00	1.00		1.00	1.00				0.95	0.99	1.00
Satd. Flow (perm)		5085	1515		3505	1563				1698	1432	1447
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	1324	687	0	944	446	0	0	0	427	0	613
RTOR Reduction (vph)	0	0	395	0	0	256	0	0	0	0	36	36
Lane Group Flow (vph)	0	1324	292	0	944	190	0	0	0	363	304	301
Confl. Peds. (#/hr)	1		4	4		1						
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	2%	4%	0%	3%	1%	0%	0%	0%	1%	0%	6%
Turn Type		NA	Perm		NA	Perm				Split	NA	Perm
Protected Phases		2			6					4	4	
Permitted Phases			2			6						4
Actuated Green, G (s)		25.2	25.2		25.2	25.2				23.2	23.2	23.2
Effective Green, g (s)		25.2	25.2		25.2	25.2				23.2	23.2	23.2
Actuated g/C Ratio		0.43	0.43		0.43	0.43				0.39	0.39	0.39
Clearance Time (s)		5.0	5.0		5.0	5.0				5.8	5.8	5.8
Vehicle Extension (s)		3.0	3.0		3.0	3.0				3.0	3.0	3.0
Lane Grp Cap (vph)		2164	644		1491	665				665	561	567
v/s Ratio Prot		0.26			c0.27					c0.21	0.21	
v/s Ratio Perm			0.19			0.12						0.21
v/c Ratio		0.61	0.45		0.63	0.29				0.55	0.54	0.53
Uniform Delay, d1		13.2	12.1		13.4	11.1				13.9	13.9	13.8
Progression Factor		1.00	1.00		1.00	1.00				1.00	1.00	1.00
Incremental Delay, d2		0.5	0.5		0.9	0.2				3.2	3.7	3.5
Delay (s)		13.7	12.6		14.3	11.4				17.1	17.6	17.4
Level of Service		B	B		B	B				B	B	B
Approach Delay (s)		13.3			13.3			0.0			17.4	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM 2000 Control Delay	14.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	59.2	Sum of lost time (s)	10.8
Intersection Capacity Utilization	68.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1128	570	0	931	361	417	0	486	0	0	0
Future Volume (vph)	0	1128	570	0	931	361	417	0	486	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	4.0		5.0	5.0	5.8	5.8	5.8			
Lane Util. Factor		0.95	1.00		0.95	1.00	0.95	0.91	0.95			
Frpb, ped/bikes		1.00	0.98		1.00	0.98	1.00	1.00	1.00			
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Frt		1.00	0.85		1.00	0.85	1.00	0.90	0.85			
Flt Protected		1.00	1.00		1.00	1.00	0.95	0.98	1.00			
Satd. Flow (prot)		3539	1547		3574	1550	1618	1493	1519			
Flt Permitted		1.00	1.00		1.00	1.00	0.95	0.98	1.00			
Satd. Flow (perm)		3539	1547		3574	1550	1618	1493	1519			
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	1151	582	0	950	368	426	0	496	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	218	0	21	21	0	0	0
Lane Group Flow (vph)	0	1151	582	0	950	150	319	284	277	0	0	0
Confl. Peds. (#/hr)	1		5	5		1						
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	0%	2%	2%	0%	1%	2%	6%	0%	1%	0%	0%	0%
Turn Type		NA	Free		NA	Perm	Perm	NA	Perm			
Protected Phases		2			6			8				
Permitted Phases			Free			6	8		8			
Actuated Green, G (s)		24.2	59.3		24.2	24.2	24.3	24.3	24.3			
Effective Green, g (s)		24.2	59.3		24.2	24.2	24.3	24.3	24.3			
Actuated g/C Ratio		0.41	1.00		0.41	0.41	0.41	0.41	0.41			
Clearance Time (s)		5.0			5.0	5.0	5.8	5.8	5.8			
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)		1444	1547		1458	632	663	611	622			
v/s Ratio Prot		c0.33			0.27							
v/s Ratio Perm			0.38			0.10	c0.20	0.19	0.18			
v/c Ratio		0.80	0.38		0.65	0.24	0.48	0.46	0.44			
Uniform Delay, d1		15.4	0.0		14.2	11.5	12.9	12.8	12.6			
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2		3.2	0.7		1.1	0.2	2.5	2.5	2.3			
Delay (s)		18.5	0.7		15.2	11.7	15.4	15.3	14.9			
Level of Service		B	A		B	B	B	B	B			
Approach Delay (s)		12.6			14.2			15.2			0.0	
Approach LOS		B			B			B			A	

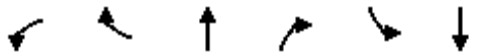
Intersection Summary			
HCM 2000 Control Delay	13.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	59.3	Sum of lost time (s)	10.8
Intersection Capacity Utilization	60.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	71	911	7	74	512	267	10	74	146	68	24	4
Future Volume (vph)	71	911	7	74	512	267	10	74	146	68	24	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8		4.6	5.0	4.6	4.6	5.0	5.0	4.6	5.0	5.0
Lane Util. Factor		0.91		1.00	0.91	1.00	1.00	0.86	0.86	1.00	0.95	1.00
Frpb, ped/bikes		1.00		1.00	1.00	1.00	1.00	0.99	0.99	1.00	1.00	0.99
Flpb, ped/bikes		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00		1.00	1.00	0.85	1.00	0.93	0.85	1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		4837		1752	4715	1482	1253	4232	1318	1770	3505	1274
Flt Permitted		0.82		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		3969		1752	4715	1482	1253	4232	1318	1770	3505	1274
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	83	1059	8	86	595	310	12	86	170	79	28	5
RTOR Reduction (vph)	0	1	0	0	0	166	0	52	52	0	0	3
Lane Group Flow (vph)	0	1149	0	86	595	144	12	119	33	79	28	2
Confl. Peds. (#/hr)							2		1	1		2
Heavy Vehicles (%)	4%	7%	0%	3%	10%	9%	44%	9%	4%	2%	3%	25%
Turn Type	pm+pt	NA		Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases	4					8			2			6
Actuated Green, G (s)		31.8		5.6	42.8	48.0	1.0	40.7	40.7	5.2	44.9	44.9
Effective Green, g (s)		31.8		5.6	42.8	48.0	1.0	40.7	40.7	5.2	44.9	44.9
Actuated g/C Ratio		0.31		0.05	0.41	0.46	0.01	0.39	0.39	0.05	0.43	0.43
Clearance Time (s)		5.8		4.6	5.0	4.6	4.6	5.0	5.0	4.6	5.0	5.0
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		1221		94	1953	688	12	1667	519	89	1523	553
v/s Ratio Prot				c0.05	0.13	0.01	0.01	c0.03		c0.04	c0.01	
v/s Ratio Perm		c0.29				0.09			0.03			0.00
v/c Ratio		0.94		0.91	0.30	0.21	1.00	0.07	0.06	0.89	0.02	0.00
Uniform Delay, d1		34.8		48.6	20.3	16.4	51.1	19.5	19.5	48.8	16.6	16.5
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		14.0		65.2	0.1	0.2	259.8	0.1	0.2	59.4	0.0	0.0
Delay (s)		48.8		113.8	20.4	16.5	311.0	19.6	19.7	108.1	16.7	16.5
Level of Service		D		F	C	B	F	B	B	F	B	B
Approach Delay (s)		48.8			27.3			32.7			81.2	
Approach LOS		D			C			C			F	

Intersection Summary			
HCM 2000 Control Delay	40.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	103.3	Sum of lost time (s)	20.0
Intersection Capacity Utilization	81.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	14	2	890	11	18	1147
Future Volume (Veh/h)	14	2	890	11	18	1147
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	16	2	1011	12	20	1303
Pedestrians	1					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)			750			512
pX, platoon unblocked	0.93	0.88			0.88	
vC, conflicting volume	1710	512			1024	
vC1, stage 1 conf vol	1018					
vC2, stage 2 conf vol	692					
vCu, unblocked vol	1154	175			756	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	95	100			97	
cM capacity (veh/h)	338	743			760	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	18	674	349	20	652	652
Volume Left	16	0	0	20	0	0
Volume Right	2	0	12	0	0	0
cSH	360	1700	1700	760	1700	1700
Volume to Capacity	0.05	0.40	0.21	0.03	0.38	0.38
Queue Length 95th (ft)	4	0	0	2	0	0
Control Delay (s)	15.5	0.0	0.0	9.9	0.0	0.0
Lane LOS	C			A		
Approach Delay (s)	15.5	0.0		0.1		
Approach LOS	C					

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	41.7%	ICU Level of Service	A
Analysis Period (min)	15		

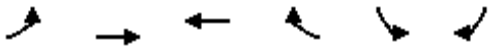
Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	14	2	890	11	18	1147
Future Vol, veh/h	14	2	890	11	18	1147
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	0	0	14	9	0	17
Mvmt Flow	16	2	1011	13	20	1303

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1711	513	0	0	1025	0
Stage 1	1019	-	-	-	-	-
Stage 2	692	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	83	512	-	-	685	-
Stage 1	314	-	-	-	-	-
Stage 2	463	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	81	512	-	-	684	-
Mov Cap-2 Maneuver	255	-	-	-	-	-
Stage 1	314	-	-	-	-	-
Stage 2	450	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.2	0	0.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	272	684	-
HCM Lane V/C Ratio	-	-	0.067	0.03	-
HCM Control Delay (s)	-	-	19.2	10.4	-
HCM Lane LOS	-	-	C	B	-
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	0	0	10	46	12
Future Volume (Veh/h)	10	0	0	10	46	12
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	12	0	0	12	53	14
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	125	113	120	0	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	125	113	120	0	0	
tC, single (s)	7.2	6.7	6.7	6.4	4.2	
tC, 2 stage (s)						
tF (s)	3.6	4.1	4.1	3.4	2.3	
p0 queue free %	98	100	100	99	97	
cM capacity (veh/h)	789	728	721	1048	1542	

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	12	12	67
Volume Left	12	0	53
Volume Right	0	12	14
cSH	789	1048	1542
Volume to Capacity	0.02	0.01	0.03
Queue Length 95th (ft)	1	1	3
Control Delay (s)	9.6	8.5	5.9
Lane LOS	A	A	A
Approach Delay (s)	9.6	8.5	5.9
Approach LOS	A	A	

Intersection Summary			
Average Delay	6.7		
Intersection Capacity Utilization	17.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	247	52	15	102	6	14
Future Volume (Veh/h)	247	52	15	102	6	14
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	287	60	17	119	7	16
Pedestrians				1		
Lane Width (ft)				12.0		
Walking Speed (ft/s)				3.5		
Percent Blockage				0		
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	426					
pX, platoon unblocked						
vC, conflicting volume			347		470	318
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			347		470	318
tC, single (s)			4.1		6.5	6.4
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.5
p0 queue free %			99		99	98
cM capacity (veh/h)			1201		530	682

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	347	136	23
Volume Left	0	17	7
Volume Right	60	0	16
cSH	1700	1201	627
Volume to Capacity	0.20	0.01	0.04
Queue Length 95th (ft)	0	1	3
Control Delay (s)	0.0	1.1	11.0
Lane LOS		A	B
Approach Delay (s)	0.0	1.1	11.0
Approach LOS			B

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	28.4%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	247	52	15	102	6	14
Future Vol, veh/h	247	52	15	102	6	14
Conflicting Peds, #/hr	0	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	8	2	4	14	10	20
Mvmt Flow	287	60	17	119	7	16

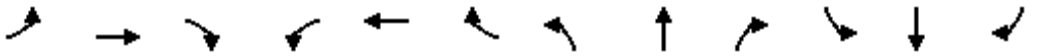
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	347	0	470	318
Stage 1	-	-	-	-	317	-
Stage 2	-	-	-	-	153	-
Critical Hdwy	-	-	4.14	-	6.5	6.4
Critical Hdwy Stg 1	-	-	-	-	5.5	-
Critical Hdwy Stg 2	-	-	-	-	5.5	-
Follow-up Hdwy	-	-	2.236	-	3.59	3.48
Pot Cap-1 Maneuver	-	-	1201	-	538	683
Stage 1	-	-	-	-	721	-
Stage 2	-	-	-	-	856	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1201	-	530	682
Mov Cap-2 Maneuver	-	-	-	-	530	-
Stage 1	-	-	-	-	721	-
Stage 2	-	-	-	-	843	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1	11
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	628	-	-	1201	-
HCM Lane V/C Ratio	0.037	-	-	0.015	-
HCM Control Delay (s)	11	-	-	8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

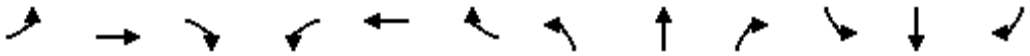
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	88	57	791	195	41	712
Future Volume (vph)	88	57	791	195	41	712
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.2	5.2	5.8	5.8	4.6	5.8
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	1.00	1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1467	1282	3312	1346	1687	3223
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1467	1282	3312	1346	1687	3223
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	93	60	833	205	43	749
RTOR Reduction (vph)	0	49	0	97	0	0
Lane Group Flow (vph)	93	11	833	108	43	749
Confl. Peds. (#/hr)	1			2		
Confl. Bikes (#/hr)				3		
Heavy Vehicles (%)	23%	26%	9%	17%	7%	12%
Turn Type	Perm	Perm	NA	Perm	Prot	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2		
Actuated Green, G (s)	11.5	11.5	32.6	32.6	1.9	39.1
Effective Green, g (s)	11.5	11.5	32.6	32.6	1.9	39.1
Actuated g/C Ratio	0.19	0.19	0.53	0.53	0.03	0.63
Clearance Time (s)	5.2	5.2	5.8	5.8	4.6	5.8
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	273	239	1752	712	52	2045
v/s Ratio Prot			c0.25		c0.03	0.23
v/s Ratio Perm	c0.06	0.01		0.08		
v/c Ratio	0.34	0.05	0.48	0.15	0.83	0.37
Uniform Delay, d1	21.8	20.6	9.1	7.4	29.7	5.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.1	0.9	0.5	64.4	0.5
Delay (s)	22.5	20.6	10.0	7.9	94.1	5.9
Level of Service	C	C	B	A	F	A
Approach Delay (s)	21.8		9.6			10.7
Approach LOS	C		A			B

Intersection Summary			
HCM 2000 Control Delay	11.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	61.6	Sum of lost time (s)	15.6
Intersection Capacity Utilization	47.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	169	36	275	125	760	48	825	246	367	326	58
Future Volume (vph)	49	169	36	275	125	760	48	825	246	367	326	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	5.2		4.6	5.2	4.6	4.6	5.4	4.6	4.6	5.8	
Lane Util. Factor	1.00	0.95		0.97	1.00	1.00	1.00	0.91	1.00	0.97	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1211	2280		3019	1357	1495	1318	4673	1238	3242	2983	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1211	2280		3019	1357	1495	1318	4673	1238	3242	2983	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	54	186	40	302	137	835	53	907	270	403	358	64
RTOR Reduction (vph)	0	17	0	0	0	94	0	0	154	0	10	0
Lane Group Flow (vph)	54	209	0	302	137	741	53	907	116	403	412	0
Confl. Peds. (#/hr)									1	1		
Confl. Bikes (#/hr)			1									3
Heavy Vehicles (%)	49%	55%	48%	16%	40%	8%	37%	11%	29%	8%	15%	34%
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8	1	5	2	3	1	6	
Permitted Phases						8			2			
Actuated Green, G (s)	8.7	20.9		6.4	18.6	40.1	4.9	40.2	46.6	21.5	56.4	
Effective Green, g (s)	8.7	20.9		6.4	18.6	40.1	4.9	40.2	46.6	21.5	56.4	
Actuated g/C Ratio	0.08	0.19		0.06	0.17	0.37	0.05	0.37	0.43	0.20	0.52	
Clearance Time (s)	4.6	5.2		4.6	5.2	4.6	4.6	5.4	4.6	4.6	5.8	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	96	437		177	231	551	59	1726	530	640	1546	
v/s Ratio Prot	0.04	0.09		c0.10	0.10	c0.27	0.04	c0.19	0.01	0.12	0.14	
v/s Ratio Perm						0.23			0.08			
v/c Ratio	0.56	0.48		1.71	0.59	1.34	0.90	0.53	0.22	0.63	0.27	
Uniform Delay, d1	48.2	39.1		51.2	41.6	34.3	51.7	26.8	19.6	40.0	14.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	7.3	0.8		340.7	4.0	166.9	80.5	1.1	0.2	1.9	0.4	
Delay (s)	55.6	39.9		391.9	45.7	201.3	132.2	28.0	19.8	41.9	15.1	
Level of Service	E	D		F	D	F	F	C	B	D	B	
Approach Delay (s)		42.9			229.7			30.7			28.2	
Approach LOS		D			F			C			C	

Intersection Summary			
HCM 2000 Control Delay	101.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	108.8	Sum of lost time (s)	20.2
Intersection Capacity Utilization	95.9%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	169	36	275	125	760	48	825	246	367	326	58
Future Volume (veh/h)	49	169	36	275	125	760	48	825	246	367	326	58
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1174	1085	1189	1663	1307	1781	1352	1737	1470	1781	1678	1396
Adj Flow Rate, veh/h	54	186	40	302	137	835	53	907	270	403	358	64
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	49	55	48	16	40	8	37	11	29	8	15	34
Cap, veh/h	60	403	85	179	317	584	61	1781	540	476	1275	225
Arrive On Green	0.05	0.24	0.24	0.06	0.24	0.24	0.05	0.38	0.38	0.14	0.47	0.47
Sat Flow, veh/h	1118	1691	355	3072	1307	1510	1287	4742	1245	3291	2696	477
Grp Volume(v), veh/h	54	112	114	302	137	835	53	907	270	403	210	212
Grp Sat Flow(s),veh/h/ln	1118	1031	1015	1536	1307	1510	1287	1581	1245	1646	1594	1578
Q Serve(g_s), s	5.3	10.2	10.6	6.4	9.8	26.7	4.5	16.3	17.3	13.1	8.8	9.0
Cycle Q Clear(g_c), s	5.3	10.2	10.6	6.4	9.8	26.7	4.5	16.3	17.3	13.1	8.8	9.0
Prop In Lane	1.00		0.35	1.00		1.00	1.00		1.00	1.00		0.30
Lane Grp Cap(c), veh/h	60	245	242	179	317	584	61	1781	540	476	754	747
V/C Ratio(X)	0.90	0.45	0.47	1.69	0.43	1.43	0.87	0.51	0.50	0.85	0.28	0.28
Avail Cap(c_a), veh/h	149	327	323	179	317	584	74	1781	540	639	754	747
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.8	35.9	36.0	51.9	35.3	33.8	52.1	26.5	22.5	45.9	17.6	17.7
Incr Delay (d2), s/veh	32.9	1.3	1.4	334.3	0.9	202.8	56.1	1.0	3.3	7.9	0.9	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	2.6	2.7	10.7	3.2	47.8	2.4	6.0	5.4	5.8	3.3	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	84.7	37.2	37.5	386.2	36.2	236.5	108.3	27.6	25.8	53.8	18.5	18.6
LnGrp LOS	F	D	D	F	D	F	F	C	C	D	B	B
Approach Vol, veh/h		280			1274			1230			825	
Approach Delay, s/veh		46.4			250.5			30.7			35.8	
Approach LOS		D			F			C			D	

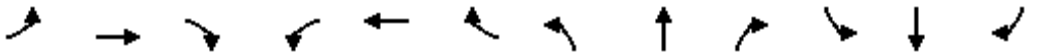
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.5	47.2	11.0	31.4	9.8	57.9	10.5	31.9
Change Period (Y+Rc), s	4.6	* 5.8	4.6	5.2	4.6	5.8	4.6	5.2
Max Green Setting (Gmax), s	21.4	* 37	6.4	35.0	6.3	52.1	14.7	26.7
Max Q Clear Time (g_c+I1), s	15.1	19.3	8.4	12.6	6.5	11.0	7.3	28.7
Green Ext Time (p_c), s	0.8	6.6	0.0	1.3	0.0	2.6	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	110.7
HCM 6th LOS	F

Notes

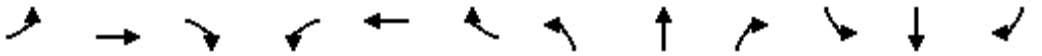
User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



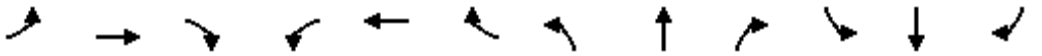
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↱		↑↑	↱				↰	✣	↱
Traffic Volume (vph)	0	899	526	9	1192	429	0	0	0	263	0	614
Future Volume (vph)	0	899	526	9	1192	429	0	0	0	263	0	614
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0		5.0	5.0				5.8	5.8	5.8
Lane Util. Factor		0.91	1.00		0.95	1.00				0.95	0.91	0.95
Frpb, ped/bikes		1.00	0.97		1.00	0.98				1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00				1.00	1.00	1.00
Frt		1.00	0.85		1.00	0.85				1.00	0.86	0.85
Flt Protected		1.00	1.00		1.00	1.00				0.95	1.00	1.00
Satd. Flow (prot)		4803	1355		3313	1488				1618	1389	1434
Flt Permitted		1.00	1.00		0.95	1.00				0.95	1.00	1.00
Satd. Flow (perm)		4803	1355		3139	1488				1618	1389	1434
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	927	542	9	1229	442	0	0	0	271	0	633
RTOR Reduction (vph)	0	0	270	0	0	220	0	0	0	0	30	30
Lane Group Flow (vph)	0	927	272	0	1238	222	0	0	0	244	301	299
Confl. Peds. (#/hr)	2		7	7		2						
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	8%	16%	0%	9%	6%	0%	0%	0%	6%	0%	7%
Turn Type		NA	Perm	Perm	NA	Perm				Split	NA	Perm
Protected Phases		2			6					4	4	
Permitted Phases			2	6		6						4
Actuated Green, G (s)		29.3	29.3		29.3	29.3				18.3	18.3	18.3
Effective Green, g (s)		29.3	29.3		29.3	29.3				18.3	18.3	18.3
Actuated g/C Ratio		0.50	0.50		0.50	0.50				0.31	0.31	0.31
Clearance Time (s)		5.0	5.0		5.0	5.0				5.8	5.8	5.8
Vehicle Extension (s)		3.0	3.0		3.0	3.0				3.0	3.0	3.0
Lane Grp Cap (vph)		2409	679		1574	746				507	435	449
v/s Ratio Prot		0.19								0.15	c0.22	
v/s Ratio Perm			0.20		c0.39	0.15						0.21
v/c Ratio		0.38	0.40		0.79	0.30				0.48	0.69	0.67
Uniform Delay, d1		9.0	9.1		12.0	8.5				16.2	17.6	17.4
Progression Factor		1.00	1.00		1.00	1.00				1.00	1.00	1.00
Incremental Delay, d2		0.1	0.4		2.7	0.2				3.2	8.7	7.6
Delay (s)		9.1	9.5		14.6	8.7				19.5	26.3	25.0
Level of Service		A	A		B	A				B	C	C
Approach Delay (s)		9.2			13.1			0.0			24.0	
Approach LOS		A			B			A			C	

Intersection Summary			
HCM 2000 Control Delay	14.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	58.4	Sum of lost time (s)	10.8
Intersection Capacity Utilization	93.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	650	509	3	1155	560	480	0	291	0	0	0
Future Volume (vph)	0	650	509	3	1155	560	480	0	291	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	4.0		5.0	5.0	5.8	5.8	5.8			
Lane Util. Factor		0.95	1.00		0.95	1.00	0.95	0.91	0.95			
Frpb, ped/bikes		1.00	0.98		1.00	0.98	1.00	1.00	1.00			
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Frt		1.00	0.85		1.00	0.85	1.00	0.97	0.85			
Flt Protected		1.00	1.00		1.00	1.00	0.95	0.96	1.00			
Satd. Flow (prot)		3471	1420		3438	1533	1504	1435	1447			
Flt Permitted		1.00	1.00		0.95	1.00	0.95	0.96	1.00			
Satd. Flow (perm)		3471	1420		3279	1533	1504	1435	1447			
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	670	525	3	1191	577	495	0	300	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	296	0	24	121	0	0	0
Lane Group Flow (vph)	0	670	525	0	1194	281	272	250	128	0	0	0
Confl. Peds. (#/hr)	2		7	7		2						
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	0%	4%	11%	0%	5%	3%	14%	0%	6%	0%	0%	0%
Turn Type		NA	Free	Perm	NA	Perm	Perm	NA	Perm			
Protected Phases		2			6			8				
Permitted Phases			Free	6		6	8		8			
Actuated Green, G (s)		28.5	58.6		28.5	28.5	19.3	19.3	19.3			
Effective Green, g (s)		28.5	58.6		28.5	28.5	19.3	19.3	19.3			
Actuated g/C Ratio		0.49	1.00		0.49	0.49	0.33	0.33	0.33			
Clearance Time (s)		5.0			5.0	5.0	5.8	5.8	5.8			
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)		1688	1420		1594	745	495	472	476			
v/s Ratio Prot		0.19										
v/s Ratio Perm			0.37		c0.36	0.18	c0.18	0.17	0.09			
v/c Ratio		0.40	0.37		0.75	0.38	0.55	0.53	0.27			
Uniform Delay, d1		9.6	0.0		12.2	9.5	16.1	16.0	14.5			
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2		0.2	0.7		2.0	0.3	4.3	4.2	1.4			
Delay (s)		9.7	0.7		14.1	9.8	20.4	20.2	15.8			
Level of Service		A	A		B	A	C	C	B			
Approach Delay (s)		5.8			12.7			18.9			0.0	
Approach LOS		A			B			B			A	

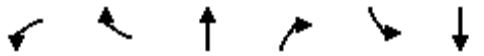
Intersection Summary			
HCM 2000 Control Delay	11.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	58.6	Sum of lost time (s)	10.8
Intersection Capacity Utilization	60.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	99	639	1	57	754	374	11	33	79	53	13	8
Future Volume (vph)	99	639	1	57	754	374	11	33	79	53	13	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8		4.6	5.0	4.6	4.6	5.0	5.0	4.6	5.0	5.0
Lane Util. Factor		0.91		1.00	0.91	1.00	1.00	0.86	0.86	1.00	0.95	1.00
Frpb, ped/bikes		1.00		1.00	1.00	1.00	1.00	0.99	0.99	1.00	1.00	1.00
Flpb, ped/bikes		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00		1.00	1.00	0.85	1.00	0.92	0.85	1.00	1.00	0.85
Flt Protected		0.99		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		4800		1656	4940	1495	1081	4246	1280	1719	3610	1214
Flt Permitted		0.72		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		3479		1656	4940	1495	1081	4246	1280	1719	3610	1214
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	114	734	1	66	867	430	13	38	91	61	15	9
RTOR Reduction (vph)	0	0	0	0	0	243	0	27	26	0	0	5
Lane Group Flow (vph)	0	849	0	66	867	187	13	57	19	61	15	4
Confl. Peds. (#/hr)									2	2		
Heavy Vehicles (%)	3%	8%	0%	9%	5%	8%	67%	3%	7%	5%	0%	33%
Turn Type	pm+pt	NA		Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases	4					8			2			6
Actuated Green, G (s)		28.2		4.1	37.7	42.8	0.9	41.1	41.1	5.1	45.3	45.3
Effective Green, g (s)		28.2		4.1	37.7	42.8	0.9	41.1	41.1	5.1	45.3	45.3
Actuated g/C Ratio		0.29		0.04	0.38	0.43	0.01	0.42	0.42	0.05	0.46	0.46
Clearance Time (s)		5.8		4.6	5.0	4.6	4.6	5.0	5.0	4.6	5.0	5.0
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		996		68	1890	649	9	1771	534	89	1660	558
v/s Ratio Prot				c0.04	0.18	0.01	0.01	0.01		c0.04	c0.00	
v/s Ratio Perm		c0.24				0.11			c0.01			0.00
v/c Ratio		0.85		0.97	0.46	0.29	1.44	0.03	0.04	0.69	0.01	0.01
Uniform Delay, d1		33.2		47.1	22.8	18.0	48.8	17.0	17.0	45.9	14.4	14.4
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		7.2		98.5	0.2	0.2	474.2	0.0	0.1	19.7	0.0	0.0
Delay (s)		40.3		145.6	22.9	18.2	523.0	17.0	17.1	65.6	14.4	14.4
Level of Service		D		F	C	B	F	B	B	E	B	B
Approach Delay (s)		40.3			27.4			63.3			51.1	
Approach LOS		D			C			E			D	

Intersection Summary			
HCM 2000 Control Delay	34.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	98.5	Sum of lost time (s)	20.0
Intersection Capacity Utilization	81.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	4	10	920	12	6	1075
Future Volume (Veh/h)	4	10	920	12	6	1075
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	4	11	989	13	6	1156
Pedestrians	4					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)			750			512
pX, platoon unblocked	0.82	0.92			0.92	
vC, conflicting volume	1590	505			1006	
vC1, stage 1 conf vol	1000					
vC2, stage 2 conf vol	590					
vCu, unblocked vol	858	295			838	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	98			99	
cM capacity (veh/h)	349	650			740	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	15	659	343	6	578	578
Volume Left	4	0	0	6	0	0
Volume Right	11	0	13	0	0	0
cSH	528	1700	1700	740	1700	1700
Volume to Capacity	0.03	0.39	0.20	0.01	0.34	0.34
Queue Length 95th (ft)	2	0	0	1	0	0
Control Delay (s)	12.0	0.0	0.0	9.9	0.0	0.0
Lane LOS	B			A		
Approach Delay (s)	12.0	0.0		0.1		
Approach LOS	B					

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	39.7%	ICU Level of Service	A
Analysis Period (min)	15		

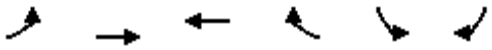
Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	10	920	12	6	1075
Future Vol, veh/h	4	10	920	12	6	1075
Conflicting Peds, #/hr	0	0	0	4	4	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	7	8	0	6
Mvmt Flow	4	11	989	13	6	1156

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1590	505	0	0	1006	0
Stage 1	1000	-	-	-	-	-
Stage 2	590	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	100	518	-	-	697	-
Stage 1	321	-	-	-	-	-
Stage 2	522	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	99	516	-	-	694	-
Mov Cap-2 Maneuver	271	-	-	-	-	-
Stage 1	320	-	-	-	-	-
Stage 2	517	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.1	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	410	694	-
HCM Lane V/C Ratio	-	-	0.037	0.009	-
HCM Control Delay (s)	-	-	14.1	10.2	-
HCM Lane LOS	-	-	B	B	-
HCM 95th %tile Q(veh)	-	-	0.1	0	-



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	38	0	0	37	14	3
Future Volume (Veh/h)	38	0	0	37	14	3
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	43	0	0	42	16	3
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	76	34	35	0	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	76	34	35	0	0	
tC, single (s)	7.1	6.5	6.5	6.2	4.1	
tC, 2 stage (s)						
tF (s)	3.5	4.0	4.0	3.3	2.2	
p0 queue free %	95	100	100	96	99	
cM capacity (veh/h)	870	849	847	1082	1617	

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	43	42	19
Volume Left	43	0	16
Volume Right	0	42	3
cSH	870	1082	1617
Volume to Capacity	0.05	0.04	0.01
Queue Length 95th (ft)	4	3	1
Control Delay (s)	9.4	8.5	6.1
Lane LOS	A	A	A
Approach Delay (s)	9.4	8.5	6.1
Approach LOS	A	A	

Intersection Summary			
Average Delay	8.4		
Intersection Capacity Utilization	18.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	138	1	23	153	39	34
Future Volume (Veh/h)	138	1	23	153	39	34
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	155	1	26	172	44	38
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	426					
pX, platoon unblocked						
vC, conflicting volume			156		380	156
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			156		380	156
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		93	96
cM capacity (veh/h)			1412		607	890

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	156	198	82
Volume Left	0	26	44
Volume Right	1	0	38
cSH	1700	1412	712
Volume to Capacity	0.09	0.02	0.12
Queue Length 95th (ft)	0	1	10
Control Delay (s)	0.0	1.1	10.7
Lane LOS		A	B
Approach Delay (s)	0.0	1.1	10.7
Approach LOS			B

Intersection Summary			
Average Delay	2.5		
Intersection Capacity Utilization	30.9%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	2.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	138	1	23	153	39	34
Future Vol, veh/h	138	1	23	153	39	34
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	89	89	89	89	89	89
Heavy Vehicles, %	26	24	4	6	4	2
Mvmt Flow	155	1	26	172	44	38

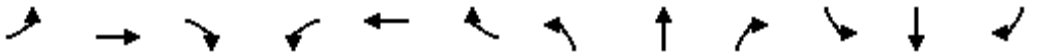
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	156	0	380	156
Stage 1	-	-	-	-	156	-
Stage 2	-	-	-	-	224	-
Critical Hdwy	-	-	4.14	-	6.44	6.22
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	-	-	2.236	-	3.536	3.318
Pot Cap-1 Maneuver	-	-	1412	-	618	890
Stage 1	-	-	-	-	867	-
Stage 2	-	-	-	-	809	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1412	-	606	890
Mov Cap-2 Maneuver	-	-	-	-	606	-
Stage 1	-	-	-	-	867	-
Stage 2	-	-	-	-	793	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1	10.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	712	-	-	1412	-
HCM Lane V/C Ratio	0.115	-	-	0.018	-
HCM Control Delay (s)	10.7	-	-	7.6	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0.1	-

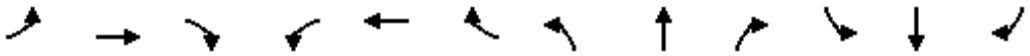
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	154	101	885	149	15	1176
Future Volume (vph)	154	101	885	149	15	1176
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.2	5.2	5.8	5.8	4.6	5.8
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	1.00	1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1641	1538	3505	1260	1504	3374
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1641	1538	3505	1260	1504	3374
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	183	120	1054	177	18	1400
RTOR Reduction (vph)	0	96	0	85	0	0
Lane Group Flow (vph)	183	24	1054	92	18	1400
Confl. Peds. (#/hr)				1	1	
Confl. Bikes (#/hr)				5		
Heavy Vehicles (%)	10%	5%	3%	25%	20%	7%
Turn Type	Perm	Perm	NA	Perm	Prot	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2		
Actuated Green, G (s)	12.1	12.1	30.8	30.8	0.9	36.3
Effective Green, g (s)	12.1	12.1	30.8	30.8	0.9	36.3
Actuated g/C Ratio	0.20	0.20	0.52	0.52	0.02	0.61
Clearance Time (s)	5.2	5.2	5.8	5.8	4.6	5.8
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	334	313	1817	653	22	2061
v/s Ratio Prot			0.30		0.01	c0.41
v/s Ratio Perm	c0.11	0.02		0.07		
v/c Ratio	0.55	0.08	0.58	0.14	0.82	0.68
Uniform Delay, d1	21.2	19.1	9.8	7.4	29.2	7.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.8	0.1	1.4	0.5	109.6	1.8
Delay (s)	23.0	19.2	11.2	7.9	138.7	9.5
Level of Service	C	B	B	A	F	A
Approach Delay (s)	21.5		10.7			11.1
Approach LOS	C		B			B

Intersection Summary			
HCM 2000 Control Delay	12.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	59.4	Sum of lost time (s)	15.6
Intersection Capacity Utilization	50.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	116	44	206	76	478	18	451	252	625	806	47
Future Volume (vph)	63	116	44	206	76	478	18	451	252	625	806	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	5.2		4.6	5.2	4.6	4.6	5.4	4.6	4.6	5.8	
Lane Util. Factor	1.00	0.95		0.97	1.00	1.00	1.00	0.91	1.00	0.97	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.96		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1188	2886		3045	1226	1568	1543	5036	1474	3335	3262	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1188	2886		3045	1226	1568	1543	5036	1474	3335	3262	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	72	132	50	234	86	543	20	512	286	710	916	53
RTOR Reduction (vph)	0	37	0	0	0	132	0	0	160	0	3	0
Lane Group Flow (vph)	72	145	0	234	86	411	20	513	126	710	966	0
Confl. Peds. (#/hr)			5	5					2	2		
Confl. Bikes (#/hr)			1						5			1
Heavy Vehicles (%)	52%	18%	23%	15%	55%	3%	17%	3%	8%	5%	7%	55%
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8	1	5	2	3	1	6	
Permitted Phases						8			2			
Actuated Green, G (s)	9.7	20.9		6.5	17.7	39.3	2.3	42.3	48.8	21.6	61.2	
Effective Green, g (s)	9.7	20.9		6.5	17.7	39.3	2.3	42.3	48.8	21.6	61.2	
Actuated g/C Ratio	0.09	0.19		0.06	0.16	0.35	0.02	0.38	0.44	0.19	0.55	
Clearance Time (s)	4.6	5.2		4.6	5.2	4.6	4.6	5.4	4.6	4.6	5.8	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	103	542		178	195	554	31	1917	647	648	1796	
v/s Ratio Prot	0.06	c0.05		c0.08	0.07	c0.14	0.01	0.10	0.01	c0.21	c0.30	
v/s Ratio Perm						0.12			0.07			
v/c Ratio	0.70	0.27		1.31	0.44	0.74	0.65	0.27	0.19	1.10	0.54	
Uniform Delay, d1	49.3	38.6		52.3	42.2	31.4	54.0	23.7	19.1	44.8	15.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	18.7	0.3		175.6	1.6	5.3	37.9	0.3	0.1	64.3	1.2	
Delay (s)	68.0	38.8		227.9	43.8	36.7	91.9	24.1	19.2	109.1	17.1	
Level of Service	E	D		F	D	D	F	C	B	F	B	
Approach Delay (s)		47.1			89.3			24.0			56.0	
Approach LOS		D			F			C			E	

Intersection Summary			
HCM 2000 Control Delay	56.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	111.1	Sum of lost time (s)	20.2
Intersection Capacity Utilization	84.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	116	44	206	76	478	18	451	252	625	806	47
Future Volume (veh/h)	63	116	44	206	76	478	18	451	252	625	806	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1129	1633	1559	1678	1085	1856	1648	1856	1781	1826	1796	1085
Adj Flow Rate, veh/h	72	132	50	234	86	543	20	512	286	710	916	53
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	52	18	23	15	55	3	17	3	8	5	7	55
Cap, veh/h	81	562	203	173	253	659	32	1657	570	631	1616	94
Arrive On Green	0.08	0.25	0.25	0.06	0.23	0.23	0.02	0.33	0.33	0.19	0.49	0.49
Sat Flow, veh/h	1076	2220	802	3100	1085	1562	1570	5066	1484	3374	3274	189
Grp Volume(v), veh/h	72	90	92	234	86	543	20	512	286	710	477	492
Grp Sat Flow(s),veh/h/ln	1076	1552	1471	1550	1085	1562	1570	1689	1484	1687	1706	1757
Q Serve(g_s), s	7.6	5.3	5.7	6.4	7.5	26.7	1.4	8.7	16.8	21.4	22.5	22.5
Cycle Q Clear(g_c), s	7.6	5.3	5.7	6.4	7.5	26.7	1.4	8.7	16.8	21.4	22.5	22.5
Prop In Lane	1.00		0.55	1.00		1.00	1.00		1.00	1.00		0.11
Lane Grp Cap(c), veh/h	81	393	372	173	253	659	32	1657	570	631	842	867
V/C Ratio(X)	0.88	0.23	0.25	1.35	0.34	0.82	0.62	0.31	0.50	1.12	0.57	0.57
Avail Cap(c_a), veh/h	138	475	450	173	253	659	86	1657	570	631	842	867
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.4	33.9	34.0	54.0	36.5	29.4	55.6	28.8	27.0	46.5	20.4	20.4
Incr Delay (d2), s/veh	27.4	0.3	0.3	190.1	0.8	8.4	17.8	0.5	3.1	75.3	2.8	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	2.0	2.1	7.1	2.0	14.3	0.7	3.5	6.3	15.3	9.1	9.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	79.8	34.2	34.3	244.1	37.3	37.8	73.4	29.3	30.1	121.8	23.1	23.0
LnGrp LOS	E	C	C	F	D	D	E	C	C	F	C	C
Approach Vol, veh/h		254			863			818			1679	
Approach Delay, s/veh		47.2			93.7			30.7			64.8	
Approach LOS		D			F			C			E	

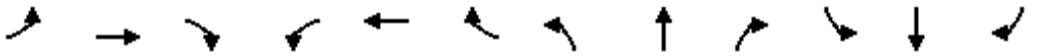
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	26.0	43.2	11.0	34.2	7.0	62.2	13.3	31.9
Change Period (Y+Rc), s	4.6	* 5.8	4.6	5.2	4.6	5.8	4.6	5.2
Max Green Setting (Gmax), s	21.4	* 37	6.4	35.0	6.3	52.1	14.7	26.7
Max Q Clear Time (g_c+I1), s	23.4	18.8	8.4	7.7	3.4	24.5	9.6	28.7
Green Ext Time (p_c), s	0.0	4.0	0.0	1.1	0.0	6.5	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	62.7
HCM 6th LOS	E

Notes

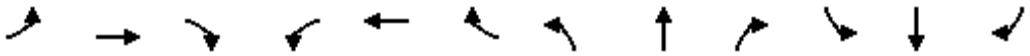
User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



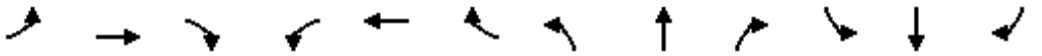
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↱		↑↑	↱				↰	✣	↱
Traffic Volume (vph)	0	1310	678	6	949	468	0	0	0	435	0	608
Future Volume (vph)	0	1310	678	6	949	468	0	0	0	435	0	608
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0		5.0	5.0				5.8	5.8	5.8
Lane Util. Factor		0.91	1.00		0.95	1.00				0.95	0.91	0.95
Frpb, ped/bikes		1.00	0.98		1.00	0.98				1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00				1.00	1.00	1.00
Frt		1.00	0.85		1.00	0.85				1.00	0.88	0.85
Flt Protected		1.00	1.00		1.00	1.00				0.95	0.99	1.00
Satd. Flow (prot)		5085	1515		3504	1563				1698	1436	1447
Flt Permitted		1.00	1.00		0.94	1.00				0.95	0.99	1.00
Satd. Flow (perm)		5085	1515		3310	1563				1698	1436	1447
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	1351	699	6	978	482	0	0	0	448	0	627
RTOR Reduction (vph)	0	0	401	0	0	277	0	0	0	0	32	32
Lane Group Flow (vph)	0	1351	298	0	984	205	0	0	0	376	322	313
Confl. Peds. (#/hr)	1		4	4		1						
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	2%	4%	0%	3%	1%	0%	0%	0%	1%	0%	6%
Turn Type		NA	Perm	Perm	NA	Perm				Split	NA	Perm
Protected Phases		2			6					4	4	
Permitted Phases			2	6		6						4
Actuated Green, G (s)		25.2	25.2		25.2	25.2				23.2	23.2	23.2
Effective Green, g (s)		25.2	25.2		25.2	25.2				23.2	23.2	23.2
Actuated g/C Ratio		0.43	0.43		0.43	0.43				0.39	0.39	0.39
Clearance Time (s)		5.0	5.0		5.0	5.0				5.8	5.8	5.8
Vehicle Extension (s)		3.0	3.0		3.0	3.0				3.0	3.0	3.0
Lane Grp Cap (vph)		2164	644		1408	665				665	562	567
v/s Ratio Prot		0.27								0.22	c0.22	
v/s Ratio Perm			0.20		c0.30	0.13						0.22
v/c Ratio		0.62	0.46		0.70	0.31				0.57	0.57	0.55
Uniform Delay, d1		13.3	12.2		13.9	11.2				14.1	14.1	14.0
Progression Factor		1.00	1.00		1.00	1.00				1.00	1.00	1.00
Incremental Delay, d2		0.6	0.5		1.5	0.3				3.5	4.2	3.8
Delay (s)		13.9	12.7		15.4	11.5				17.5	18.3	17.8
Level of Service		B	B		B	B				B	B	B
Approach Delay (s)		13.5			14.1			0.0			17.9	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM 2000 Control Delay	14.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	59.2	Sum of lost time (s)	10.8
Intersection Capacity Utilization	100.2%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1161	581	2	990	396	443	0	507	0	0	0
Future Volume (vph)	0	1161	581	2	990	396	443	0	507	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	4.0		5.0	5.0	5.8	5.8	5.8			
Lane Util. Factor		0.95	1.00		0.95	1.00	0.95	0.91	0.95			
Frpb, ped/bikes		1.00	0.98		1.00	0.98	1.00	1.00	1.00			
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Frt		1.00	0.85		1.00	0.85	1.00	0.90	0.85			
Flt Protected		1.00	1.00		1.00	1.00	0.95	0.98	1.00			
Satd. Flow (prot)		3539	1547		3574	1550	1618	1494	1519			
Flt Permitted		1.00	1.00		0.95	1.00	0.95	0.98	1.00			
Satd. Flow (perm)		3539	1547		3406	1550	1618	1494	1519			
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	1185	593	2	1010	404	452	0	517	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	237	0	21	21	0	0	0
Lane Group Flow (vph)	0	1185	593	0	1012	167	334	304	289	0	0	0
Confl. Peds. (#/hr)	1		5	5		1						
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	0%	2%	2%	0%	1%	2%	6%	0%	1%	0%	0%	0%
Turn Type		NA	Free	Perm	NA	Perm	Perm	NA	Perm			
Protected Phases		2			6			8				
Permitted Phases			Free	6		6	8		8			
Actuated Green, G (s)		24.6	59.6		24.6	24.6	24.2	24.2	24.2			
Effective Green, g (s)		24.6	59.6		24.6	24.6	24.2	24.2	24.2			
Actuated g/C Ratio		0.41	1.00		0.41	0.41	0.41	0.41	0.41			
Clearance Time (s)		5.0			5.0	5.0	5.8	5.8	5.8			
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)		1460	1547		1405	639	656	606	616			
v/s Ratio Prot		c0.33										
v/s Ratio Perm			0.38		0.30	0.11	c0.21	0.20	0.19			
v/c Ratio		0.81	0.38		0.72	0.26	0.51	0.50	0.47			
Uniform Delay, d1		15.5	0.0		14.6	11.5	13.3	13.2	13.0			
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2		3.5	0.7		1.8	0.2	2.8	2.9	2.5			
Delay (s)		19.0	0.7		16.5	11.7	16.1	16.1	15.5			
Level of Service		B	A		B	B	B	B	B			
Approach Delay (s)		12.9			15.1			15.9			0.0	
Approach LOS		B			B			B			A	

Intersection Summary			
HCM 2000 Control Delay	14.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	59.6	Sum of lost time (s)	10.8
Intersection Capacity Utilization	62.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



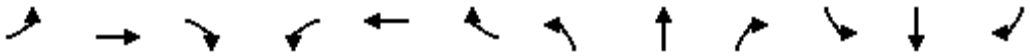
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	911	7	74	512	273	10	80	146	68	31	4
Future Volume (vph)	77	911	7	74	512	273	10	80	146	68	31	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8		4.6	5.0	4.6	4.6	5.0	5.0	4.6	5.0	5.0
Lane Util. Factor		0.91		1.00	0.91	1.00	1.00	0.86	0.86	1.00	0.95	1.00
Frpb, ped/bikes		1.00		1.00	1.00	1.00	1.00	0.99	0.99	1.00	1.00	0.99
Flpb, ped/bikes		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00		1.00	1.00	0.85	1.00	0.93	0.85	1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		4837		1752	4715	1482	1253	4242	1318	1770	3505	1274
Flt Permitted		0.81		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		3930		1752	4715	1482	1253	4242	1318	1770	3505	1274
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	90	1059	8	86	595	317	12	93	170	79	36	5
RTOR Reduction (vph)	0	1	0	0	0	170	0	52	52	0	0	3
Lane Group Flow (vph)	0	1156	0	86	595	147	12	126	33	79	36	2
Confl. Peds. (#/hr)							2		1	1		2
Heavy Vehicles (%)	4%	7%	0%	3%	10%	9%	44%	9%	4%	2%	3%	25%
Turn Type	pm+pt	NA		Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases	4					8			2			6
Actuated Green, G (s)		31.9		5.6	42.9	48.1	1.0	40.7	40.7	5.2	44.9	44.9
Effective Green, g (s)		31.9		5.6	42.9	48.1	1.0	40.7	40.7	5.2	44.9	44.9
Actuated g/C Ratio		0.31		0.05	0.41	0.47	0.01	0.39	0.39	0.05	0.43	0.43
Clearance Time (s)		5.8		4.6	5.0	4.6	4.6	5.0	5.0	4.6	5.0	5.0
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		1212		94	1956	689	12	1669	518	89	1521	553
v/s Ratio Prot				c0.05	0.13	0.01	0.01	c0.03		c0.04	c0.01	
v/s Ratio Perm		c0.29				0.09			0.03			0.00
v/c Ratio		0.95		0.91	0.30	0.21	1.00	0.08	0.06	0.89	0.02	0.00
Uniform Delay, d1		35.0		48.7	20.3	16.4	51.2	19.6	19.5	48.8	16.7	16.6
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		16.0		65.2	0.1	0.2	259.8	0.1	0.2	59.4	0.0	0.0
Delay (s)		51.0		113.9	20.3	16.6	311.0	19.7	19.7	108.2	16.7	16.6
Level of Service		D		F	C	B	F	B	B	F	B	B
Approach Delay (s)		51.0			27.2			32.4			76.9	
Approach LOS		D			C			C			E	

Intersection Summary			
HCM 2000 Control Delay	40.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	103.4	Sum of lost time (s)	20.0
Intersection Capacity Utilization	81.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	169	36	275	125	835	48	835	246	372	328	58
Future Volume (vph)	49	169	36	275	125	835	48	835	246	372	328	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	5.2		4.6	5.2	4.6	4.6	5.4	4.6	4.6	5.8	
Lane Util. Factor	1.00	0.95		0.97	1.00	1.00	1.00	0.91	1.00	0.97	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1211	2280		3019	1357	1495	1318	4673	1239	3242	2983	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1211	2280		3019	1357	1495	1318	4673	1239	3242	2983	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	54	186	40	302	137	918	53	918	270	409	360	64
RTOR Reduction (vph)	0	15	0	0	0	78	0	0	145	0	8	0
Lane Group Flow (vph)	54	211	0	302	137	840	53	918	125	409	416	0
Confl. Peds. (#/hr)									1	1		
Confl. Bikes (#/hr)			1									3
Heavy Vehicles (%)	49%	55%	48%	16%	40%	8%	37%	11%	29%	8%	15%	34%
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8	1	5	2	3	1	6	
Permitted Phases						8			2			
Actuated Green, G (s)	9.1	18.7		12.4	22.0	51.5	8.6	43.5	55.9	29.5	64.0	
Effective Green, g (s)	9.1	18.7		12.4	22.0	51.5	8.6	43.5	55.9	29.5	64.0	
Actuated g/C Ratio	0.07	0.15		0.10	0.18	0.42	0.07	0.35	0.45	0.24	0.52	
Clearance Time (s)	4.6	5.2		4.6	5.2	4.6	4.6	5.4	4.6	4.6	5.8	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	88	344		302	240	621	91	1640	559	771	1540	
v/s Ratio Prot	0.04	0.09		c0.10	0.10	c0.32	0.04	c0.20	0.02	0.13	0.14	
v/s Ratio Perm						0.24			0.08			
v/c Ratio	0.61	0.61		1.00	0.57	1.35	0.58	0.56	0.22	0.53	0.27	
Uniform Delay, d1	55.7	49.2		55.8	46.6	36.2	55.9	32.5	20.7	41.2	16.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	12.0	3.2		51.8	3.3	168.9	9.2	1.4	0.2	0.7	0.4	
Delay (s)	67.7	52.4		107.5	49.9	205.1	65.1	33.9	20.9	41.9	17.3	
Level of Service	E	D		F	D	F	E	C	C	D	B	
Approach Delay (s)		55.4			167.7			32.4			29.3	
Approach LOS		E			F			C			C	

Intersection Summary			
HCM 2000 Control Delay	82.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	123.9	Sum of lost time (s)	20.2
Intersection Capacity Utilization	100.5%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	169	36	275	125	835	48	835	246	372	328	58
Future Volume (veh/h)	49	169	36	275	125	835	48	835	246	372	328	58
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1174	1085	1189	1663	1307	1781	1352	1737	1470	1781	1678	1396
Adj Flow Rate, veh/h	54	186	40	302	137	918	53	918	270	409	360	64
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	49	55	48	16	40	8	37	11	29	8	15	34
Cap, veh/h	61	438	92	290	390	670	62	1649	551	478	1200	211
Arrive On Green	0.05	0.26	0.26	0.09	0.30	0.30	0.05	0.35	0.35	0.15	0.44	0.44
Sat Flow, veh/h	1118	1691	355	3072	1307	1510	1287	4742	1245	3291	2698	474
Grp Volume(v), veh/h	54	112	114	302	137	918	53	918	270	409	211	213
Grp Sat Flow(s),veh/h/ln	1118	1031	1015	1536	1307	1510	1287	1581	1245	1646	1594	1579
Q Serve(g_s), s	6.3	11.8	12.3	12.4	10.8	39.2	5.4	20.6	20.3	15.9	11.1	11.4
Cycle Q Clear(g_c), s	6.3	11.8	12.3	12.4	10.8	39.2	5.4	20.6	20.3	15.9	11.1	11.4
Prop In Lane	1.00		0.35	1.00		1.00	1.00		1.00	1.00		0.30
Lane Grp Cap(c), veh/h	61	267	263	290	390	670	62	1649	551	478	709	702
V/C Ratio(X)	0.88	0.42	0.44	1.04	0.35	1.37	0.85	0.56	0.49	0.86	0.30	0.30
Avail Cap(c_a), veh/h	121	322	317	290	390	670	127	1649	551	737	709	702
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.7	40.5	40.6	59.5	36.1	36.5	62.0	34.6	26.1	54.8	23.3	23.4
Incr Delay (d2), s/veh	30.5	1.0	1.1	63.9	0.5	176.1	26.2	1.4	3.1	6.2	1.1	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	3.1	3.2	7.4	3.5	53.4	2.2	7.9	6.4	6.9	4.3	4.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	92.2	41.5	41.8	123.3	36.6	212.6	88.2	36.0	29.2	61.0	24.4	24.5
LnGrp LOS	F	D	D	F	D	F	F	D	C	E	C	C
Approach Vol, veh/h		280			1357			1241			833	
Approach Delay, s/veh		51.4			175.0			36.7			42.4	
Approach LOS		D			F			D			D	

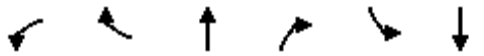
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.7	51.5	17.0	39.2	10.9	64.2	11.8	44.4
Change Period (Y+Rc), s	4.6	* 5.8	4.6	5.2	4.6	5.8	4.6	5.2
Max Green Setting (Gmax), s	29.4	* 42	12.4	41.0	13.0	58.4	14.2	39.2
Max Q Clear Time (g_c+I1), s	17.9	22.6	14.4	14.3	7.4	13.4	8.3	41.2
Green Ext Time (p_c), s	1.1	6.9	0.0	1.4	0.0	2.6	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	89.7
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	21	7	890	96	25	1147
Future Volume (Veh/h)	21	7	890	96	25	1147
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	24	8	1011	109	28	1303
Pedestrians	1					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)			750			512
pX, platoon unblocked	0.92	0.87			0.87	
vC, conflicting volume	1774	561			1121	
vC1, stage 1 conf vol	1066					
vC2, stage 2 conf vol	708					
vCu, unblocked vol	1202	203			845	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	93	99			96	
cM capacity (veh/h)	321	706			697	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	32	674	446	28	652	652
Volume Left	24	0	0	28	0	0
Volume Right	8	0	109	0	0	0
cSH	372	1700	1700	697	1700	1700
Volume to Capacity	0.09	0.40	0.26	0.04	0.38	0.38
Queue Length 95th (ft)	7	0	0	3	0	0
Control Delay (s)	15.6	0.0	0.0	10.4	0.0	0.0
Lane LOS	C			B		
Approach Delay (s)	15.6	0.0		0.2		
Approach LOS	C					

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	41.7%	ICU Level of Service	A
Analysis Period (min)	15		

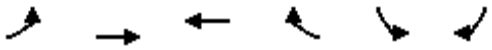
Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	21	7	890	96	25	1147
Future Vol, veh/h	21	7	890	96	25	1147
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	0	0	14	9	0	17
Mvmt Flow	24	8	1011	109	28	1303

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1775	561	0	0	1121	0
Stage 1	1067	-	-	-	-	-
Stage 2	708	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	76	476	-	-	631	-
Stage 1	296	-	-	-	-	-
Stage 2	455	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	73	476	-	-	630	-
Mov Cap-2 Maneuver	241	-	-	-	-	-
Stage 1	296	-	-	-	-	-
Stage 2	435	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.8	0	0.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	275	630	-
HCM Lane V/C Ratio	-	-	0.116	0.045	-
HCM Control Delay (s)	-	-	19.8	11	-
HCM Lane LOS	-	-	C	B	-
HCM 95th %tile Q(veh)	-	-	0.4	0.1	-



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	35	0	0	13	54	81
Future Volume (Veh/h)	35	0	0	13	54	81
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	41	0	0	15	63	94
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	188	173	220	0	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	188	173	220	0	0	
tC, single (s)	7.2	6.7	6.7	6.4	4.2	
tC, 2 stage (s)						
tF (s)	3.6	4.1	4.1	3.4	2.3	
p0 queue free %	94	100	100	99	96	
cM capacity (veh/h)	711	669	629	1048	1542	

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	41	15	157
Volume Left	41	0	63
Volume Right	0	15	94
cSH	711	1048	1542
Volume to Capacity	0.06	0.01	0.04
Queue Length 95th (ft)	5	1	3
Control Delay (s)	10.4	8.5	3.2
Lane LOS	B	A	A
Approach Delay (s)	10.4	8.5	3.2
Approach LOS	B	A	

Intersection Summary			
Average Delay	4.9		
Intersection Capacity Utilization	23.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	247	87	57	102	11	37
Future Volume (Veh/h)	247	87	57	102	11	37
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	287	101	66	119	13	43
Pedestrians				1		
Lane Width (ft)				12.0		
Walking Speed (ft/s)				3.5		
Percent Blockage				0		
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	426					
pX, platoon unblocked						
vC, conflicting volume			388		588	338
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			388		588	338
tC, single (s)			4.1		6.5	6.4
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.5
p0 queue free %			94		97	94
cM capacity (veh/h)			1160		432	664

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	388	185	56
Volume Left	0	66	13
Volume Right	101	0	43
cSH	1700	1160	590
Volume to Capacity	0.23	0.06	0.09
Queue Length 95th (ft)	0	5	8
Control Delay (s)	0.0	3.3	11.7
Lane LOS		A	B
Approach Delay (s)	0.0	3.3	11.7
Approach LOS			B

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	40.5%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	247	87	57	102	11	37
Future Vol, veh/h	247	87	57	102	11	37
Conflicting Peds, #/hr	0	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	8	2	4	14	10	20
Mvmt Flow	287	101	66	119	13	43

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	388	0	589	339
Stage 1	-	-	-	-	338	-
Stage 2	-	-	-	-	251	-
Critical Hdwy	-	-	4.14	-	6.5	6.4
Critical Hdwy Stg 1	-	-	-	-	5.5	-
Critical Hdwy Stg 2	-	-	-	-	5.5	-
Follow-up Hdwy	-	-	2.236	-	3.59	3.48
Pot Cap-1 Maneuver	-	-	1160	-	458	664
Stage 1	-	-	-	-	705	-
Stage 2	-	-	-	-	772	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1160	-	430	663
Mov Cap-2 Maneuver	-	-	-	-	430	-
Stage 1	-	-	-	-	705	-
Stage 2	-	-	-	-	725	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3	11.7
HCM LOS			B

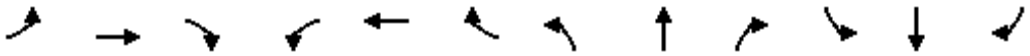
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	590	-	-	1160	-
HCM Lane V/C Ratio	0.095	-	-	0.057	-
HCM Control Delay (s)	11.7	-	-	8.3	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.2	-

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	88	62	796	195	76	719
Future Volume (vph)	88	62	796	195	76	719
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.2	5.2	5.8	5.8	4.6	5.8
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	1.00	1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1467	1282	3312	1346	1687	3223
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1467	1282	3312	1346	1687	3223
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	93	65	838	205	80	757
RTOR Reduction (vph)	0	53	0	101	0	0
Lane Group Flow (vph)	93	12	838	104	80	757
Confl. Peds. (#/hr)	1			2		
Confl. Bikes (#/hr)				3		
Heavy Vehicles (%)	23%	26%	9%	17%	7%	12%
Turn Type	Perm	Perm	NA	Perm	Prot	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2		
Actuated Green, G (s)	11.4	11.4	31.1	31.1	3.1	38.8
Effective Green, g (s)	11.4	11.4	31.1	31.1	3.1	38.8
Actuated g/C Ratio	0.19	0.19	0.51	0.51	0.05	0.63
Clearance Time (s)	5.2	5.2	5.8	5.8	4.6	5.8
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	273	238	1683	683	85	2043
v/s Ratio Prot			c0.25		c0.05	0.23
v/s Ratio Perm	c0.06	0.01		0.08		
v/c Ratio	0.34	0.05	0.50	0.15	0.94	0.37
Uniform Delay, d1	21.6	20.5	9.9	8.0	29.0	5.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.1	1.1	0.5	77.8	0.5
Delay (s)	22.4	20.5	11.0	8.5	106.7	5.9
Level of Service	C	C	B	A	F	A
Approach Delay (s)	21.6		10.5			15.5
Approach LOS	C		B			B

Intersection Summary			
HCM 2000 Control Delay	13.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	61.2	Sum of lost time (s)	15.6
Intersection Capacity Utilization	47.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	169	36	275	125	835	48	835	246	372	328	58
Future Volume (vph)	49	169	36	275	125	835	48	835	246	372	328	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	5.2		4.6	5.2	4.6	4.6	5.4	4.6	4.6	5.8	
Lane Util. Factor	1.00	0.95		0.97	1.00	1.00	1.00	0.91	1.00	0.97	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1211	2280		3019	1357	1495	1318	4673	1238	3242	2983	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1211	2280		3019	1357	1495	1318	4673	1238	3242	2983	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	54	186	40	302	137	918	53	918	270	409	360	64
RTOR Reduction (vph)	0	17	0	0	0	93	0	0	156	0	10	0
Lane Group Flow (vph)	54	209	0	302	137	825	53	918	114	409	414	0
Confl. Peds. (#/hr)									1	1		
Confl. Bikes (#/hr)			1									3
Heavy Vehicles (%)	49%	55%	48%	16%	40%	8%	37%	11%	29%	8%	15%	34%
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8	1	5	2	3	1	6	
Permitted Phases						8			2			
Actuated Green, G (s)	8.8	21.1		6.4	18.7	41.2	4.9	40.2	46.6	22.5	57.4	
Effective Green, g (s)	8.8	21.1		6.4	18.7	41.2	4.9	40.2	46.6	22.5	57.4	
Actuated g/C Ratio	0.08	0.19		0.06	0.17	0.37	0.04	0.37	0.42	0.20	0.52	
Clearance Time (s)	4.6	5.2		4.6	5.2	4.6	4.6	5.4	4.6	4.6	5.8	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	96	437		175	230	559	58	1707	524	663	1556	
v/s Ratio Prot	0.04	0.09		c0.10	0.10	c0.30	0.04	c0.20	0.01	0.13	0.14	
v/s Ratio Perm						0.25			0.08			
v/c Ratio	0.56	0.48		1.73	0.60	1.48	0.91	0.54	0.22	0.62	0.27	
Uniform Delay, d1	48.7	39.6		51.8	42.2	34.4	52.3	27.6	20.1	39.8	14.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	7.3	0.8		349.4	4.1	223.5	86.9	1.2	0.2	1.7	0.4	
Delay (s)	56.1	40.4		401.2	46.3	257.9	139.2	28.8	20.3	41.5	15.0	
Level of Service	E	D		F	D	F	F	C	C	D	B	
Approach Delay (s)		43.4			268.5			31.7			28.0	
Approach LOS		D			F			C			C	

Intersection Summary			
HCM 2000 Control Delay	118.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	20.2
Intersection Capacity Utilization	100.5%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	169	36	275	125	835	48	835	246	372	328	58
Future Volume (veh/h)	49	169	36	275	125	835	48	835	246	372	328	58
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1174	1085	1189	1663	1307	1781	1352	1737	1470	1781	1678	1396
Adj Flow Rate, veh/h	54	186	40	302	137	918	53	918	270	409	360	64
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	49	55	48	16	40	8	37	11	29	8	15	34
Cap, veh/h	60	403	85	179	317	588	61	1770	537	484	1276	224
Arrive On Green	0.05	0.24	0.24	0.06	0.24	0.24	0.05	0.37	0.37	0.15	0.47	0.47
Sat Flow, veh/h	1118	1691	355	3072	1307	1510	1287	4742	1245	3291	2698	474
Grp Volume(v), veh/h	54	112	114	302	137	918	53	918	270	409	211	213
Grp Sat Flow(s),veh/h/ln	1118	1031	1015	1536	1307	1510	1287	1581	1245	1646	1594	1579
Q Serve(g_s), s	5.3	10.2	10.6	6.4	9.8	26.7	4.5	16.6	17.3	13.3	8.9	9.1
Cycle Q Clear(g_c), s	5.3	10.2	10.6	6.4	9.8	26.7	4.5	16.6	17.3	13.3	8.9	9.1
Prop In Lane	1.00		0.35	1.00		1.00	1.00		1.00	1.00		0.30
Lane Grp Cap(c), veh/h	60	245	242	179	317	588	61	1770	537	484	754	747
V/C Ratio(X)	0.90	0.45	0.47	1.69	0.43	1.56	0.87	0.52	0.50	0.84	0.28	0.29
Avail Cap(c_a), veh/h	149	327	323	179	317	588	74	1770	537	669	754	747
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.8	35.9	36.0	51.9	35.3	33.6	52.1	26.8	22.7	45.7	17.6	17.7
Incr Delay (d2), s/veh	32.9	1.3	1.4	334.3	0.9	260.8	56.1	1.1	3.3	7.2	0.9	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	2.6	2.7	10.7	3.2	57.6	2.4	6.1	5.4	5.8	3.3	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	84.7	37.2	37.5	386.2	36.2	294.4	108.3	27.9	26.1	52.9	18.6	18.6
LnGrp LOS	F	D	D	F	D	F	F	C	C	D	B	B
Approach Vol, veh/h		280			1357			1241			833	
Approach Delay, s/veh		46.4			288.8			30.9			35.4	
Approach LOS		D			F			C			D	

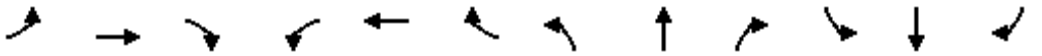
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.8	46.9	11.0	31.4	9.8	57.9	10.5	31.9
Change Period (Y+Rc), s	4.6	* 5.8	4.6	5.2	4.6	5.8	4.6	5.2
Max Green Setting (Gmax), s	22.4	* 36	6.4	35.0	6.3	52.1	14.7	26.7
Max Q Clear Time (g_c+I1), s	15.3	19.3	8.4	12.6	6.5	11.1	7.3	28.7
Green Ext Time (p_c), s	0.9	6.5	0.0	1.3	0.0	2.6	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	127.4
HCM 6th LOS	F

Notes

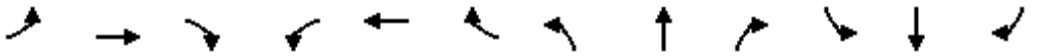
User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



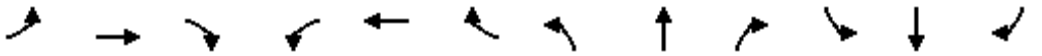
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↱		↑↑	↱				↰	✥	↱
Traffic Volume (vph)	0	901	529	9	1265	429	0	0	0	263	0	614
Future Volume (vph)	0	901	529	9	1265	429	0	0	0	263	0	614
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0		5.0	5.0				5.8	5.8	5.8
Lane Util. Factor		0.91	1.00		0.95	1.00				0.95	0.91	0.95
Frpb, ped/bikes		1.00	0.97		1.00	0.98				1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00				1.00	1.00	1.00
Frt		1.00	0.85		1.00	0.85				1.00	0.86	0.85
Flt Protected		1.00	1.00		1.00	1.00				0.95	1.00	1.00
Satd. Flow (prot)		4803	1355		3313	1488				1618	1389	1434
Flt Permitted		1.00	1.00		0.95	1.00				0.95	1.00	1.00
Satd. Flow (perm)		4803	1355		3140	1488				1618	1389	1434
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	929	545	9	1304	442	0	0	0	271	0	633
RTOR Reduction (vph)	0	0	268	0	0	218	0	0	0	0	25	25
Lane Group Flow (vph)	0	929	277	0	1313	224	0	0	0	244	306	304
Confl. Peds. (#/hr)	2		7	7		2						
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	8%	16%	0%	9%	6%	0%	0%	0%	6%	0%	7%
Turn Type		NA	Perm	Perm	NA	Perm				Split	NA	Perm
Protected Phases		2			6					4	4	
Permitted Phases			2	6		6						4
Actuated Green, G (s)		29.9	29.9		29.9	29.9				18.2	18.2	18.2
Effective Green, g (s)		29.9	29.9		29.9	29.9				18.2	18.2	18.2
Actuated g/C Ratio		0.51	0.51		0.51	0.51				0.31	0.31	0.31
Clearance Time (s)		5.0	5.0		5.0	5.0				5.8	5.8	5.8
Vehicle Extension (s)		3.0	3.0		3.0	3.0				3.0	3.0	3.0
Lane Grp Cap (vph)		2438	687		1593	755				499	429	443
v/s Ratio Prot		0.19								0.15	c0.22	
v/s Ratio Perm			0.20		c0.42	0.15						0.21
v/c Ratio		0.38	0.40		0.82	0.30				0.49	0.71	0.69
Uniform Delay, d1		8.9	9.0		12.3	8.4				16.6	18.0	17.8
Progression Factor		1.00	1.00		1.00	1.00				1.00	1.00	1.00
Incremental Delay, d2		0.1	0.4		3.6	0.2				3.4	9.7	8.4
Delay (s)		9.0	9.4		15.9	8.6				20.0	27.8	26.2
Level of Service		A	A		B	A				B	C	C
Approach Delay (s)		9.1			14.1			0.0			25.1	
Approach LOS		A			B			A			C	

Intersection Summary			
HCM 2000 Control Delay	14.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	58.9	Sum of lost time (s)	10.8
Intersection Capacity Utilization	95.4%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	652	509	3	1165	560	543	0	291	0	0	0
Future Volume (vph)	0	652	509	3	1165	560	543	0	291	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	4.0		5.0	5.0	5.8	5.8	5.8			
Lane Util. Factor		0.95	1.00		0.95	1.00	0.95	0.91	0.95			
Frpb, ped/bikes		1.00	0.98		1.00	0.98	1.00	1.00	1.00			
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Frt		1.00	0.85		1.00	0.85	1.00	0.98	0.85			
Flt Protected		1.00	1.00		1.00	1.00	0.95	0.96	1.00			
Satd. Flow (prot)		3471	1420		3438	1533	1504	1439	1447			
Flt Permitted		1.00	1.00		0.95	1.00	0.95	0.96	1.00			
Satd. Flow (perm)		3471	1420		3279	1533	1504	1439	1447			
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	672	525	3	1201	577	560	0	300	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	296	0	24	121	0	0	0
Lane Group Flow (vph)	0	672	525	0	1204	281	297	272	146	0	0	0
Confl. Peds. (#/hr)	2		7	7		2						
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	0%	4%	11%	0%	5%	3%	14%	0%	6%	0%	0%	0%
Turn Type		NA	Free	Perm	NA	Perm	Perm	NA	Perm			
Protected Phases		2			6			8				
Permitted Phases			Free	6		6	8		8			
Actuated Green, G (s)		28.5	58.5		28.5	28.5	19.2	19.2	19.2			
Effective Green, g (s)		28.5	58.5		28.5	28.5	19.2	19.2	19.2			
Actuated g/C Ratio		0.49	1.00		0.49	0.49	0.33	0.33	0.33			
Clearance Time (s)		5.0			5.0	5.0	5.8	5.8	5.8			
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)		1691	1420		1597	746	493	472	474			
v/s Ratio Prot		0.19										
v/s Ratio Perm			0.37		c0.37	0.18	c0.20	0.19	0.10			
v/c Ratio		0.40	0.37		0.75	0.38	0.60	0.58	0.31			
Uniform Delay, d1		9.5	0.0		12.2	9.4	16.5	16.3	14.7			
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2		0.2	0.7		2.1	0.3	5.4	5.0	1.7			
Delay (s)		9.7	0.7		14.2	9.7	21.8	21.3	16.4			
Level of Service		A	A		B	A	C	C	B			
Approach Delay (s)		5.8			12.8			20.0			0.0	
Approach LOS		A			B			B			A	

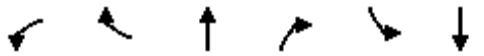
Intersection Summary			
HCM 2000 Control Delay	12.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	58.5	Sum of lost time (s)	10.8
Intersection Capacity Utilization	61.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	99	639	1	57	754	374	11	40	79	53	43	8
Future Volume (vph)	99	639	1	57	754	374	11	40	79	53	43	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8		4.6	5.0	4.6	4.6	5.0	5.0	4.6	5.0	5.0
Lane Util. Factor		0.91		1.00	0.91	1.00	1.00	0.86	0.86	1.00	0.95	1.00
Frpb, ped/bikes		1.00		1.00	1.00	1.00	1.00	0.99	0.99	1.00	1.00	1.00
Flpb, ped/bikes		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00		1.00	1.00	0.85	1.00	0.93	0.85	1.00	1.00	0.85
Flt Protected		0.99		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		4800		1656	4940	1495	1081	4289	1280	1719	3610	1214
Flt Permitted		0.72		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		3479		1656	4940	1495	1081	4289	1280	1719	3610	1214
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	114	734	1	66	867	430	13	46	91	61	49	9
RTOR Reduction (vph)	0	0	0	0	0	243	0	27	26	0	0	5
Lane Group Flow (vph)	0	849	0	66	867	187	13	65	19	61	49	4
Confl. Peds. (#/hr)									2	2		
Heavy Vehicles (%)	3%	8%	0%	9%	5%	8%	67%	3%	7%	5%	0%	33%
Turn Type	pm+pt	NA		Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases	4					8			2			6
Actuated Green, G (s)		28.2		4.1	37.7	42.8	0.9	41.1	41.1	5.1	45.3	45.3
Effective Green, g (s)		28.2		4.1	37.7	42.8	0.9	41.1	41.1	5.1	45.3	45.3
Actuated g/C Ratio		0.29		0.04	0.38	0.43	0.01	0.42	0.42	0.05	0.46	0.46
Clearance Time (s)		5.8		4.6	5.0	4.6	4.6	5.0	5.0	4.6	5.0	5.0
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		996		68	1890	649	9	1789	534	89	1660	558
v/s Ratio Prot				c0.04	0.18	0.01	0.01	c0.02		c0.04	c0.01	
v/s Ratio Perm		c0.24				0.11			0.01			0.00
v/c Ratio		0.85		0.97	0.46	0.29	1.44	0.04	0.04	0.69	0.03	0.01
Uniform Delay, d1		33.2		47.1	22.8	18.0	48.8	17.0	17.0	45.9	14.6	14.4
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		7.2		98.5	0.2	0.2	474.2	0.0	0.1	19.7	0.0	0.0
Delay (s)		40.3		145.6	22.9	18.2	523.0	17.0	17.1	65.6	14.6	14.4
Level of Service		D		F	C	B	F	B	B	E	B	B
Approach Delay (s)		40.3			27.4			60.9			40.7	
Approach LOS		D			C			E			D	

Intersection Summary			
HCM 2000 Control Delay	34.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	98.5	Sum of lost time (s)	20.0
Intersection Capacity Utilization	81.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	36	32	920	68	11	1075
Future Volume (Veh/h)	36	32	920	68	11	1075
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	39	34	989	73	12	1156
Pedestrians	4					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)			750			512
pX, platoon unblocked	0.82	0.92			0.92	
vC, conflicting volume	1632	535			1066	
vC1, stage 1 conf vol	1030					
vC2, stage 2 conf vol	602					
vCu, unblocked vol	886	323			900	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	88	95			98	
cM capacity (veh/h)	336	623			700	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	73	659	403	12	578	578
Volume Left	39	0	0	12	0	0
Volume Right	34	0	73	0	0	0
cSH	428	1700	1700	700	1700	1700
Volume to Capacity	0.17	0.39	0.24	0.02	0.34	0.34
Queue Length 95th (ft)	15	0	0	1	0	0
Control Delay (s)	15.1	0.0	0.0	10.2	0.0	0.0
Lane LOS	C			B		
Approach Delay (s)	15.1	0.0		0.1		
Approach LOS	C					

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	40.3%	ICU Level of Service	A
Analysis Period (min)	15		

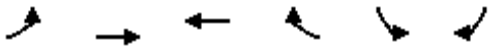
Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	36	32	920	68	11	1075
Future Vol, veh/h	36	32	920	68	11	1075
Conflicting Peds, #/hr	0	0	0	4	4	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	7	8	0	6
Mvmt Flow	39	34	989	73	12	1156

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1632	535	0	0	1066	0
Stage 1	1030	-	-	-	-	-
Stage 2	602	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	94	495	-	-	661	-
Stage 1	310	-	-	-	-	-
Stage 2	515	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	92	493	-	-	658	-
Mov Cap-2 Maneuver	262	-	-	-	-	-
Stage 1	309	-	-	-	-	-
Stage 2	506	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.7	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	336	658	-
HCM Lane V/C Ratio	-	-	0.218	0.018	-
HCM Control Delay (s)	-	-	18.7	10.6	-
HCM Lane LOS	-	-	C	B	-
HCM 95th %tile Q(veh)	-	-	0.8	0.1	-



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	148	0	0	48	19	50
Future Volume (Veh/h)	148	0	0	48	19	50
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	166	0	0	54	21	56
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	124	70	98	0	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	124	70	98	0	0	
tC, single (s)	7.1	6.5	6.5	6.2	4.1	
tC, 2 stage (s)						
tF (s)	3.5	4.0	4.0	3.3	2.2	
p0 queue free %	79	100	100	95	99	
cM capacity (veh/h)	798	808	780	1082	1617	

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	166	54	77
Volume Left	166	0	21
Volume Right	0	54	56
cSH	798	1082	1617
Volume to Capacity	0.21	0.05	0.01
Queue Length 95th (ft)	20	4	1
Control Delay (s)	10.7	8.5	2.0
Lane LOS	B	A	A
Approach Delay (s)	10.7	8.5	2.0
Approach LOS	B	A	

Intersection Summary			
Average Delay	8.1		
Intersection Capacity Utilization	25.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	138	24	52	153	62	133
Future Volume (Veh/h)	138	24	52	153	62	133
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	155	27	58	172	70	149
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	426					
pX, platoon unblocked						
vC, conflicting volume			182		456	168
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			182		456	168
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			96		87	83
cM capacity (veh/h)			1381		535	876

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	182	230	219
Volume Left	0	58	70
Volume Right	27	0	149
cSH	1700	1381	727
Volume to Capacity	0.11	0.04	0.30
Queue Length 95th (ft)	0	3	32
Control Delay (s)	0.0	2.2	12.1
Lane LOS		A	B
Approach Delay (s)	0.0	2.2	12.1
Approach LOS			B

Intersection Summary			
Average Delay	5.0		
Intersection Capacity Utilization	41.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	4.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	138	24	52	153	62	133
Future Vol, veh/h	138	24	52	153	62	133
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	89	89	89	89	89	89
Heavy Vehicles, %	26	24	4	6	4	2
Mvmt Flow	155	27	58	172	70	149

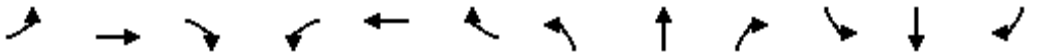
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	182	0	457	169
Stage 1	-	-	-	-	169	-
Stage 2	-	-	-	-	288	-
Critical Hdwy	-	-	4.14	-	6.44	6.22
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	-	-	2.236	-	3.536	3.318
Pot Cap-1 Maneuver	-	-	1381	-	558	875
Stage 1	-	-	-	-	856	-
Stage 2	-	-	-	-	756	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1381	-	532	875
Mov Cap-2 Maneuver	-	-	-	-	532	-
Stage 1	-	-	-	-	856	-
Stage 2	-	-	-	-	721	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2	12.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	726	-	-	1381	-
HCM Lane V/C Ratio	0.302	-	-	0.042	-
HCM Control Delay (s)	12.1	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	1.3	-	-	0.1	-

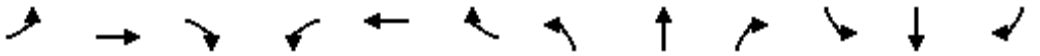
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	154	124	907	149	38	1181
Future Volume (vph)	154	124	907	149	38	1181
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.2	5.2	5.8	5.8	4.6	5.8
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	1.00	1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1641	1538	3505	1260	1504	3374
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1641	1538	3505	1260	1504	3374
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	183	148	1080	177	45	1406
RTOR Reduction (vph)	0	117	0	90	0	0
Lane Group Flow (vph)	183	31	1080	87	45	1406
Confl. Peds. (#/hr)				1	1	
Confl. Bikes (#/hr)				5		
Heavy Vehicles (%)	10%	5%	3%	25%	20%	7%
Turn Type	Perm	Perm	NA	Perm	Prot	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2		
Actuated Green, G (s)	12.2	12.2	28.5	28.5	1.9	35.0
Effective Green, g (s)	12.2	12.2	28.5	28.5	1.9	35.0
Actuated g/C Ratio	0.21	0.21	0.49	0.49	0.03	0.60
Clearance Time (s)	5.2	5.2	5.8	5.8	4.6	5.8
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	343	322	1716	617	49	2029
v/s Ratio Prot			0.31		0.03	c0.42
v/s Ratio Perm	c0.11	0.02		0.07		
v/c Ratio	0.53	0.10	0.63	0.14	0.92	0.69
Uniform Delay, d1	20.5	18.6	11.0	8.1	28.1	7.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.6	0.1	1.8	0.5	97.1	2.0
Delay (s)	22.1	18.7	12.7	8.6	125.2	9.9
Level of Service	C	B	B	A	F	A
Approach Delay (s)	20.6		12.1			13.5
Approach LOS	C		B			B

Intersection Summary			
HCM 2000 Control Delay	13.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	58.2	Sum of lost time (s)	15.6
Intersection Capacity Utilization	50.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	116	44	206	76	527	18	458	252	648	815	47
Future Volume (vph)	63	116	44	206	76	527	18	458	252	648	815	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	5.2		4.6	5.2	4.6	4.6	5.4	4.6	4.6	5.8	
Lane Util. Factor	1.00	0.95		0.97	1.00	1.00	1.00	0.91	1.00	0.97	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.96		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1188	2886		3045	1226	1568	1543	5036	1474	3335	3263	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1188	2886		3045	1226	1568	1543	5036	1474	3335	3263	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	72	132	50	234	86	599	20	520	286	736	926	53
RTOR Reduction (vph)	0	37	0	0	0	131	0	0	160	0	3	0
Lane Group Flow (vph)	72	145	0	234	86	468	20	520	126	736	976	0
Confl. Peds. (#/hr)			5	5					2	2		
Confl. Bikes (#/hr)			1						5			1
Heavy Vehicles (%)	52%	18%	23%	15%	55%	3%	17%	3%	8%	5%	7%	55%
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8	1	5	2	3	1	6	
Permitted Phases						8			2			
Actuated Green, G (s)	9.7	20.9		6.5	17.7	39.3	2.3	42.3	48.8	21.6	61.2	
Effective Green, g (s)	9.7	20.9		6.5	17.7	39.3	2.3	42.3	48.8	21.6	61.2	
Actuated g/C Ratio	0.09	0.19		0.06	0.16	0.35	0.02	0.38	0.44	0.19	0.55	
Clearance Time (s)	4.6	5.2		4.6	5.2	4.6	4.6	5.4	4.6	4.6	5.8	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	103	542		178	195	554	31	1917	647	648	1797	
v/s Ratio Prot	0.06	c0.05		c0.08	0.07	c0.16	0.01	0.10	0.01	c0.22	c0.30	
v/s Ratio Perm						0.13			0.07			
v/c Ratio	0.70	0.27		1.31	0.44	0.84	0.65	0.27	0.19	1.14	0.54	
Uniform Delay, d1	49.3	38.6		52.3	42.2	33.1	54.0	23.8	19.1	44.8	16.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	18.7	0.3		175.6	1.6	11.3	37.9	0.3	0.1	79.1	1.2	
Delay (s)	68.0	38.8		227.9	43.8	44.4	91.9	24.1	19.2	123.8	17.2	
Level of Service	E	D		F	D	D	F	C	B	F	B	
Approach Delay (s)		47.1			91.1			24.1			62.9	
Approach LOS		D			F			C			E	

Intersection Summary			
HCM 2000 Control Delay	60.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	111.1	Sum of lost time (s)	20.2
Intersection Capacity Utilization	85.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	116	44	206	76	527	18	458	252	648	815	47
Future Volume (veh/h)	63	116	44	206	76	527	18	458	252	648	815	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1129	1633	1559	1678	1085	1856	1648	1856	1781	1826	1796	1085
Adj Flow Rate, veh/h	72	132	50	234	86	599	20	520	286	736	926	53
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	52	18	23	15	55	3	17	3	8	5	7	55
Cap, veh/h	81	562	203	173	253	659	32	1657	570	631	1617	93
Arrive On Green	0.08	0.25	0.25	0.06	0.23	0.23	0.02	0.33	0.33	0.19	0.49	0.49
Sat Flow, veh/h	1076	2220	802	3100	1085	1562	1570	5066	1484	3374	3276	188
Grp Volume(v), veh/h	72	90	92	234	86	599	20	520	286	736	482	497
Grp Sat Flow(s),veh/h/ln	1076	1552	1471	1550	1085	1562	1570	1689	1484	1687	1706	1757
Q Serve(g_s), s	7.6	5.3	5.7	6.4	7.5	26.7	1.4	8.8	16.8	21.4	22.8	22.8
Cycle Q Clear(g_c), s	7.6	5.3	5.7	6.4	7.5	26.7	1.4	8.8	16.8	21.4	22.8	22.8
Prop In Lane	1.00		0.55	1.00		1.00	1.00		1.00	1.00		0.11
Lane Grp Cap(c), veh/h	81	393	372	173	253	659	32	1657	570	631	842	867
V/C Ratio(X)	0.88	0.23	0.25	1.35	0.34	0.91	0.62	0.31	0.50	1.17	0.57	0.57
Avail Cap(c_a), veh/h	138	475	450	173	253	659	86	1657	570	631	842	867
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.4	33.9	34.0	54.0	36.5	31.1	55.6	28.9	27.0	46.5	20.4	20.4
Incr Delay (d2), s/veh	27.4	0.3	0.3	190.1	0.8	16.6	17.8	0.5	3.1	91.1	2.8	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	2.0	2.1	7.1	2.0	17.9	0.7	3.5	6.3	16.7	9.2	9.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	79.8	34.2	34.3	244.1	37.3	47.7	73.4	29.4	30.1	137.6	23.3	23.2
LnGrp LOS	E	C	C	F	D	D	E	C	C	F	C	C
Approach Vol, veh/h		254			919			826			1715	
Approach Delay, s/veh		47.2			96.8			30.7			72.3	
Approach LOS		D			F			C			E	

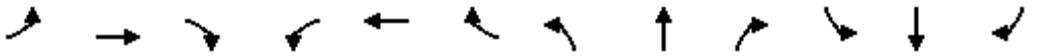
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	26.0	43.2	11.0	34.2	7.0	62.2	13.3	31.9
Change Period (Y+Rc), s	4.6	* 5.8	4.6	5.2	4.6	5.8	4.6	5.2
Max Green Setting (Gmax), s	21.4	* 37	6.4	35.0	6.3	52.1	14.7	26.7
Max Q Clear Time (g_c+I1), s	23.4	18.8	8.4	7.7	3.4	24.8	9.6	28.7
Green Ext Time (p_c), s	0.0	4.0	0.0	1.1	0.0	6.6	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	67.4
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

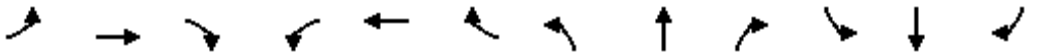


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↱		↑↑	↱				↰	✣	↱
Traffic Volume (vph)	0	1320	689	6	997	468	0	0	0	435	0	608
Future Volume (vph)	0	1320	689	6	997	468	0	0	0	435	0	608
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0		5.0	5.0				5.8	5.8	5.8
Lane Util. Factor		0.91	1.00		0.95	1.00				0.95	0.91	0.95
Frpb, ped/bikes		1.00	0.98		1.00	0.98				1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00				1.00	1.00	1.00
Frt		1.00	0.85		1.00	0.85				1.00	0.88	0.85
Flt Protected		1.00	1.00		1.00	1.00				0.95	0.99	1.00
Satd. Flow (prot)		5085	1515		3504	1563				1698	1436	1447
Flt Permitted		1.00	1.00		0.94	1.00				0.95	0.99	1.00
Satd. Flow (perm)		5085	1515		3312	1563				1698	1436	1447
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	1361	710	6	1028	482	0	0	0	448	0	627
RTOR Reduction (vph)	0	0	406	0	0	276	0	0	0	0	27	27
Lane Group Flow (vph)	0	1361	304	0	1034	206	0	0	0	376	327	318
Confl. Peds. (#/hr)	1		4	4		1						
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	2%	4%	0%	3%	1%	0%	0%	0%	1%	0%	6%
Turn Type		NA	Perm	Perm	NA	Perm				Split	NA	Perm
Protected Phases		2			6					4	4	
Permitted Phases			2	6		6						4
Actuated Green, G (s)		25.4	25.4		25.4	25.4				23.2	23.2	23.2
Effective Green, g (s)		25.4	25.4		25.4	25.4				23.2	23.2	23.2
Actuated g/C Ratio		0.43	0.43		0.43	0.43				0.39	0.39	0.39
Clearance Time (s)		5.0	5.0		5.0	5.0				5.8	5.8	5.8
Vehicle Extension (s)		3.0	3.0		3.0	3.0				3.0	3.0	3.0
Lane Grp Cap (vph)		2174	647		1416	668				663	560	565
v/s Ratio Prot		0.27								0.22	c0.23	
v/s Ratio Perm			0.20		c0.31	0.13						0.22
v/c Ratio		0.63	0.47		0.73	0.31				0.57	0.58	0.56
Uniform Delay, d1		13.3	12.2		14.1	11.2				14.2	14.3	14.1
Progression Factor		1.00	1.00		1.00	1.00				1.00	1.00	1.00
Incremental Delay, d2		0.6	0.5		2.0	0.3				3.5	4.4	4.0
Delay (s)		13.9	12.7		16.1	11.5				17.7	18.7	18.1
Level of Service		B	B		B	B				B	B	B
Approach Delay (s)		13.5			14.6			0.0			18.2	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM 2000 Control Delay	14.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	59.4	Sum of lost time (s)	10.8
Intersection Capacity Utilization	102.2%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1171	581	2	997	396	484	0	507	0	0	0
Future Volume (vph)	0	1171	581	2	997	396	484	0	507	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	4.0		5.0	5.0	5.8	5.8	5.8			
Lane Util. Factor		0.95	1.00		0.95	1.00	0.95	0.91	0.95			
Frpb, ped/bikes		1.00	0.98		1.00	0.98	1.00	1.00	1.00			
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Frt		1.00	0.85		1.00	0.85	1.00	0.91	0.85			
Flt Protected		1.00	1.00		1.00	1.00	0.95	0.98	1.00			
Satd. Flow (prot)		3539	1547		3574	1550	1618	1500	1519			
Flt Permitted		1.00	1.00		0.95	1.00	0.95	0.98	1.00			
Satd. Flow (perm)		3539	1547		3406	1550	1618	1500	1519			
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	1195	593	2	1017	404	494	0	517	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	237	0	21	21	0	0	0
Lane Group Flow (vph)	0	1195	593	0	1019	167	351	318	300	0	0	0
Confl. Peds. (#/hr)	1		5	5		1						
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	0%	2%	2%	0%	1%	2%	6%	0%	1%	0%	0%	0%
Turn Type		NA	Free	Perm	NA	Perm	Perm	NA	Perm			
Protected Phases		2			6			8				
Permitted Phases			Free	6		6	8		8			
Actuated Green, G (s)		24.7	59.7		24.7	24.7	24.2	24.2	24.2			
Effective Green, g (s)		24.7	59.7		24.7	24.7	24.2	24.2	24.2			
Actuated g/C Ratio		0.41	1.00		0.41	0.41	0.41	0.41	0.41			
Clearance Time (s)		5.0			5.0	5.0	5.8	5.8	5.8			
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)		1464	1547		1409	641	655	608	615			
v/s Ratio Prot		c0.34										
v/s Ratio Perm			0.38		0.30	0.11	c0.22	0.21	0.20			
v/c Ratio		0.82	0.38		0.72	0.26	0.54	0.52	0.49			
Uniform Delay, d1		15.5	0.0		14.6	11.5	13.5	13.4	13.2			
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2		3.6	0.7		1.9	0.2	3.1	3.2	2.7			
Delay (s)		19.1	0.7		16.5	11.7	16.6	16.6	15.9			
Level of Service		B	A		B	B	B	B	B			
Approach Delay (s)		13.0			15.1			16.4			0.0	
Approach LOS		B			B			B			A	

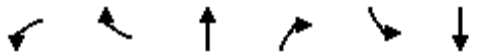
Intersection Summary			
HCM 2000 Control Delay	14.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	59.7	Sum of lost time (s)	10.8
Intersection Capacity Utilization	62.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	911	7	74	512	273	10	112	146	68	51	4
Future Volume (vph)	77	911	7	74	512	273	10	112	146	68	51	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8		4.6	5.0	4.6	4.6	5.0	5.0	4.6	5.0	5.0
Lane Util. Factor		0.91		1.00	0.91	1.00	1.00	0.86	0.86	1.00	0.95	1.00
Frpb, ped/bikes		1.00		1.00	1.00	1.00	1.00	0.99	0.99	1.00	1.00	0.99
Flpb, ped/bikes		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00		1.00	1.00	0.85	1.00	0.94	0.85	1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		4837		1752	4715	1482	1253	4287	1318	1770	3505	1274
Flt Permitted		0.81		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		3930		1752	4715	1482	1253	4287	1318	1770	3505	1274
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	90	1059	8	86	595	317	12	130	170	79	59	5
RTOR Reduction (vph)	0	1	0	0	0	170	0	52	52	0	0	3
Lane Group Flow (vph)	0	1156	0	86	595	147	12	163	33	79	59	2
Confl. Peds. (#/hr)							2		1	1		2
Heavy Vehicles (%)	4%	7%	0%	3%	10%	9%	44%	9%	4%	2%	3%	25%
Turn Type	pm+pt	NA		Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases	4					8			2			6
Actuated Green, G (s)		31.9		5.6	42.9	48.1	1.0	40.7	40.7	5.2	44.9	44.9
Effective Green, g (s)		31.9		5.6	42.9	48.1	1.0	40.7	40.7	5.2	44.9	44.9
Actuated g/C Ratio		0.31		0.05	0.41	0.47	0.01	0.39	0.39	0.05	0.43	0.43
Clearance Time (s)		5.8		4.6	5.0	4.6	4.6	5.0	5.0	4.6	5.0	5.0
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		1212		94	1956	689	12	1687	518	89	1521	553
v/s Ratio Prot				c0.05	0.13	0.01	0.01	c0.04		c0.04	c0.02	
v/s Ratio Perm		c0.29				0.09			0.03			0.00
v/c Ratio		0.95		0.91	0.30	0.21	1.00	0.10	0.06	0.89	0.04	0.00
Uniform Delay, d1		35.0		48.7	20.3	16.4	51.2	19.8	19.5	48.8	16.8	16.6
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		16.0		65.2	0.1	0.2	259.8	0.1	0.2	59.4	0.0	0.0
Delay (s)		51.0		113.9	20.3	16.6	311.0	19.9	19.7	108.2	16.9	16.6
Level of Service		D		F	C	B	F	B	B	F	B	B
Approach Delay (s)		51.0			27.2			31.0			67.3	
Approach LOS		D			C			C			E	

Intersection Summary			
HCM 2000 Control Delay	40.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	103.4	Sum of lost time (s)	20.0
Intersection Capacity Utilization	81.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	19	6	1124	16	22	1513
Future Volume (Veh/h)	19	6	1124	16	22	1513
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	22	7	1277	18	25	1719
Pedestrians	1					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)			750			512
pX, platoon unblocked	0.88	0.84			0.84	
vC, conflicting volume	2196	648			1296	
vC1, stage 1 conf vol	1287					
vC2, stage 2 conf vol	910					
vCu, unblocked vol	1292	215			982	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	92	99			96	
cM capacity (veh/h)	259	671			600	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	29	851	444	25	860	860
Volume Left	22	0	0	25	0	0
Volume Right	7	0	18	0	0	0
cSH	304	1700	1700	600	1700	1700
Volume to Capacity	0.10	0.50	0.26	0.04	0.51	0.51
Queue Length 95th (ft)	8	0	0	3	0	0
Control Delay (s)	18.1	0.0	0.0	11.3	0.0	0.0
Lane LOS	C			B		
Approach Delay (s)	18.1	0.0		0.2		
Approach LOS	C					

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	51.8%	ICU Level of Service	A
Analysis Period (min)	15		

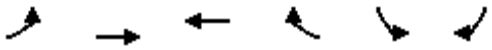
Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	19	6	1124	16	22	1513
Future Vol, veh/h	19	6	1124	16	22	1513
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	0	0	14	9	0	17
Mvmt Flow	22	7	1277	18	25	1719

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2197	649	0	0	1296	0
Stage 1	1287	-	-	-	-	-
Stage 2	910	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	39	417	-	-	541	-
Stage 1	227	-	-	-	-	-
Stage 2	358	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	37	417	-	-	540	-
Mov Cap-2 Maneuver	181	-	-	-	-	-
Stage 1	227	-	-	-	-	-
Stage 2	342	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	24.9	0	0.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	209	540	-
HCM Lane V/C Ratio	-	-	0.136	0.046	-
HCM Control Delay (s)	-	-	24.9	12	-
HCM Lane LOS	-	-	C	B	-
HCM 95th %tile Q(veh)	-	-	0.5	0.1	-



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	15	0	0	15	56	22
Future Volume (Veh/h)	15	0	0	15	56	22
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	17	0	0	17	65	26
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	160	143	156	0	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	160	143	156	0	0	
tC, single (s)	7.2	6.7	6.7	6.4	4.2	
tC, 2 stage (s)						
tF (s)	3.6	4.1	4.1	3.4	2.3	
p0 queue free %	98	100	100	98	96	
cM capacity (veh/h)	740	694	683	1048	1542	

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	17	17	91
Volume Left	17	0	65
Volume Right	0	17	26
cSH	740	1048	1542
Volume to Capacity	0.02	0.02	0.04
Queue Length 95th (ft)	2	1	3
Control Delay (s)	10.0	8.5	5.4
Lane LOS	A	A	A
Approach Delay (s)	10.0	8.5	5.4
Approach LOS	A	A	

Intersection Summary			
Average Delay	6.4		
Intersection Capacity Utilization	18.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	315	66	5	238	49	14
Future Volume (Veh/h)	315	66	5	238	49	14
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	366	77	6	277	57	16
Pedestrians				1		
Lane Width (ft)				12.0		
Walking Speed (ft/s)				3.5		
Percent Blockage				0		
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	426					
pX, platoon unblocked						
vC, conflicting volume			443		694	406
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			443		694	406
tC, single (s)			4.1		6.5	6.4
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.5
p0 queue free %			99		86	97
cM capacity (veh/h)			1107		395	608

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	443	283	73
Volume Left	0	6	57
Volume Right	77	0	16
cSH	1700	1107	428
Volume to Capacity	0.26	0.01	0.17
Queue Length 95th (ft)	0	0	15
Control Delay (s)	0.0	0.2	15.1
Lane LOS		A	C
Approach Delay (s)	0.0	0.2	15.1
Approach LOS			C

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	31.2%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	315	66	5	238	49	14
Future Vol, veh/h	315	66	5	238	49	14
Conflicting Peds, #/hr	0	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	8	2	4	14	10	20
Mvmt Flow	366	77	6	277	57	16

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	443	0	694	406
Stage 1	-	-	-	-	405	-
Stage 2	-	-	-	-	289	-
Critical Hdwy	-	-	4.14	-	6.5	6.4
Critical Hdwy Stg 1	-	-	-	-	5.5	-
Critical Hdwy Stg 2	-	-	-	-	5.5	-
Follow-up Hdwy	-	-	2.236	-	3.59	3.48
Pot Cap-1 Maneuver	-	-	1107	-	397	608
Stage 1	-	-	-	-	657	-
Stage 2	-	-	-	-	742	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1107	-	395	607
Mov Cap-2 Maneuver	-	-	-	-	395	-
Stage 1	-	-	-	-	657	-
Stage 2	-	-	-	-	738	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	15.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	428	-	-	1107	-
HCM Lane V/C Ratio	0.171	-	-	0.005	-
HCM Control Delay (s)	15.1	-	-	8.3	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.6	-	-	0	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	132	34	1039	246	60	1142
v/c Ratio	0.37	0.10	0.57	0.29	0.38	0.55
Control Delay	21.1	6.7	17.2	3.9	36.6	11.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.1	6.7	17.2	3.9	36.6	11.0
Queue Length 50th (ft)	39	0	138	0	19	97
Queue Length 95th (ft)	76	16	#405	49	#76	330
Internal Link Dist (ft)	346		48			437
Turn Bay Length (ft)		85		230	275	
Base Capacity (vph)	515	473	1828	852	158	2091
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.07	0.57	0.29	0.38	0.55

Intersection Summary

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

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	125	32	987	234	57	1085
Future Volume (vph)	125	32	987	234	57	1085
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.2	5.2	5.8	5.8	4.6	5.8
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	1.00	1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1467	1282	3312	1346	1687	3223
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1467	1282	3312	1346	1687	3223
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	132	34	1039	246	60	1142
RTOR Reduction (vph)	0	27	0	122	0	0
Lane Group Flow (vph)	132	7	1039	124	60	1142
Confl. Peds. (#/hr)	1			2		
Confl. Bikes (#/hr)				3		
Heavy Vehicles (%)	23%	26%	9%	17%	7%	12%
Turn Type	Perm	Perm	NA	Perm	Prot	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2		
Actuated Green, G (s)	11.9	11.9	31.1	31.1	3.1	38.8
Effective Green, g (s)	11.9	11.9	31.1	31.1	3.1	38.8
Actuated g/C Ratio	0.19	0.19	0.50	0.50	0.05	0.63
Clearance Time (s)	5.2	5.2	5.8	5.8	4.6	5.8
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	282	247	1669	678	84	2026
v/s Ratio Prot			c0.31		0.04	c0.35
v/s Ratio Perm	c0.09	0.01		0.09		
v/c Ratio	0.47	0.03	0.62	0.18	0.71	0.56
Uniform Delay, d1	22.1	20.2	11.1	8.4	28.9	6.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.2	0.0	1.8	0.6	24.9	1.1
Delay (s)	23.3	20.2	12.8	9.0	53.7	7.7
Level of Service	C	C	B	A	D	A
Approach Delay (s)	22.7		12.1			10.0
Approach LOS	C		B			B

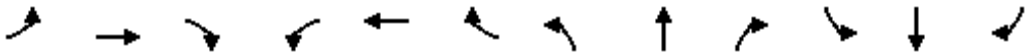
Intersection Summary			
HCM 2000 Control Delay	11.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	61.7	Sum of lost time (s)	15.6
Intersection Capacity Utilization	52.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	60	280	308	170	1042	62	1007	492	826	441
v/c Ratio	0.53	0.57	1.75	0.65	1.43	0.83	0.60	0.73	1.30	0.30
Control Delay	65.4	39.9	390.6	55.0	226.8	117.0	32.0	19.4	184.2	17.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.4	39.9	390.6	55.0	226.8	117.0	32.0	19.4	184.2	17.8
Queue Length 50th (ft)	41	86	~167	115	~969	44	212	126	~387	90
Queue Length 95th (ft)	90	128	#286	197	#1309	#139	301	306	#580	152
Internal Link Dist (ft)		486		661			407			302
Turn Bay Length (ft)	300		240		120	130		180	260	
Base Capacity (vph)	162	745	176	331	728	75	1667	671	634	1478
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.38	1.75	0.51	1.43	0.83	0.60	0.73	1.30	0.30

Intersection Summary

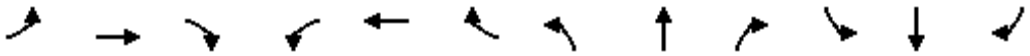
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	208	46	280	155	948	56	916	448	752	343	58
Future Volume (vph)	55	208	46	280	155	948	56	916	448	752	343	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	5.2		4.6	5.2	4.6	4.6	5.4	4.6	4.6	5.8	
Lane Util. Factor	1.00	0.95		0.97	1.00	1.00	1.00	0.91	1.00	0.97	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1211	2279		3019	1357	1495	1318	4673	1238	3242	2989	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1211	2279		3019	1357	1495	1318	4673	1238	3242	2989	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	60	229	51	308	170	1042	62	1007	492	826	377	64
RTOR Reduction (vph)	0	17	0	0	0	83	0	0	151	0	10	0
Lane Group Flow (vph)	60	263	0	308	170	959	62	1007	341	826	431	0
Confl. Peds. (#/hr)									1	1		
Confl. Bikes (#/hr)			1									3
Heavy Vehicles (%)	49%	55%	48%	16%	40%	8%	37%	11%	29%	8%	15%	34%
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8	1	5	2	3	1	6	
Permitted Phases						8			2			
Actuated Green, G (s)	9.1	23.9		6.4	21.2	42.7	6.3	39.2	45.6	21.5	54.0	
Effective Green, g (s)	9.1	23.9		6.4	21.2	42.7	6.3	39.2	45.6	21.5	54.0	
Actuated g/C Ratio	0.08	0.22		0.06	0.19	0.39	0.06	0.35	0.41	0.19	0.49	
Clearance Time (s)	4.6	5.2		4.6	5.2	4.6	4.6	5.4	4.6	4.6	5.8	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	99	491		174	259	576	74	1653	509	629	1456	
v/s Ratio Prot	0.05	c0.12		c0.10	0.13	c0.32	0.05	0.22	c0.04	0.25	0.14	
v/s Ratio Perm						0.32			0.24			
v/c Ratio	0.61	0.54		1.77	0.66	1.66	0.84	0.61	0.67	1.31	0.30	
Uniform Delay, d1	49.1	38.5		52.2	41.4	34.0	51.7	29.5	26.5	44.6	17.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	10.1	1.1		368.9	5.9	306.9	53.0	1.7	3.5	152.1	0.5	
Delay (s)	59.2	39.6		421.1	47.3	340.9	104.7	31.2	30.0	196.7	17.5	
Level of Service	E	D		F	D	F	F	C	C	F	B	
Approach Delay (s)		43.1			324.3			33.7			134.3	
Approach LOS		D			F			C			F	

Intersection Summary			
HCM 2000 Control Delay	155.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.20		
Actuated Cycle Length (s)	110.8	Sum of lost time (s)	20.2
Intersection Capacity Utilization	107.5%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	208	46	280	155	948	56	916	448	752	343	58
Future Volume (veh/h)	55	208	46	280	155	948	56	916	448	752	343	58
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1174	1085	1189	1663	1307	1781	1352	1737	1470	1781	1678	1396
Adj Flow Rate, veh/h	60	229	51	308	170	1042	62	1007	492	826	377	64
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	49	55	48	16	40	8	37	11	29	8	15	34
Cap, veh/h	68	404	88	175	310	645	72	1576	485	626	1269	213
Arrive On Green	0.06	0.24	0.24	0.06	0.24	0.24	0.06	0.33	0.33	0.19	0.47	0.47
Sat Flow, veh/h	1118	1678	366	3072	1307	1510	1287	4742	1245	3291	2719	457
Grp Volume(v), veh/h	60	139	141	308	170	1042	62	1007	492	826	219	222
Grp Sat Flow(s),veh/h/ln	1118	1031	1013	1536	1307	1510	1287	1581	1245	1646	1594	1582
Q Serve(g_s), s	6.0	13.3	13.8	6.4	12.8	26.7	5.4	20.3	37.4	21.4	9.6	9.8
Cycle Q Clear(g_c), s	6.0	13.3	13.8	6.4	12.8	26.7	5.4	20.3	37.4	21.4	9.6	9.8
Prop In Lane	1.00		0.36	1.00		1.00	1.00		1.00	1.00		0.29
Lane Grp Cap(c), veh/h	68	248	244	175	310	645	72	1576	485	626	744	738
V/C Ratio(X)	0.89	0.56	0.58	1.76	0.55	1.61	0.86	0.64	1.02	1.32	0.30	0.30
Avail Cap(c_a), veh/h	146	321	315	175	310	645	72	1576	485	626	744	738
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.5	37.5	37.7	53.1	37.6	32.2	52.7	31.8	34.4	45.6	18.6	18.6
Incr Delay (d2), s/veh	28.7	2.0	2.2	365.4	2.0	283.7	60.9	2.0	44.7	154.8	1.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	3.5	3.6	11.3	4.2	67.5	2.9	7.7	18.7	22.0	3.6	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	81.1	39.4	39.8	418.5	39.6	315.9	113.6	33.8	79.1	200.3	19.6	19.7
LnGrp LOS	F	D	D	F	D	F	F	C	F	F	B	B
Approach Vol, veh/h		340			1520			1561			1267	
Approach Delay, s/veh		46.9			305.8			51.3			137.4	
Approach LOS		D			F			D			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	26.0	43.2	11.0	32.3	10.9	58.3	11.4	31.9
Change Period (Y+Rc), s	4.6	* 5.8	4.6	5.2	4.6	5.8	4.6	5.2
Max Green Setting (Gmax), s	21.4	* 37	6.4	35.0	6.3	52.1	14.7	26.7
Max Q Clear Time (g_c+I1), s	23.4	39.4	8.4	15.8	7.4	11.8	8.0	28.7
Green Ext Time (p_c), s	0.0	0.0	0.0	1.6	0.0	2.7	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	156.8
HCM 6th LOS	F

Notes

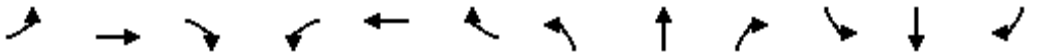
User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBT	EBR	WBT	WBR	SBL	SBT	SBR
Lane Group Flow (vph)	1278	551	1305	757	253	338	336
v/c Ratio	0.56	0.57	0.77	0.67	0.51	0.75	0.72
Control Delay	11.0	3.6	15.6	4.2	21.5	29.7	27.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.0	3.6	15.6	4.2	21.5	29.7	27.7
Queue Length 50th (ft)	104	0	181	0	78	106	101
Queue Length 95th (ft)	139	41	257	46	144	#240	#222
Internal Link Dist (ft)	661		674			105	
Turn Bay Length (ft)		400		560	65		350
Base Capacity (vph)	2361	972	1735	1139	497	452	466
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	0.54	0.57	0.75	0.66	0.51	0.75	0.72

Intersection Summary

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

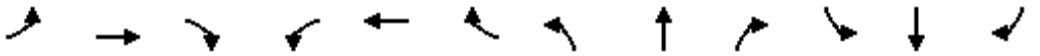


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↱		↑↑	↱				↰	✣	↱
Traffic Volume (vph)	2	1238	534	0	1266	734	0	0	0	273	0	627
Future Volume (vph)	2	1238	534	0	1266	734	0	0	0	273	0	627
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0		5.0	5.0				5.8	5.8	5.8
Lane Util. Factor		0.91	1.00		0.95	1.00				0.95	0.91	0.95
Frpb, ped/bikes		1.00	0.97		1.00	0.98				1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00				1.00	1.00	1.00
Frt		1.00	0.85		1.00	0.85				1.00	0.86	0.85
Flt Protected		1.00	1.00		1.00	1.00				0.95	1.00	1.00
Satd. Flow (prot)		4803	1355		3312	1488				1618	1389	1434
Flt Permitted		0.94	1.00		1.00	1.00				0.95	1.00	1.00
Satd. Flow (perm)		4507	1355		3312	1488				1618	1389	1434
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	2	1276	551	0	1305	757	0	0	0	281	0	646
RTOR Reduction (vph)	0	0	270	0	0	371	0	0	0	0	25	25
Lane Group Flow (vph)	0	1278	281	0	1305	386	0	0	0	253	313	311
Confl. Peds. (#/hr)	2		7	7		2						
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	8%	16%	0%	9%	6%	0%	0%	0%	6%	0%	7%
Turn Type	Perm	NA	Perm		NA	Perm				Split	NA	Perm
Protected Phases		2			6					4	4	
Permitted Phases	2		2			6						4
Actuated Green, G (s)		30.2	30.2		30.2	30.2				18.2	18.2	18.2
Effective Green, g (s)		30.2	30.2		30.2	30.2				18.2	18.2	18.2
Actuated g/C Ratio		0.51	0.51		0.51	0.51				0.31	0.31	0.31
Clearance Time (s)		5.0	5.0		5.0	5.0				5.8	5.8	5.8
Vehicle Extension (s)		3.0	3.0		3.0	3.0				3.0	3.0	3.0
Lane Grp Cap (vph)		2299	691		1689	759				497	427	440
v/s Ratio Prot					c0.39					0.16	c0.23	
v/s Ratio Perm		0.28	0.21			0.26						0.22
v/c Ratio		0.56	0.41		0.77	0.51				0.51	0.73	0.71
Uniform Delay, d1		9.9	9.0		11.7	9.6				16.8	18.3	18.1
Progression Factor		1.00	1.00		1.00	1.00				1.00	1.00	1.00
Incremental Delay, d2		0.3	0.4		2.3	0.5				3.7	10.6	9.2
Delay (s)		10.2	9.4		14.0	10.1				20.5	29.0	27.4
Level of Service		B	A		B	B				C	C	C
Approach Delay (s)		10.0			12.6			0.0			26.1	
Approach LOS		A			B			A			C	

Intersection Summary			
HCM 2000 Control Delay	14.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	59.2	Sum of lost time (s)	10.8
Intersection Capacity Utilization	78.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

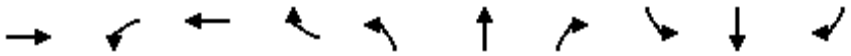
Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	754	812	1322	610	288	282	261
v/c Ratio	0.44	0.57	0.78	0.57	0.59	0.57	0.46
Control Delay	10.7	1.7	16.4	3.3	22.9	20.2	10.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.7	1.7	16.4	3.3	22.9	20.2	10.6
Queue Length 50th (ft)	84	0	188	0	90	79	32
Queue Length 95th (ft)	122	0	265	44	165	156	90
Internal Link Dist (ft)	674		169			405	
Turn Bay Length (ft)				1000	260		160
Base Capacity (vph)	1766	1420	1749	1080	490	491	568
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	0.43	0.57	0.76	0.56	0.59	0.57	0.46

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	731	788	0	1282	592	490	0	316	0	0	0
Future Volume (vph)	0	731	788	0	1282	592	490	0	316	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	4.0		5.0	5.0	5.8	5.8	5.8			
Lane Util. Factor		0.95	1.00		0.95	1.00	0.95	0.91	0.95			
Frpb, ped/bikes		1.00	0.98		1.00	0.98	1.00	1.00	1.00			
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Frt		1.00	0.85		1.00	0.85	1.00	0.97	0.85			
Flt Protected		1.00	1.00		1.00	1.00	0.95	0.96	1.00			
Satd. Flow (prot)		3471	1420		3438	1533	1504	1433	1447			
Flt Permitted		1.00	1.00		1.00	1.00	0.95	0.96	1.00			
Satd. Flow (perm)		3471	1420		3438	1533	1504	1433	1447			
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	754	812	0	1322	610	505	0	326	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	310	0	24	97	0	0	0
Lane Group Flow (vph)	0	754	812	0	1322	300	288	258	164	0	0	0
Confl. Peds. (#/hr)	2		7	7		2						
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	0%	4%	11%	0%	5%	3%	14%	0%	6%	0%	0%	0%
Turn Type		NA	Free		NA	Perm	Perm	NA	Perm			
Protected Phases		2			6			8				
Permitted Phases			Free			6	8		8			
Actuated Green, G (s)		29.0	59.0		29.0	29.0	19.2	19.2	19.2			
Effective Green, g (s)		29.0	59.0		29.0	29.0	19.2	19.2	19.2			
Actuated g/C Ratio		0.49	1.00		0.49	0.49	0.33	0.33	0.33			
Clearance Time (s)		5.0			5.0	5.0	5.8	5.8	5.8			
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)		1706	1420		1689	753	489	466	470			
v/s Ratio Prot		0.22			c0.38							
v/s Ratio Perm			c0.57			0.20	0.19	0.18	0.11			
v/c Ratio		0.44	0.57		0.78	0.40	0.59	0.55	0.35			
Uniform Delay, d1		9.7	0.0		12.4	9.5	16.6	16.4	15.1			
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2		0.2	1.7		2.4	0.3	5.1	4.7	2.0			
Delay (s)		9.9	1.7		14.8	9.8	21.7	21.0	17.2			
Level of Service		A	A		B	A	C	C	B			
Approach Delay (s)		5.7			13.3			20.1			0.0	
Approach LOS		A			B			C			A	

Intersection Summary			
HCM 2000 Control Delay	11.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	59.0	Sum of lost time (s)	10.8
Intersection Capacity Utilization	62.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



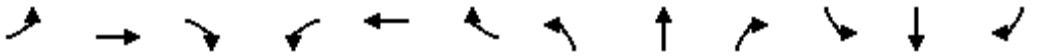
Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	1086	83	2228	500	20	83	45	61	14	13
v/c Ratio	1.47dl	0.93	1.03	0.52	0.38	0.05	0.08	0.72	0.01	0.02
Control Delay	72.3	128.1	57.5	6.7	66.4	10.8	0.3	89.6	19.2	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.3	128.1	57.5	6.7	66.4	10.8	0.3	89.6	19.2	0.1
Queue Length 50th (ft)	~276	54	~564	53	13	5	0	39	2	0
Queue Length 95th (ft)	#345	#143	#620	119	#39	16	0	#103	9	0
Internal Link Dist (ft)	250		280			220			326	
Turn Bay Length (ft)		90		185	50		140	100		185
Base Capacity (vph)	1046	89	2155	955	53	1591	595	85	1537	628
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.04	0.93	1.03	0.52	0.38	0.05	0.08	0.72	0.01	0.02

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.

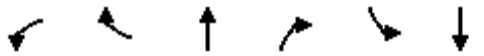
dl Defacto Left Lane. Recode with 1 though lane as a left lane.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	93	851	1	72	1938	435	17	32	79	53	12	11
Future Volume (vph)	93	851	1	72	1938	435	17	32	79	53	12	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8		4.6	5.0	4.6	4.6	5.0	5.0	4.6	5.0	5.0
Lane Util. Factor		0.91		1.00	0.91	1.00	1.00	0.86	0.86	1.00	0.95	1.00
Frpb, ped/bikes		1.00		1.00	1.00	1.00	1.00	0.99	0.99	1.00	1.00	1.00
Flpb, ped/bikes		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00		1.00	1.00	0.85	1.00	0.92	0.85	1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		4801		1656	4940	1495	1081	4239	1280	1719	3610	1214
Flt Permitted		0.66		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		3183		1656	4940	1495	1081	4239	1280	1719	3610	1214
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	107	978	1	83	2228	500	20	37	91	61	14	13
RTOR Reduction (vph)	0	0	0	0	0	175	0	28	28	0	0	8
Lane Group Flow (vph)	0	1086	0	83	2228	325	20	55	17	61	14	5
Confl. Peds. (#/hr)									2	2		
Heavy Vehicles (%)	3%	8%	0%	9%	5%	8%	67%	3%	7%	5%	0%	33%
Turn Type	pm+pt	NA		Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases	4					8			2			6
Actuated Green, G (s)		33.0		5.4	43.8	48.8	2.0	39.8	39.8	5.0	42.8	42.8
Effective Green, g (s)		33.0		5.4	43.8	48.8	2.0	39.8	39.8	5.0	42.8	42.8
Actuated g/C Ratio		0.32		0.05	0.42	0.47	0.02	0.39	0.39	0.05	0.41	0.41
Clearance Time (s)		5.8		4.6	5.0	4.6	4.6	5.0	5.0	4.6	5.0	5.0
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		1017		86	2096	706	20	1634	493	83	1497	503
v/s Ratio Prot				0.05	c0.45	0.02	0.02	0.01		c0.04	0.00	
v/s Ratio Perm		0.34				0.20			c0.01			c0.00
v/c Ratio		1.47dl		0.97	1.06	0.46	1.00	0.03	0.04	0.73	0.01	0.01
Uniform Delay, d1		35.1		48.8	29.7	18.3	50.6	19.7	19.7	48.4	17.7	17.8
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		48.2		84.7	38.9	0.5	201.2	0.0	0.1	28.3	0.0	0.0
Delay (s)		83.3		133.5	68.6	18.8	251.8	19.8	19.9	76.7	17.8	17.8
Level of Service		F		F	E	B	F	B	B	E	B	B
Approach Delay (s)		83.3			61.7			51.2			58.6	
Approach LOS		F			E			D			E	

Intersection Summary			
HCM 2000 Control Delay	66.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	103.2	Sum of lost time (s)	20.0
Intersection Capacity Utilization	99.8%	ICU Level of Service	F
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	13	10	1158	17	10	1622
Future Volume (Veh/h)	13	10	1158	17	10	1622
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	14	11	1245	18	11	1744
Pedestrians	4					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)			750			512
pX, platoon unblocked	0.50	0.92			0.92	
vC, conflicting volume	2152	636			1267	
vC1, stage 1 conf vol	1258					
vC2, stage 2 conf vol	894					
vCu, unblocked vol	635	438			1123	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	94	98			98	
cM capacity (veh/h)	250	526			579	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	25	830	433	11	872	872
Volume Left	14	0	0	11	0	0
Volume Right	11	0	18	0	0	0
cSH	325	1700	1700	579	1700	1700
Volume to Capacity	0.08	0.49	0.25	0.02	0.51	0.51
Queue Length 95th (ft)	6	0	0	1	0	0
Control Delay (s)	17.0	0.0	0.0	11.3	0.0	0.0
Lane LOS	C			B		
Approach Delay (s)	17.0	0.0		0.1		
Approach LOS	C					

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	54.8%	ICU Level of Service	A
Analysis Period (min)	15		

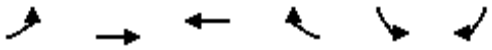
Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	13	10	1158	17	10	1622
Future Vol, veh/h	13	10	1158	17	10	1622
Conflicting Peds, #/hr	0	0	0	4	4	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	7	8	0	6
Mvmt Flow	14	11	1245	18	11	1744

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2152	636	0	0	1267	0
Stage 1	1258	-	-	-	-	-
Stage 2	894	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	42	425	-	-	555	-
Stage 1	235	-	-	-	-	-
Stage 2	365	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	41	423	-	-	553	-
Mov Cap-2 Maneuver	188	-	-	-	-	-
Stage 1	234	-	-	-	-	-
Stage 2	358	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	21.1	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	248	553	-
HCM Lane V/C Ratio	-	-	0.1	0.019	-
HCM Control Delay (s)	-	-	21.1	11.6	-
HCM Lane LOS	-	-	C	B	-
HCM 95th %tile Q(veh)	-	-	0.3	0.1	-



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	42	0	0	42	24	13
Future Volume (Veh/h)	42	0	0	42	24	13
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	47	0	0	47	27	15
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	108	62	69	0	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	108	62	69	0	0	
tC, single (s)	7.1	6.5	6.5	6.2	4.1	
tC, 2 stage (s)						
tF (s)	3.5	4.0	4.0	3.3	2.2	
p0 queue free %	94	100	100	96	98	
cM capacity (veh/h)	820	814	806	1082	1617	

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	47	47	42
Volume Left	47	0	27
Volume Right	0	47	15
cSH	820	1082	1617
Volume to Capacity	0.06	0.04	0.02
Queue Length 95th (ft)	5	3	1
Control Delay (s)	9.7	8.5	4.7
Lane LOS	A	A	A
Approach Delay (s)	9.7	8.5	4.7
Approach LOS	A	A	

Intersection Summary			
Average Delay	7.7		
Intersection Capacity Utilization	19.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	152	3	23	225	46	36
Future Volume (Veh/h)	152	3	23	225	46	36
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	171	3	26	253	52	40
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	426					
pX, platoon unblocked						
vC, conflicting volume			174		478	172
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			174		478	172
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		90	95
cM capacity (veh/h)			1391		533	871

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	174	279	92
Volume Left	0	26	52
Volume Right	3	0	40
cSH	1700	1391	641
Volume to Capacity	0.10	0.02	0.14
Queue Length 95th (ft)	0	1	12
Control Delay (s)	0.0	0.9	11.6
Lane LOS		A	B
Approach Delay (s)	0.0	0.9	11.6
Approach LOS			B

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	36.0%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	2.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	152	3	23	225	46	36
Future Vol, veh/h	152	3	23	225	46	36
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	89	89	89	89	89	89
Heavy Vehicles, %	26	24	4	6	4	2
Mvmt Flow	171	3	26	253	52	40

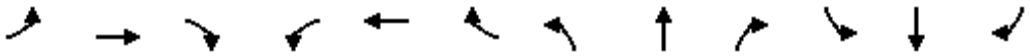
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	174	0	478	173
Stage 1	-	-	-	-	173	-
Stage 2	-	-	-	-	305	-
Critical Hdwy	-	-	4.14	-	6.44	6.22
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	-	-	2.236	-	3.536	3.318
Pot Cap-1 Maneuver	-	-	1391	-	542	871
Stage 1	-	-	-	-	852	-
Stage 2	-	-	-	-	743	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1391	-	530	871
Mov Cap-2 Maneuver	-	-	-	-	530	-
Stage 1	-	-	-	-	852	-
Stage 2	-	-	-	-	727	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	11.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	640	-	-	1391	-
HCM Lane V/C Ratio	0.144	-	-	0.019	-
HCM Control Delay (s)	11.6	-	-	7.6	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.5	-	-	0.1	-

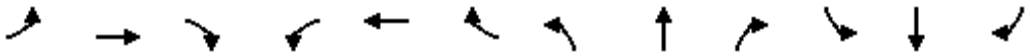
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	224	90	1115	157	16	1681
Future Volume (vph)	224	90	1115	157	16	1681
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.2	5.2	5.8	5.8	4.6	5.8
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	1.00	1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1641	1538	3505	1260	1504	3374
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1641	1538	3505	1260	1504	3374
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	267	107	1327	187	19	2001
RTOR Reduction (vph)	0	82	0	94	0	0
Lane Group Flow (vph)	267	25	1327	93	19	2001
Confl. Peds. (#/hr)				1	1	
Confl. Bikes (#/hr)				5		
Heavy Vehicles (%)	10%	5%	3%	25%	20%	7%
Turn Type	Perm	Perm	NA	Perm	Prot	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2		
Actuated Green, G (s)	14.0	14.0	29.9	29.9	0.9	35.4
Effective Green, g (s)	14.0	14.0	29.9	29.9	0.9	35.4
Actuated g/C Ratio	0.23	0.23	0.50	0.50	0.01	0.59
Clearance Time (s)	5.2	5.2	5.8	5.8	4.6	5.8
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	380	356	1735	623	22	1977
v/s Ratio Prot			0.38		0.01	c0.59
v/s Ratio Perm	c0.16	0.02		0.07		
v/c Ratio	0.70	0.07	0.76	0.15	0.86	1.01
Uniform Delay, d1	21.3	18.1	12.4	8.3	29.7	12.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.8	0.1	3.3	0.5	129.4	23.3
Delay (s)	27.1	18.2	15.7	8.8	159.1	35.8
Level of Service	C	B	B	A	F	D
Approach Delay (s)	24.5		14.8			36.9
Approach LOS	C		B			D

Intersection Summary			
HCM 2000 Control Delay	27.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	60.4	Sum of lost time (s)	15.6
Intersection Capacity Utilization	68.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	144	51	327	125	812	18	461	270	913	1072	49
Future Volume (vph)	66	144	51	327	125	812	18	461	270	913	1072	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	5.2		4.6	5.2	4.6	4.6	5.4	4.6	4.6	5.8	
Lane Util. Factor	1.00	0.95		0.97	1.00	1.00	1.00	0.91	1.00	0.97	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.96		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1188	2894		3045	1226	1568	1543	5036	1474	3335	3284	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1188	2894		3045	1226	1568	1543	5036	1474	3335	3284	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	75	164	58	372	142	923	20	524	307	1038	1218	56
RTOR Reduction (vph)	0	33	0	0	0	124	0	0	176	0	2	0
Lane Group Flow (vph)	75	189	0	372	142	799	20	524	131	1038	1272	0
Confl. Peds. (#/hr)			5	5					2	2		
Confl. Bikes (#/hr)			1						5			1
Heavy Vehicles (%)	52%	18%	23%	15%	55%	3%	17%	3%	8%	5%	7%	55%
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8	1	5	2	3	1	6	
Permitted Phases						8			2			
Actuated Green, G (s)	9.9	24.4		6.5	21.0	42.6	2.3	42.2	48.7	21.6	61.1	
Effective Green, g (s)	9.9	24.4		6.5	21.0	42.6	2.3	42.2	48.7	21.6	61.1	
Actuated g/C Ratio	0.09	0.21		0.06	0.18	0.37	0.02	0.37	0.43	0.19	0.53	
Clearance Time (s)	4.6	5.2		4.6	5.2	4.6	4.6	5.4	4.6	4.6	5.8	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	102	616		172	224	583	30	1856	626	629	1752	
v/s Ratio Prot	0.06	c0.07		c0.12	0.12	c0.26	0.01	0.10	0.01	c0.31	c0.39	
v/s Ratio Perm						0.25			0.08			
v/c Ratio	0.74	0.31		2.16	0.63	1.37	0.67	0.28	0.21	1.65	0.73	
Uniform Delay, d1	51.0	37.9		54.0	43.2	36.0	55.7	25.5	20.7	46.5	20.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	23.8	0.3		542.0	5.8	177.2	44.1	0.4	0.2	299.7	2.7	
Delay (s)	74.8	38.2		596.0	49.0	213.2	99.9	25.9	20.9	346.1	23.0	
Level of Service	E	D		F	D	F	F	C	C	F	C	
Approach Delay (s)		47.5			296.1			25.8			168.1	
Approach LOS		D			F			C			F	

Intersection Summary			
HCM 2000 Control Delay	173.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.17		
Actuated Cycle Length (s)	114.5	Sum of lost time (s)	20.2
Intersection Capacity Utilization	99.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	66	144	51	327	125	812	18	461	270	913	1072	49
Future Volume (veh/h)	66	144	51	327	125	812	18	461	270	913	1072	49
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1129	1633	1559	1678	1085	1856	1648	1856	1781	1826	1796	1085
Adj Flow Rate, veh/h	75	164	58	372	142	923	20	524	307	1038	1218	56
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	52	18	23	15	55	3	17	3	8	5	7	55
Cap, veh/h	85	579	197	173	252	657	32	1651	568	629	1632	75
Arrive On Green	0.08	0.26	0.26	0.06	0.23	0.23	0.02	0.33	0.33	0.19	0.49	0.49
Sat Flow, veh/h	1076	2261	768	3100	1085	1562	1570	5066	1484	3374	3319	152
Grp Volume(v), veh/h	75	110	112	372	142	923	20	524	307	1038	626	648
Grp Sat Flow(s),veh/h/ln	1076	1552	1478	1550	1085	1562	1570	1689	1484	1687	1706	1765
Q Serve(g_s), s	7.9	6.5	7.0	6.4	13.3	26.7	1.5	8.9	18.5	21.4	33.8	33.9
Cycle Q Clear(g_c), s	7.9	6.5	7.0	6.4	13.3	26.7	1.5	8.9	18.5	21.4	33.8	33.9
Prop In Lane	1.00		0.52	1.00		1.00	1.00		1.00	1.00		0.09
Lane Grp Cap(c), veh/h	85	397	378	173	252	657	32	1651	568	629	839	868
V/C Ratio(X)	0.88	0.28	0.29	2.15	0.56	1.41	0.62	0.32	0.54	1.65	0.75	0.75
Avail Cap(c_a), veh/h	138	473	451	173	252	657	86	1651	568	629	839	868
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.3	34.2	34.4	54.2	38.9	33.4	55.8	29.1	27.7	46.7	23.4	23.4
Incr Delay (d2), s/veh	29.3	0.4	0.4	537.2	2.8	191.5	17.9	0.5	3.7	299.6	6.0	5.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	2.5	2.6	15.4	3.7	52.4	0.7	3.6	7.0	34.9	14.1	14.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	81.6	34.6	34.8	591.4	41.7	224.9	73.6	29.6	31.3	346.3	29.4	29.2
LnGrp LOS	F	C	C	F	D	F	E	C	C	F	C	C
Approach Vol, veh/h		297			1437			851			2312	
Approach Delay, s/veh		46.5			301.7			31.3			171.6	
Approach LOS		D			F			C			F	

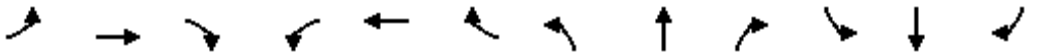
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	26.0	43.2	11.0	34.6	7.0	62.2	13.7	31.9
Change Period (Y+Rc), s	4.6	* 5.8	4.6	5.2	4.6	5.8	4.6	5.2
Max Green Setting (Gmax), s	21.4	* 37	6.4	35.0	6.3	52.1	14.7	26.7
Max Q Clear Time (g_c+I1), s	23.4	20.5	8.4	9.0	3.5	35.9	9.9	28.7
Green Ext Time (p_c), s	0.0	4.0	0.0	1.3	0.0	7.5	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	177.8
HCM 6th LOS	F

Notes

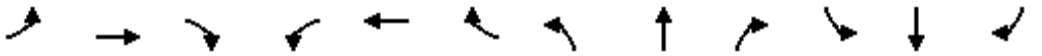
User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



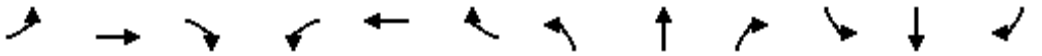
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↱		↑↑	↱				↰	✣	↱
Traffic Volume (vph)	1	1554	687	0	1425	478	0	0	0	667	0	621
Future Volume (vph)	1	1554	687	0	1425	478	0	0	0	667	0	621
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0		5.0	5.0				5.8	5.8	5.8
Lane Util. Factor		0.91	1.00		0.95	1.00				0.95	0.91	0.95
Frpb, ped/bikes		1.00	0.98		1.00	0.98				1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00				1.00	1.00	1.00
Frt		1.00	0.85		1.00	0.85				1.00	0.93	0.85
Flt Protected		1.00	1.00		1.00	1.00				0.95	0.98	1.00
Satd. Flow (prot)		5085	1515		3505	1563				1698	1510	1447
Flt Permitted		0.93	1.00		1.00	1.00				0.95	0.98	1.00
Satd. Flow (perm)		4725	1515		3505	1563				1698	1510	1447
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1	1602	708	0	1469	493	0	0	0	688	0	640
RTOR Reduction (vph)	0	0	401	0	0	279	0	0	0	0	22	22
Lane Group Flow (vph)	0	1603	307	0	1469	214	0	0	0	461	423	400
Confl. Peds. (#/hr)	1		4	4		1						
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	2%	4%	0%	3%	1%	0%	0%	0%	1%	0%	6%
Turn Type	Perm	NA	Perm		NA	Perm				Split	NA	Perm
Protected Phases		2			6					4	4	
Permitted Phases	2		2			6						4
Actuated Green, G (s)		26.0	26.0		26.0	26.0				23.2	23.2	23.2
Effective Green, g (s)		26.0	26.0		26.0	26.0				23.2	23.2	23.2
Actuated g/C Ratio		0.43	0.43		0.43	0.43				0.39	0.39	0.39
Clearance Time (s)		5.0	5.0		5.0	5.0				5.8	5.8	5.8
Vehicle Extension (s)		3.0	3.0		3.0	3.0				3.0	3.0	3.0
Lane Grp Cap (vph)		2047	656		1518	677				656	583	559
v/s Ratio Prot					c0.42					0.27	c0.28	
v/s Ratio Perm		0.34	0.20			0.14						0.28
v/c Ratio		0.78	0.47		0.97	0.32				0.70	0.73	0.72
Uniform Delay, d1		14.6	12.1		16.6	11.2				15.5	15.7	15.6
Progression Factor		1.00	1.00		1.00	1.00				1.00	1.00	1.00
Incremental Delay, d2		2.0	0.5		15.9	0.3				6.2	7.7	7.6
Delay (s)		16.6	12.6		32.5	11.4				21.7	23.4	23.2
Level of Service		B	B		C	B				C	C	C
Approach Delay (s)		15.4			27.2			0.0			22.7	
Approach LOS		B			C			A			C	

Intersection Summary			
HCM 2000 Control Delay	21.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.8
Intersection Capacity Utilization	76.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1555	664	0	1062	406	777	0	517	0	0	0
Future Volume (vph)	0	1555	664	0	1062	406	777	0	517	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	4.0		5.0	5.0	5.8	5.8	5.8			
Lane Util. Factor		0.95	1.00		0.95	1.00	0.95	0.91	0.95			
Frpb, ped/bikes		1.00	0.98		1.00	0.98	1.00	1.00	1.00			
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Frt		1.00	0.85		1.00	0.85	1.00	0.96	0.85			
Flt Protected		1.00	1.00		1.00	1.00	0.95	0.96	1.00			
Satd. Flow (prot)		3539	1547		3574	1550	1618	1531	1519			
Flt Permitted		1.00	1.00		1.00	1.00	0.95	0.96	1.00			
Satd. Flow (perm)		3539	1547		3574	1550	1618	1531	1519			
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	1587	678	0	1084	414	793	0	528	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	239	0	22	22	0	0	0
Lane Group Flow (vph)	0	1587	678	0	1084	175	460	427	390	0	0	0
Confl. Peds. (#/hr)	1		5	5		1						
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	0%	2%	2%	0%	1%	2%	6%	0%	1%	0%	0%	0%
Turn Type		NA	Free		NA	Perm	Perm	NA	Perm			
Protected Phases		2			6			8				
Permitted Phases			Free			6	8		8			
Actuated Green, G (s)		25.6	60.6		25.6	25.6	24.2	24.2	24.2			
Effective Green, g (s)		25.6	60.6		25.6	25.6	24.2	24.2	24.2			
Actuated g/C Ratio		0.42	1.00		0.42	0.42	0.40	0.40	0.40			
Clearance Time (s)		5.0			5.0	5.0	5.8	5.8	5.8			
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)		1495	1547		1509	654	646	611	606			
v/s Ratio Prot		c0.45			0.30							
v/s Ratio Perm			0.44			0.11	c0.28	0.28	0.26			
v/c Ratio		1.06	0.44		0.72	0.27	0.71	0.70	0.64			
Uniform Delay, d1		17.5	0.0		14.5	11.4	15.3	15.2	14.7			
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2		41.5	0.9		1.7	0.2	6.6	6.5	5.2			
Delay (s)		59.0	0.9		16.2	11.6	21.8	21.7	19.9			
Level of Service		E	A		B	B	C	C	B			
Approach Delay (s)		41.6			14.9			21.2			0.0	
Approach LOS		D			B			C			A	

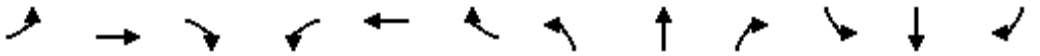
Intersection Summary			
HCM 2000 Control Delay	28.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	60.6	Sum of lost time (s)	10.8
Intersection Capacity Utilization	78.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	81	2250	8	86	1581	282	14	78	151	115	30	9
Future Volume (vph)	81	2250	8	86	1581	282	14	78	151	115	30	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8		4.6	5.0	4.6	4.6	5.0	5.0	4.6	5.0	5.0
Lane Util. Factor		0.91		1.00	0.91	1.00	1.00	0.86	0.86	1.00	0.95	1.00
Frpb, ped/bikes		1.00		1.00	1.00	1.00	1.00	0.99	0.99	1.00	1.00	0.99
Flpb, ped/bikes		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00		1.00	1.00	0.85	1.00	0.93	0.85	1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		4843		1752	4715	1482	1253	4235	1318	1770	3505	1274
Flt Permitted		0.64		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		3085		1752	4715	1482	1253	4235	1318	1770	3505	1274
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	94	2616	9	100	1838	328	16	91	176	134	35	10
RTOR Reduction (vph)	0	1	0	0	0	139	0	54	54	0	0	6
Lane Group Flow (vph)	0	2718	0	100	1838	189	16	125	34	134	35	4
Confl. Peds. (#/hr)							2		1	1		2
Heavy Vehicles (%)	4%	7%	0%	3%	10%	9%	44%	9%	4%	2%	3%	25%
Turn Type	pm+pt	NA		Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases	4					8			2			6
Actuated Green, G (s)		33.0		5.6	44.0	49.2	2.0	39.8	39.8	5.2	43.0	43.0
Effective Green, g (s)		33.0		5.6	44.0	49.2	2.0	39.8	39.8	5.2	43.0	43.0
Actuated g/C Ratio		0.32		0.05	0.42	0.47	0.02	0.38	0.38	0.05	0.42	0.42
Clearance Time (s)		5.8		4.6	5.0	4.6	4.6	5.0	5.0	4.6	5.0	5.0
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		982		94	2002	703	24	1626	506	88	1454	528
v/s Ratio Prot				0.06	c0.39	0.01	0.01	c0.03		c0.08	c0.01	
v/s Ratio Perm		c0.88				0.11			0.03			0.00
v/c Ratio		2.77		1.06	0.92	0.27	0.67	0.08	0.07	1.52	0.02	0.01
Uniform Delay, d1		35.3		49.0	28.1	16.4	50.5	20.2	20.2	49.2	17.9	17.8
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		798.5		111.2	7.2	0.2	52.8	0.1	0.3	284.5	0.0	0.0
Delay (s)		833.8		160.2	35.3	16.6	103.3	20.3	20.4	333.7	17.9	17.8
Level of Service		F		F	D	B	F	C	C	F	B	B
Approach Delay (s)		833.8			38.1			25.0			254.3	
Approach LOS		F			D			C			F	

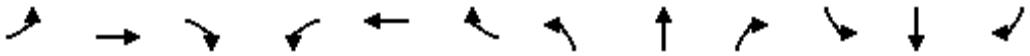
Intersection Summary			
HCM 2000 Control Delay	441.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.29		
Actuated Cycle Length (s)	103.6	Sum of lost time (s)	20.0
Intersection Capacity Utilization	130.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	208	46	280	155	1023	56	926	448	757	345	58
Future Volume (vph)	55	208	46	280	155	1023	56	926	448	757	345	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	5.2		4.6	5.2	4.6	4.6	5.4	4.6	4.6	5.8	
Lane Util. Factor	1.00	0.95		0.97	1.00	1.00	1.00	0.91	1.00	0.97	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1211	2279		3019	1357	1495	1318	4673	1239	3242	2990	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1211	2279		3019	1357	1495	1318	4673	1239	3242	2990	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	60	229	51	308	170	1124	62	1018	492	832	379	64
RTOR Reduction (vph)	0	15	0	0	0	71	0	0	132	0	8	0
Lane Group Flow (vph)	60	265	0	308	170	1053	62	1018	360	832	435	0
Confl. Peds. (#/hr)									1	1		
Confl. Bikes (#/hr)			1									3
Heavy Vehicles (%)	49%	55%	48%	16%	40%	8%	37%	11%	29%	8%	15%	34%
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8	1	5	2	3	1	6	
Permitted Phases						8			2			
Actuated Green, G (s)	9.7	22.5		12.4	25.2	54.7	9.4	43.5	55.9	29.5	63.2	
Effective Green, g (s)	9.7	22.5		12.4	25.2	54.7	9.4	43.5	55.9	29.5	63.2	
Actuated g/C Ratio	0.08	0.18		0.10	0.20	0.43	0.07	0.34	0.44	0.23	0.49	
Clearance Time (s)	4.6	5.2		4.6	5.2	4.6	4.6	5.4	4.6	4.6	5.8	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	91	401		293	267	640	97	1591	542	748	1479	
v/s Ratio Prot	0.05	0.12		c0.10	0.13	c0.38	0.05	0.22	c0.06	0.26	0.15	
v/s Ratio Perm						0.32			0.23			
v/c Ratio	0.66	0.66		1.05	0.64	1.65	0.64	0.64	0.67	1.11	0.29	
Uniform Delay, d1	57.4	49.0		57.6	47.0	36.5	57.5	35.5	28.5	49.1	19.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	16.0	4.1		66.6	4.9	297.5	13.0	2.0	3.1	68.2	0.5	
Delay (s)	73.3	53.1		124.3	52.0	334.0	70.5	37.5	31.5	117.3	19.6	
Level of Service	E	D		F	D	F	E	D	C	F	B	
Approach Delay (s)		56.7			263.7			36.9			83.3	
Approach LOS		E			F			D			F	

Intersection Summary			
HCM 2000 Control Delay	126.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.22		
Actuated Cycle Length (s)	127.7	Sum of lost time (s)	20.2
Intersection Capacity Utilization	112.2%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	208	46	280	155	1023	56	926	448	757	345	58
Future Volume (veh/h)	55	208	46	280	155	1023	56	926	448	757	345	58
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1174	1085	1189	1663	1307	1781	1352	1737	1470	1781	1678	1396
Adj Flow Rate, veh/h	60	229	51	308	170	1124	62	1018	492	832	379	64
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	49	55	48	16	40	8	37	11	29	8	15	34
Cap, veh/h	68	418	91	274	362	737	73	1446	491	696	1251	209
Arrive On Green	0.06	0.25	0.25	0.09	0.28	0.28	0.06	0.31	0.31	0.21	0.46	0.46
Sat Flow, veh/h	1118	1678	366	3072	1307	1510	1287	4742	1245	3291	2722	455
Grp Volume(v), veh/h	60	139	141	308	170	1124	62	1018	492	832	220	223
Grp Sat Flow(s),veh/h/ln	1118	1031	1013	1536	1307	1510	1287	1581	1245	1646	1594	1583
Q Serve(g_s), s	7.4	16.2	16.9	12.4	15.0	38.5	6.6	26.4	42.4	29.4	12.1	12.3
Cycle Q Clear(g_c), s	7.4	16.2	16.9	12.4	15.0	38.5	6.6	26.4	42.4	29.4	12.1	12.3
Prop In Lane	1.00		0.36	1.00		1.00	1.00		1.00	1.00		0.29
Lane Grp Cap(c), veh/h	68	257	252	274	362	737	73	1446	491	696	733	728
V/C Ratio(X)	0.88	0.54	0.56	1.12	0.47	1.52	0.85	0.70	1.00	1.20	0.30	0.31
Avail Cap(c_a), veh/h	120	304	299	274	362	737	130	1446	491	696	733	728
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	64.7	45.3	45.5	63.3	41.8	35.6	65.0	42.8	42.1	54.8	23.5	23.6
Incr Delay (d2), s/veh	27.2	1.8	1.9	91.9	0.9	242.8	22.5	2.9	41.2	101.6	1.1	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	4.3	4.4	8.3	4.9	73.7	2.6	10.4	22.1	21.8	4.7	4.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	91.9	47.1	47.5	155.2	42.7	278.4	87.5	45.6	83.4	156.4	24.6	24.7
LnGrp LOS	F	D	D	F	D	F	F	D	F	F	C	C
Approach Vol, veh/h		340			1602			1572			1275	
Approach Delay, s/veh		55.2			229.7			59.1			110.6	
Approach LOS		E			F			E			F	

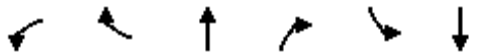
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	34.0	48.2	17.0	39.8	12.5	69.7	13.1	43.7
Change Period (Y+Rc), s	4.6	* 5.8	4.6	5.2	4.6	5.8	4.6	5.2
Max Green Setting (Gmax), s	29.4	* 42	12.4	41.0	14.0	57.4	14.9	38.5
Max Q Clear Time (g_c+I1), s	31.4	44.4	14.4	18.9	8.6	14.3	9.4	40.5
Green Ext Time (p_c), s	0.0	0.0	0.0	1.7	0.0	2.7	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	129.6
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	26	11	1124	101	29	1513
Future Volume (Veh/h)	26	11	1124	101	29	1513
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	30	12	1277	115	33	1719
Pedestrians	1					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)			750			512
pX, platoon unblocked	0.88	0.84			0.84	
vC, conflicting volume	2261	697			1393	
vC1, stage 1 conf vol	1336					
vC2, stage 2 conf vol	926					
vCu, unblocked vol	1336	254			1084	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	88	98			94	
cM capacity (veh/h)	244	630			546	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	42	851	541	33	860	860
Volume Left	30	0	0	33	0	0
Volume Right	12	0	115	0	0	0
cSH	296	1700	1700	546	1700	1700
Volume to Capacity	0.14	0.50	0.32	0.06	0.51	0.51
Queue Length 95th (ft)	12	0	0	5	0	0
Control Delay (s)	19.2	0.0	0.0	12.0	0.0	0.0
Lane LOS	C			B		
Approach Delay (s)	19.2	0.0		0.2		
Approach LOS	C					

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	51.8%	ICU Level of Service	A
Analysis Period (min)	15		

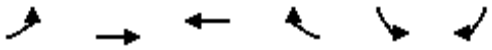
Intersection	
Int Delay, s/veh	0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	26	11	1124	101	29	1513
Future Vol, veh/h	26	11	1124	101	29	1513
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	0	0	14	9	0	17
Mvmt Flow	30	13	1277	115	33	1719

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2262	697	0	0	1393	0
Stage 1	1336	-	-	-	-	-
Stage 2	926	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	35	388	-	-	497	-
Stage 1	213	-	-	-	-	-
Stage 2	351	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	33	388	-	-	497	-
Mov Cap-2 Maneuver	170	-	-	-	-	-
Stage 1	213	-	-	-	-	-
Stage 2	328	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	27.2	0	0.2
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	204	497	-
HCM Lane V/C Ratio	-	-	0.206	0.066	-
HCM Control Delay (s)	-	-	27.2	12.8	-
HCM Lane LOS	-	-	D	B	-
HCM 95th %tile Q(veh)	-	-	0.8	0.2	-



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	40	0	0	18	64	91
Future Volume (Veh/h)	40	0	0	18	64	91
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	47	0	0	21	74	106
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	222	201	254	0	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	222	201	254	0	0	
tC, single (s)	7.2	6.7	6.7	6.4	4.2	
tC, 2 stage (s)						
tF (s)	3.6	4.1	4.1	3.4	2.3	
p0 queue free %	93	100	100	98	95	
cM capacity (veh/h)	667	640	598	1048	1542	

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	47	21	180
Volume Left	47	0	74
Volume Right	0	21	106
cSH	667	1048	1542
Volume to Capacity	0.07	0.02	0.05
Queue Length 95th (ft)	6	2	4
Control Delay (s)	10.8	8.5	3.3
Lane LOS	B	A	A
Approach Delay (s)	10.8	8.5	3.3
Approach LOS	B	A	

Intersection Summary			
Average Delay	5.2		
Intersection Capacity Utilization	24.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	315	101	47	238	54	37
Future Volume (Veh/h)	315	101	47	238	54	37
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	366	117	55	277	63	43
Pedestrians				1		
Lane Width (ft)				12.0		
Walking Speed (ft/s)				3.5		
Percent Blockage				0		
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	426					
pX, platoon unblocked						
vC, conflicting volume			483		812	426
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			483		812	426
tC, single (s)			4.1		6.5	6.4
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.5
p0 queue free %			95		80	93
cM capacity (veh/h)			1069		321	592

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	483	332	106
Volume Left	0	55	63
Volume Right	117	0	43
cSH	1700	1069	394
Volume to Capacity	0.28	0.05	0.27
Queue Length 95th (ft)	0	4	27
Control Delay (s)	0.0	1.9	17.5
Lane LOS		A	C
Approach Delay (s)	0.0	1.9	17.5
Approach LOS			C

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	53.4%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	2.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	315	101	47	238	54	37
Future Vol, veh/h	315	101	47	238	54	37
Conflicting Peds, #/hr	0	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	8	2	4	14	10	20
Mvmt Flow	366	117	55	277	63	43

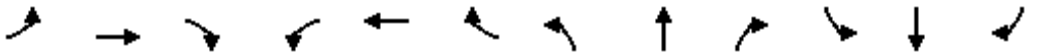
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	483	0	812	426
Stage 1	-	-	-	-	425	-
Stage 2	-	-	-	-	387	-
Critical Hdwy	-	-	4.14	-	6.5	6.4
Critical Hdwy Stg 1	-	-	-	-	5.5	-
Critical Hdwy Stg 2	-	-	-	-	5.5	-
Follow-up Hdwy	-	-	2.236	-	3.59	3.48
Pot Cap-1 Maneuver	-	-	1069	-	338	592
Stage 1	-	-	-	-	643	-
Stage 2	-	-	-	-	669	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1069	-	317	591
Mov Cap-2 Maneuver	-	-	-	-	317	-
Stage 1	-	-	-	-	643	-
Stage 2	-	-	-	-	628	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.4	17.6
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	391	-	-	1069	-
HCM Lane V/C Ratio	0.271	-	-	0.051	-
HCM Control Delay (s)	17.6	-	-	8.5	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	1.1	-	-	0.2	-

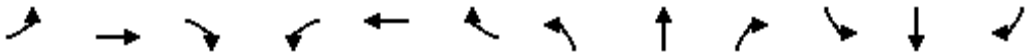
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	125	37	992	234	92	1092
Future Volume (vph)	125	37	992	234	92	1092
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.2	5.2	5.8	5.8	4.6	5.8
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	1.00	1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1467	1282	3312	1346	1687	3223
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1467	1282	3312	1346	1687	3223
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	132	39	1044	246	97	1149
RTOR Reduction (vph)	0	31	0	127	0	0
Lane Group Flow (vph)	132	8	1044	119	97	1149
Confl. Peds. (#/hr)	1			2		
Confl. Bikes (#/hr)				3		
Heavy Vehicles (%)	23%	26%	9%	17%	7%	12%
Turn Type	Perm	Perm	NA	Perm	Prot	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2		
Actuated Green, G (s)	11.9	11.9	29.6	29.6	4.3	38.5
Effective Green, g (s)	11.9	11.9	29.6	29.6	4.3	38.5
Actuated g/C Ratio	0.19	0.19	0.48	0.48	0.07	0.63
Clearance Time (s)	5.2	5.2	5.8	5.8	4.6	5.8
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	284	248	1596	648	118	2020
v/s Ratio Prot			c0.32		0.06	c0.36
v/s Ratio Perm	c0.09	0.01		0.09		
v/c Ratio	0.46	0.03	0.65	0.18	0.82	0.57
Uniform Delay, d1	21.9	20.1	12.0	9.0	28.2	6.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.2	0.1	2.1	0.6	34.9	1.2
Delay (s)	23.1	20.1	14.1	9.7	63.1	7.8
Level of Service	C	C	B	A	E	A
Approach Delay (s)	22.4		13.3			12.1
Approach LOS	C		B			B

Intersection Summary			
HCM 2000 Control Delay	13.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	61.4	Sum of lost time (s)	15.6
Intersection Capacity Utilization	53.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	208	46	280	155	1023	56	926	448	757	345	58
Future Volume (vph)	55	208	46	280	155	1023	56	926	448	757	345	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	5.2		4.6	5.2	4.6	4.6	5.4	4.6	4.6	5.8	
Lane Util. Factor	1.00	0.95		0.97	1.00	1.00	1.00	0.91	1.00	0.97	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1211	2279		3019	1357	1495	1318	4673	1238	3242	2990	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1211	2279		3019	1357	1495	1318	4673	1238	3242	2990	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	60	229	51	308	170	1124	62	1018	492	832	379	64
RTOR Reduction (vph)	0	17	0	0	0	82	0	0	151	0	10	0
Lane Group Flow (vph)	60	263	0	308	170	1042	62	1018	341	832	433	0
Confl. Peds. (#/hr)									1	1		
Confl. Bikes (#/hr)			1									3
Heavy Vehicles (%)	49%	55%	48%	16%	40%	8%	37%	11%	29%	8%	15%	34%
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8	1	5	2	3	1	6	
Permitted Phases						8			2			
Actuated Green, G (s)	9.1	23.9		6.4	21.2	42.7	6.3	39.2	45.6	21.5	54.0	
Effective Green, g (s)	9.1	23.9		6.4	21.2	42.7	6.3	39.2	45.6	21.5	54.0	
Actuated g/C Ratio	0.08	0.22		0.06	0.19	0.39	0.06	0.35	0.41	0.19	0.49	
Clearance Time (s)	4.6	5.2		4.6	5.2	4.6	4.6	5.4	4.6	4.6	5.8	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	99	491		174	259	576	74	1653	509	629	1457	
v/s Ratio Prot	0.05	c0.12		c0.10	0.13	c0.35	0.05	0.22	c0.04	0.26	0.14	
v/s Ratio Perm						0.35			0.24			
v/c Ratio	0.61	0.54		1.77	0.66	1.81	0.84	0.62	0.67	1.32	0.30	
Uniform Delay, d1	49.1	38.5		52.2	41.4	34.0	51.7	29.6	26.5	44.6	17.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	10.1	1.1		368.9	5.9	370.6	53.0	1.7	3.5	156.1	0.5	
Delay (s)	59.2	39.6		421.1	47.3	404.7	104.7	31.3	30.0	200.8	17.5	
Level of Service	E	D		F	D	F	F	C	C	F	B	
Approach Delay (s)		43.1			369.9			33.8			137.1	
Approach LOS		D			F			C			F	

Intersection Summary			
HCM 2000 Control Delay	174.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.27		
Actuated Cycle Length (s)	110.8	Sum of lost time (s)	20.2
Intersection Capacity Utilization	112.2%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	208	46	280	155	1023	56	926	448	757	345	58
Future Volume (veh/h)	55	208	46	280	155	1023	56	926	448	757	345	58
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1174	1085	1189	1663	1307	1781	1352	1737	1470	1781	1678	1396
Adj Flow Rate, veh/h	60	229	51	308	170	1124	62	1018	492	832	379	64
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	49	55	48	16	40	8	37	11	29	8	15	34
Cap, veh/h	68	404	88	175	310	645	72	1576	485	626	1270	212
Arrive On Green	0.06	0.24	0.24	0.06	0.24	0.24	0.06	0.33	0.33	0.19	0.47	0.47
Sat Flow, veh/h	1118	1678	366	3072	1307	1510	1287	4742	1245	3291	2722	455
Grp Volume(v), veh/h	60	139	141	308	170	1124	62	1018	492	832	220	223
Grp Sat Flow(s),veh/h/ln	1118	1031	1013	1536	1307	1510	1287	1581	1245	1646	1594	1583
Q Serve(g_s), s	6.0	13.3	13.8	6.4	12.8	26.7	5.4	20.5	37.4	21.4	9.6	9.8
Cycle Q Clear(g_c), s	6.0	13.3	13.8	6.4	12.8	26.7	5.4	20.5	37.4	21.4	9.6	9.8
Prop In Lane	1.00		0.36	1.00		1.00	1.00		1.00	1.00		0.29
Lane Grp Cap(c), veh/h	68	248	244	175	310	645	72	1576	485	626	744	739
V/C Ratio(X)	0.89	0.56	0.58	1.76	0.55	1.74	0.86	0.65	1.02	1.33	0.30	0.30
Avail Cap(c_a), veh/h	146	321	315	175	310	645	72	1576	485	626	744	739
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.5	37.5	37.7	53.1	37.6	32.2	52.7	31.9	34.4	45.6	18.6	18.6
Incr Delay (d2), s/veh	28.7	2.0	2.2	365.4	2.0	340.1	60.9	2.1	44.7	158.9	1.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	3.5	3.6	11.3	4.2	77.6	2.9	7.8	18.7	22.3	3.6	3.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	81.1	39.4	39.8	418.5	39.6	372.3	113.6	34.0	79.1	204.4	19.6	19.7
LnGrp LOS	F	D	D	F	D	F	F	C	F	F	B	B
Approach Vol, veh/h		340			1602			1572			1275	
Approach Delay, s/veh		46.9			345.9			51.2			140.2	
Approach LOS		D			F			D			F	

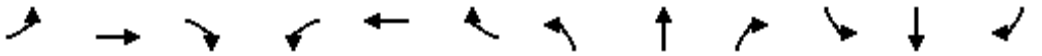
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	26.0	43.2	11.0	32.3	10.9	58.3	11.4	31.9
Change Period (Y+Rc), s	4.6	* 5.8	4.6	5.2	4.6	5.8	4.6	5.2
Max Green Setting (Gmax), s	21.4	* 37	6.4	35.0	6.3	52.1	14.7	26.7
Max Q Clear Time (g_c+I1), s	23.4	39.4	8.4	15.8	7.4	11.8	8.0	28.7
Green Ext Time (p_c), s	0.0	0.0	0.0	1.6	0.0	2.7	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	173.2
HCM 6th LOS	F

Notes

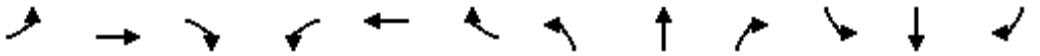
User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



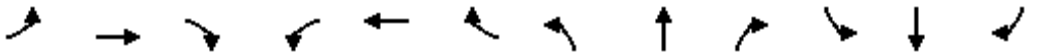
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↱		↑↑	↱				↰	✣	↱
Traffic Volume (vph)	2	1240	537	0	1339	734	0	0	0	273	0	627
Future Volume (vph)	2	1240	537	0	1339	734	0	0	0	273	0	627
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0		5.0	5.0				5.8	5.8	5.8
Lane Util. Factor		0.91	1.00		0.95	1.00				0.95	0.91	0.95
Frpb, ped/bikes		1.00	0.97		1.00	0.98				1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00				1.00	1.00	1.00
Frt		1.00	0.85		1.00	0.85				1.00	0.86	0.85
Flt Protected		1.00	1.00		1.00	1.00				0.95	1.00	1.00
Satd. Flow (prot)		4803	1355		3312	1488				1618	1389	1434
Flt Permitted		0.94	1.00		1.00	1.00				0.95	1.00	1.00
Satd. Flow (perm)		4507	1355		3312	1488				1618	1389	1434
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	2	1278	554	0	1380	757	0	0	0	281	0	646
RTOR Reduction (vph)	0	0	269	0	0	368	0	0	0	0	25	25
Lane Group Flow (vph)	0	1280	285	0	1380	389	0	0	0	253	313	311
Confl. Peds. (#/hr)	2		7	7		2						
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	8%	16%	0%	9%	6%	0%	0%	0%	6%	0%	7%
Turn Type	Perm	NA	Perm		NA	Perm				Split	NA	Perm
Protected Phases		2			6					4	4	
Permitted Phases	2		2			6						4
Actuated Green, G (s)		30.7	30.7		30.7	30.7				18.2	18.2	18.2
Effective Green, g (s)		30.7	30.7		30.7	30.7				18.2	18.2	18.2
Actuated g/C Ratio		0.51	0.51		0.51	0.51				0.30	0.30	0.30
Clearance Time (s)		5.0	5.0		5.0	5.0				5.8	5.8	5.8
Vehicle Extension (s)		3.0	3.0		3.0	3.0				3.0	3.0	3.0
Lane Grp Cap (vph)		2317	696		1703	765				493	423	437
v/s Ratio Prot					c0.42					0.16	c0.23	
v/s Ratio Perm		0.28	0.21			0.26						0.22
v/c Ratio		0.55	0.41		0.81	0.51				0.51	0.74	0.71
Uniform Delay, d1		9.8	8.9		12.1	9.5				17.1	18.6	18.4
Progression Factor		1.00	1.00		1.00	1.00				1.00	1.00	1.00
Incremental Delay, d2		0.3	0.4		3.0	0.5				3.8	11.1	9.5
Delay (s)		10.1	9.3		15.1	10.1				20.9	29.7	27.9
Level of Service		B	A		B	B				C	C	C
Approach Delay (s)		9.9			13.3			0.0			26.6	
Approach LOS		A			B			A			C	

Intersection Summary			
HCM 2000 Control Delay	14.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	59.7	Sum of lost time (s)	10.8
Intersection Capacity Utilization	78.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	733	788	0	1292	592	553	0	316	0	0	0
Future Volume (vph)	0	733	788	0	1292	592	553	0	316	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	4.0		5.0	5.0	5.8	5.8	5.8			
Lane Util. Factor		0.95	1.00		0.95	1.00	0.95	0.91	0.95			
Frpb, ped/bikes		1.00	0.98		1.00	0.98	1.00	1.00	1.00			
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Frt		1.00	0.85		1.00	0.85	1.00	0.98	0.85			
Flt Protected		1.00	1.00		1.00	1.00	0.95	0.96	1.00			
Satd. Flow (prot)		3471	1420		3438	1533	1504	1437	1447			
Flt Permitted		1.00	1.00		1.00	1.00	0.95	0.96	1.00			
Satd. Flow (perm)		3471	1420		3438	1533	1504	1437	1447			
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	756	812	0	1332	610	570	0	326	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	310	0	24	97	0	0	0
Lane Group Flow (vph)	0	756	812	0	1332	300	313	282	180	0	0	0
Confl. Peds. (#/hr)	2		7	7		2						
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	0%	4%	11%	0%	5%	3%	14%	0%	6%	0%	0%	0%
Turn Type		NA	Free		NA	Perm	Perm	NA	Perm			
Protected Phases		2			6			8				
Permitted Phases			Free			6	8		8			
Actuated Green, G (s)		29.0	59.0		29.0	29.0	19.2	19.2	19.2			
Effective Green, g (s)		29.0	59.0		29.0	29.0	19.2	19.2	19.2			
Actuated g/C Ratio		0.49	1.00		0.49	0.49	0.33	0.33	0.33			
Clearance Time (s)		5.0			5.0	5.0	5.8	5.8	5.8			
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)		1706	1420		1689	753	489	467	470			
v/s Ratio Prot		0.22			c0.39							
v/s Ratio Perm			c0.57			0.20	0.21	0.20	0.12			
v/c Ratio		0.44	0.57		0.79	0.40	0.64	0.60	0.38			
Uniform Delay, d1		9.8	0.0		12.5	9.5	17.0	16.7	15.3			
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2		0.2	1.7		2.5	0.3	6.3	5.7	2.4			
Delay (s)		9.9	1.7		15.0	9.8	23.3	22.4	17.7			
Level of Service		A	A		B	A	C	C	B			
Approach Delay (s)		5.7			13.4			21.2			0.0	
Approach LOS		A			B			C			A	

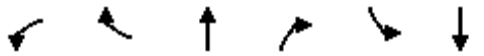
Intersection Summary			
HCM 2000 Control Delay	12.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	59.0	Sum of lost time (s)	10.8
Intersection Capacity Utilization	64.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	93	851	1	72	1938	435	17	39	79	53	42	11
Future Volume (vph)	93	851	1	72	1938	435	17	39	79	53	42	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8		4.6	5.0	4.6	4.6	5.0	5.0	4.6	5.0	5.0
Lane Util. Factor		0.91		1.00	0.91	1.00	1.00	0.86	0.86	1.00	0.95	1.00
Frpb, ped/bikes		1.00		1.00	1.00	1.00	1.00	0.99	0.99	1.00	1.00	1.00
Flpb, ped/bikes		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00		1.00	1.00	0.85	1.00	0.92	0.85	1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		4801		1656	4940	1495	1081	4284	1280	1719	3610	1214
Flt Permitted		0.66		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		3183		1656	4940	1495	1081	4284	1280	1719	3610	1214
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	107	978	1	83	2228	500	20	45	91	61	48	13
RTOR Reduction (vph)	0	0	0	0	0	175	0	28	28	0	0	8
Lane Group Flow (vph)	0	1086	0	83	2228	325	20	63	17	61	48	5
Confl. Peds. (#/hr)									2	2		
Heavy Vehicles (%)	3%	8%	0%	9%	5%	8%	67%	3%	7%	5%	0%	33%
Turn Type	pm+pt	NA		Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases	4					8			2			6
Actuated Green, G (s)		33.0		5.4	43.8	48.8	2.0	39.8	39.8	5.0	42.8	42.8
Effective Green, g (s)		33.0		5.4	43.8	48.8	2.0	39.8	39.8	5.0	42.8	42.8
Actuated g/C Ratio		0.32		0.05	0.42	0.47	0.02	0.39	0.39	0.05	0.41	0.41
Clearance Time (s)		5.8		4.6	5.0	4.6	4.6	5.0	5.0	4.6	5.0	5.0
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		1017		86	2096	706	20	1652	493	83	1497	503
v/s Ratio Prot				0.05	c0.45	0.02	0.02	c0.01		c0.04	c0.01	
v/s Ratio Perm		0.34				0.20			0.01			0.00
v/c Ratio		1.47dl		0.97	1.06	0.46	1.00	0.04	0.04	0.73	0.03	0.01
Uniform Delay, d1		35.1		48.8	29.7	18.3	50.6	19.8	19.7	48.4	17.9	17.8
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		48.2		84.7	38.9	0.5	201.2	0.0	0.1	28.3	0.0	0.0
Delay (s)		83.3		133.5	68.6	18.8	251.8	19.8	19.9	76.7	18.0	17.8
Level of Service		F		F	E	B	F	B	B	E	B	B
Approach Delay (s)		83.3			61.7			49.6			47.3	
Approach LOS		F			E			D			D	

Intersection Summary			
HCM 2000 Control Delay	66.4	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	103.2	Sum of lost time (s)	20.0
Intersection Capacity Utilization	99.8%	ICU Level of Service	F
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	45	32	1158	73	15	1622
Future Volume (Veh/h)	45	32	1158	73	15	1622
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	48	34	1245	78	16	1744
Pedestrians	4					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)			750			512
pX, platoon unblocked	0.51	0.92			0.92	
vC, conflicting volume	2192	666			1327	
vC1, stage 1 conf vol	1288					
vC2, stage 2 conf vol	904					
vCu, unblocked vol	727	466			1184	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	80	93			97	
cM capacity (veh/h)	240	504			548	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	82	830	493	16	872	872
Volume Left	48	0	0	16	0	0
Volume Right	34	0	78	0	0	0
cSH	306	1700	1700	548	1700	1700
Volume to Capacity	0.27	0.49	0.29	0.03	0.51	0.51
Queue Length 95th (ft)	26	0	0	2	0	0
Control Delay (s)	21.0	0.0	0.0	11.8	0.0	0.0
Lane LOS	C			B		
Approach Delay (s)	21.0	0.0		0.1		
Approach LOS	C					

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	56.0%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	93	34	779	195	43	671
v/c Ratio	0.27	0.10	0.40	0.22	0.27	0.32
Control Delay	19.2	6.8	12.7	3.9	32.4	8.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.2	6.8	12.7	3.9	32.4	8.3
Queue Length 50th (ft)	25	0	55	0	12	46
Queue Length 95th (ft)	56	16	244	44	51	164
Internal Link Dist (ft)	346		48			437
Turn Bay Length (ft)		85		230	275	
Base Capacity (vph)	524	480	1944	870	161	2091
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.07	0.40	0.22	0.27	0.32

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	49	226	274	137	822	53	860	241	358	381
v/c Ratio	0.45	0.52	1.51	0.58	1.13	0.68	0.50	0.36	0.55	0.24
Control Delay	60.3	39.0	290.2	52.6	101.3	92.1	28.4	4.2	43.2	15.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.3	39.0	290.2	52.6	101.3	92.1	28.4	4.2	43.2	15.3
Queue Length 50th (ft)	32	66	~132	89	~603	36	163	0	112	68
Queue Length 95th (ft)	75	104	#247	161	#904	#115	243	48	183	125
Internal Link Dist (ft)		486		661			407			302
Turn Bay Length (ft)	300		240		120	130		180	260	
Base Capacity (vph)	167	766	182	341	727	78	1718	675	654	1594
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.30	1.51	0.40	1.13	0.68	0.50	0.36	0.55	0.24

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	EBR	WBT	WBR	SBL	SBT	SBR
Lane Group Flow (vph)	877	526	1203	421	197	320	322
v/c Ratio	0.37	0.56	0.74	0.45	0.38	0.68	0.66
Control Delay	9.4	3.6	14.8	2.7	18.9	24.5	23.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.4	3.6	14.8	2.7	18.9	24.5	23.4
Queue Length 50th (ft)	62	0	158	0	58	94	90
Queue Length 95th (ft)	86	40	225	35	111	#214	#201
Internal Link Dist (ft)	661		674			105	
Turn Bay Length (ft)		400		560	65		350
Base Capacity (vph)	2610	976	1800	1001	515	474	489
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	0.34	0.54	0.67	0.42	0.38	0.68	0.66

Intersection Summary

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

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	587	510	1151	556	247	244	222
v/c Ratio	0.35	0.36	0.70	0.54	0.49	0.48	0.35
Control Delay	10.0	0.7	14.4	3.2	20.3	17.6	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.0	0.7	14.4	3.2	20.3	17.6	4.5
Queue Length 50th (ft)	62	0	151	0	74	64	0
Queue Length 95th (ft)	92	0	213	42	138	130	42
Internal Link Dist (ft)	674		169			405	
Turn Bay Length (ft)				1000	260		160
Base Capacity (vph)	1812	1420	1795	1066	502	505	631
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	0.32	0.36	0.64	0.52	0.49	0.48	0.35

Intersection Summary

Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	842	66	867	423	13	77	43	61	7	9
v/c Ratio	0.81	0.69	0.45	0.44	0.22	0.04	0.07	0.66	0.00	0.01
Control Delay	37.4	80.9	21.5	2.8	55.1	10.7	0.2	79.5	17.3	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.4	80.9	21.5	2.8	55.1	10.7	0.2	79.5	17.3	0.0
Queue Length 50th (ft)	173	41	135	0	8	4	0	38	1	0
Queue Length 95th (ft)	212	#110	162	38	28	15	0	#103	6	0
Internal Link Dist (ft)	250		280			220			326	
Turn Bay Length (ft)		90		185	50		140	100		185
Base Capacity (vph)	1247	96	2095	954	58	1715	629	92	1749	688
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.69	0.41	0.44	0.22	0.04	0.07	0.66	0.00	0.01

Intersection Summary

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

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	183	95	988	169	18	1323
v/c Ratio	0.51	0.23	0.45	0.20	0.13	0.60
Control Delay	24.1	6.2	9.4	2.9	26.9	9.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.1	6.2	9.4	2.9	26.9	9.1
Queue Length 50th (ft)	52	0	80	0	5	127
Queue Length 95th (ft)	97	25	198	26	22	213
Internal Link Dist (ft)	346		48			437
Turn Bay Length (ft)		85		230	275	
Base Capacity (vph)	543	572	2198	852	138	2222
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.17	0.45	0.20	0.13	0.60

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	69	182	205	86	520	20	480	261	689	922
v/c Ratio	0.57	0.32	1.12	0.43	0.66	0.23	0.26	0.33	1.03	0.49
Control Delay	66.6	28.1	148.6	48.6	19.1	58.9	25.6	3.9	84.4	17.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.6	28.1	148.6	48.6	19.1	58.9	25.6	3.9	84.4	17.7
Queue Length 50th (ft)	44	42	~79	55	167	13	79	0	~240	156
Queue Length 95th (ft)	102	70	#186	104	282	42	137	48	#458	368
Internal Link Dist (ft)		486		661			407			302
Turn Bay Length (ft)	300		240		120	130		180	260	
Base Capacity (vph)	164	1000	183	316	782	91	1851	788	672	1874
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.18	1.12	0.27	0.66	0.22	0.26	0.33	1.03	0.49

Intersection Summary

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

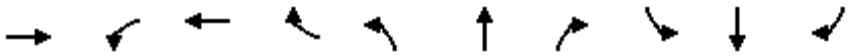
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	EBR	WBT	WBR	SBL	SBT	SBR
Lane Group Flow (vph)	1324	687	944	446	363	340	337
v/c Ratio	0.61	0.66	0.63	0.48	0.55	0.57	0.56
Control Delay	14.7	4.7	15.7	3.3	18.0	16.3	16.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.7	4.7	15.7	3.3	18.0	16.3	16.0
Queue Length 50th (ft)	127	0	132	0	104	83	77
Queue Length 95th (ft)	168	53	187	44	181	164	154
Internal Link Dist (ft)	661		674			105	
Turn Bay Length (ft)		400		560	65		350
Base Capacity (vph)	2234	1050	1540	937	665	597	603
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	0.59	0.65	0.61	0.48	0.55	0.57	0.56

Intersection Summary

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	1151	582	950	368	319	305	298
v/c Ratio	0.80	0.38	0.65	0.43	0.48	0.48	0.46
Control Delay	20.2	0.7	16.5	3.3	16.7	15.1	14.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.2	0.7	16.5	3.3	16.7	15.1	14.7
Queue Length 50th (ft)	181	0	137	0	86	74	69
Queue Length 95th (ft)	250	0	191	41	167	156	144
Internal Link Dist (ft)	674		169			405	
Turn Bay Length (ft)				1000	260		160
Base Capacity (vph)	1530	1547	1546	879	662	633	643
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	0.75	0.38	0.61	0.42	0.48	0.48	0.46

Intersection Summary



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	1150	86	595	310	12	171	85	79	28	5
v/c Ratio	0.91	0.88	0.29	0.33	0.19	0.11	0.14	0.86	0.02	0.01
Control Delay	43.9	111.0	19.0	2.4	53.3	11.0	0.5	110.5	17.2	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.9	111.0	19.0	2.4	53.3	11.0	0.5	110.5	17.2	0.0
Queue Length 50th (ft)	254	56	87	0	8	13	0	51	4	0
Queue Length 95th (ft)	295	#139	109	32	26	27	0	#131	14	0
Internal Link Dist (ft)	250		280			220			326	
Turn Bay Length (ft)		90		185	50		140	100		185
Base Capacity (vph)	1316	98	2025	933	63	1625	612	92	1580	681
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.87	0.88	0.29	0.33	0.19	0.11	0.14	0.86	0.02	0.01

Intersection Summary

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

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	93	60	833	205	43	749
v/c Ratio	0.27	0.17	0.43	0.23	0.27	0.36
Control Delay	19.2	6.1	13.3	3.8	32.4	8.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.2	6.1	13.3	3.8	32.4	8.6
Queue Length 50th (ft)	25	0	61	0	12	53
Queue Length 95th (ft)	56	21	#274	46	51	186
Internal Link Dist (ft)	346		48			437
Turn Bay Length (ft)		85		230	275	
Base Capacity (vph)	524	497	1944	874	161	2091
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.12	0.43	0.23	0.27	0.36

Intersection Summary

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

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	54	226	302	137	835	53	907	270	403	422
v/c Ratio	0.48	0.51	1.67	0.58	1.16	0.68	0.53	0.39	0.62	0.27
Control Delay	61.6	38.8	355.6	52.8	113.2	92.2	29.1	4.3	45.0	15.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.6	38.8	355.6	52.8	113.2	92.2	29.1	4.3	45.0	15.7
Queue Length 50th (ft)	35	66	~154	89	~636	36	175	0	129	78
Queue Length 95th (ft)	81	104	#273	161	#935	#115	258	51	206	139
Internal Link Dist (ft)		486		661			407			302
Turn Bay Length (ft)	300		240		120	130		180	260	
Base Capacity (vph)	167	764	181	340	719	78	1713	690	652	1582
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.30	1.67	0.40	1.16	0.68	0.53	0.39	0.62	0.27

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.

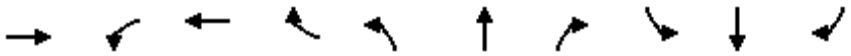
Lane Group	EBT	EBR	WBT	WBR	SBL	SBT	SBR
Lane Group Flow (vph)	927	542	1238	442	244	331	329
v/c Ratio	0.38	0.57	0.79	0.46	0.48	0.71	0.69
Control Delay	9.4	3.6	16.3	2.7	20.9	27.0	25.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.4	3.6	16.3	2.7	20.9	27.0	25.2
Queue Length 50th (ft)	67	0	172	0	75	101	94
Queue Length 95th (ft)	91	40	247	36	138	#228	#209
Internal Link Dist (ft)	661		674			105	
Turn Bay Length (ft)		400		560	65		350
Base Capacity (vph)	2558	975	1672	999	505	464	478
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	0.36	0.56	0.74	0.44	0.48	0.71	0.69

Intersection Summary

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

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	670	525	1194	577	272	274	249
v/c Ratio	0.40	0.37	0.75	0.55	0.55	0.55	0.42
Control Delay	10.3	0.7	15.6	3.2	21.8	19.6	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.3	0.7	15.6	3.2	21.8	19.6	7.7
Queue Length 50th (ft)	72	0	164	0	84	75	17
Queue Length 95th (ft)	106	0	234	42	155	150	68
Internal Link Dist (ft)	674		169			405	
Turn Bay Length (ft)				1000	260		160
Base Capacity (vph)	1782	1420	1685	1068	494	495	597
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	0.38	0.37	0.71	0.54	0.55	0.55	0.42

Intersection Summary



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	849	66	867	430	13	84	45	61	15	9
v/c Ratio	0.81	0.69	0.45	0.45	0.22	0.05	0.07	0.66	0.01	0.01
Control Delay	37.5	81.6	21.4	2.8	55.2	10.9	0.2	80.0	17.2	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.5	81.6	21.4	2.8	55.2	10.9	0.2	80.0	17.2	0.0
Queue Length 50th (ft)	175	41	135	0	8	5	0	38	2	0
Queue Length 95th (ft)	215	#110	162	38	28	16	0	#103	10	0
Internal Link Dist (ft)	250		280			220			326	
Turn Bay Length (ft)		90		185	50		140	100		185
Base Capacity (vph)	1235	96	2105	960	58	1718	627	92	1741	686
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.69	0.41	0.45	0.22	0.05	0.07	0.66	0.01	0.01

Intersection Summary

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

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	183	120	1054	177	18	1400
v/c Ratio	0.52	0.28	0.54	0.23	0.13	0.71
Control Delay	24.4	6.1	10.7	3.0	27.0	11.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.4	6.1	10.7	3.0	27.0	11.3
Queue Length 50th (ft)	52	0	87	0	5	140
Queue Length 95th (ft)	97	28	216	27	22	234
Internal Link Dist (ft)	346		48			437
Turn Bay Length (ft)		85		230	275	
Base Capacity (vph)	533	580	1939	775	135	1972
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.21	0.54	0.23	0.13	0.71

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	72	182	234	86	543	20	513	286	710	969
v/c Ratio	0.59	0.32	1.28	0.43	0.71	0.23	0.28	0.36	1.06	0.52
Control Delay	67.1	28.1	202.7	48.8	22.0	59.0	25.9	3.9	93.3	18.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.1	28.1	202.7	48.8	22.0	59.0	25.9	3.9	93.3	18.2
Queue Length 50th (ft)	46	42	~101	55	200	13	86	0	~264	169
Queue Length 95th (ft)	106	70	#215	104	323	42	146	50	#477	394
Internal Link Dist (ft)		486		661			407			302
Turn Bay Length (ft)	300		240		120	130		180	260	
Base Capacity (vph)	164	999	183	315	770	91	1848	802	671	1864
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.18	1.28	0.27	0.71	0.22	0.28	0.36	1.06	0.52

Intersection Summary

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

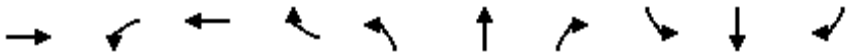
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	EBR	WBT	WBR	SBL	SBT	SBR
Lane Group Flow (vph)	1351	699	984	482	376	354	345
v/c Ratio	0.62	0.67	0.70	0.51	0.57	0.60	0.58
Control Delay	14.8	4.8	17.1	3.5	18.4	17.3	16.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.8	4.8	17.1	3.5	18.4	17.3	16.7
Queue Length 50th (ft)	131	0	143	0	108	91	83
Queue Length 95th (ft)	172	54	204	46	188	176	163
Internal Link Dist (ft)	661		674			105	
Turn Bay Length (ft)		400		560	65		350
Base Capacity (vph)	2233	1057	1452	956	665	594	599
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	0.61	0.66	0.68	0.50	0.57	0.60	0.58

Intersection Summary

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	1185	593	1012	404	334	325	310
v/c Ratio	0.81	0.38	0.72	0.46	0.51	0.52	0.49
Control Delay	20.7	0.7	18.0	3.3	17.2	15.9	15.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.7	0.7	18.0	3.3	17.2	15.9	15.2
Queue Length 50th (ft)	188	0	152	0	91	82	73
Queue Length 95th (ft)	261	0	214	42	176	169	151
Internal Link Dist (ft)	674		169			405	
Turn Bay Length (ft)				1000	260		160
Base Capacity (vph)	1518	1547	1461	895	656	627	638
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	0.78	0.38	0.69	0.45	0.51	0.52	0.49

Intersection Summary



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	1157	86	595	317	12	178	85	79	36	5
v/c Ratio	0.92	0.88	0.29	0.34	0.19	0.11	0.14	0.86	0.02	0.01
Control Delay	45.4	111.4	18.9	2.4	53.3	11.3	0.5	110.5	17.2	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.4	111.4	18.9	2.4	53.3	11.3	0.5	110.5	17.2	0.0
Queue Length 50th (ft)	257	56	87	0	8	14	0	51	6	0
Queue Length 95th (ft)	298	#139	109	32	26	29	0	#131	17	0
Internal Link Dist (ft)	250		280			220			326	
Turn Bay Length (ft)		90		185	50		140	100		185
Base Capacity (vph)	1300	98	2029	937	63	1627	611	92	1578	680
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.89	0.88	0.29	0.34	0.19	0.11	0.14	0.86	0.02	0.01

Intersection Summary

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

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	93	65	838	205	80	757
v/c Ratio	0.27	0.19	0.46	0.24	0.50	0.36
Control Delay	19.6	6.0	14.7	3.9	41.9	8.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.6	6.0	14.7	3.9	41.9	8.5
Queue Length 50th (ft)	27	0	102	0	25	54
Queue Length 95th (ft)	56	22	#278	46	#107	189
Internal Link Dist (ft)	346		48			437
Turn Bay Length (ft)		85		230	275	
Base Capacity (vph)	519	495	1838	837	159	2106
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.13	0.46	0.24	0.50	0.36

Intersection Summary

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

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	54	226	302	137	918	53	918	270	409	424
v/c Ratio	0.49	0.51	1.69	0.59	1.26	0.69	0.54	0.39	0.61	0.27
Control Delay	62.6	39.3	363.7	53.5	154.7	93.7	29.8	4.3	44.5	15.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.6	39.3	363.7	53.5	154.7	93.7	29.8	4.3	44.5	15.6
Queue Length 50th (ft)	36	67	~156	90	~758	36	180	0	131	79
Queue Length 95th (ft)	82	105	#276	162	#1081	#117	266	51	209	140
Internal Link Dist (ft)		486		661			407			302
Turn Bay Length (ft)	300		240		120	130		180	260	
Base Capacity (vph)	165	755	179	337	727	77	1695	685	675	1593
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.30	1.69	0.41	1.26	0.69	0.54	0.39	0.61	0.27

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.

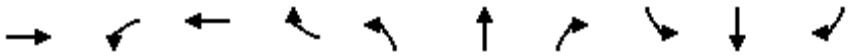
Lane Group	EBT	EBR	WBT	WBR	SBL	SBT	SBR
Lane Group Flow (vph)	929	545	1313	442	244	331	329
v/c Ratio	0.38	0.57	0.83	0.45	0.49	0.73	0.70
Control Delay	9.4	3.6	17.9	2.7	21.0	28.4	26.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.4	3.6	17.9	2.7	21.0	28.4	26.6
Queue Length 50th (ft)	67	0	190	0	75	104	97
Queue Length 95th (ft)	91	41	273	36	138	#232	#214
Internal Link Dist (ft)	661		674			105	
Turn Bay Length (ft)		400		560	65		350
Base Capacity (vph)	2531	971	1655	993	500	454	468
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	0.56	0.79	0.45	0.49	0.73	0.70

Intersection Summary

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

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	672	525	1204	577	297	296	267
v/c Ratio	0.40	0.37	0.75	0.55	0.60	0.60	0.45
Control Delay	10.3	0.7	15.8	3.2	23.2	20.9	8.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.3	0.7	15.8	3.2	23.2	20.9	8.7
Queue Length 50th (ft)	73	0	166	0	93	84	23
Queue Length 95th (ft)	106	0	236	42	171	165	78
Internal Link Dist (ft)	674		169			405	
Turn Bay Length (ft)				1000	260		160
Base Capacity (vph)	1781	1420	1683	1068	494	496	596
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	0.38	0.37	0.72	0.54	0.60	0.60	0.45

Intersection Summary



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	849	66	867	430	13	92	45	61	49	9
v/c Ratio	0.81	0.69	0.45	0.45	0.22	0.05	0.07	0.66	0.03	0.01
Control Delay	37.5	81.6	21.4	2.8	55.2	11.5	0.2	80.0	16.6	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.5	81.6	21.4	2.8	55.2	11.5	0.2	80.0	16.6	0.0
Queue Length 50th (ft)	175	41	135	0	8	6	0	38	7	0
Queue Length 95th (ft)	215	#110	162	38	28	18	0	#103	22	0
Internal Link Dist (ft)	250		280			220			326	
Turn Bay Length (ft)		90		185	50		140	100		185
Base Capacity (vph)	1235	96	2105	960	58	1735	627	92	1741	686
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.69	0.41	0.45	0.22	0.05	0.07	0.66	0.03	0.01

Intersection Summary

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

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	183	148	1080	177	45	1406
v/c Ratio	0.51	0.33	0.60	0.24	0.33	0.72
Control Delay	24.4	6.1	13.1	3.4	32.2	11.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.4	6.1	13.1	3.4	32.2	11.5
Queue Length 50th (ft)	52	0	93	0	14	144
Queue Length 95th (ft)	97	30	224	27	41	235
Internal Link Dist (ft)	346		48			437
Turn Bay Length (ft)		85		230	275	
Base Capacity (vph)	536	602	1807	734	136	1957
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.25	0.60	0.24	0.33	0.72

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	72	182	234	86	599	20	520	286	736	979
v/c Ratio	0.59	0.32	1.28	0.43	0.78	0.23	0.28	0.36	1.10	0.53
Control Delay	67.1	28.1	202.7	48.8	26.3	59.0	25.9	3.9	105.2	18.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.1	28.1	202.7	48.8	26.3	59.0	25.9	3.9	105.2	18.3
Queue Length 50th (ft)	46	42	~101	55	250	13	87	0	~283	171
Queue Length 95th (ft)	106	70	#215	104	394	42	148	50	#500	399
Internal Link Dist (ft)		486		661			407			302
Turn Bay Length (ft)	300		240		120	130		180	260	
Base Capacity (vph)	164	999	183	315	769	91	1848	802	671	1864
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.18	1.28	0.27	0.78	0.22	0.28	0.36	1.10	0.53

Intersection Summary

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

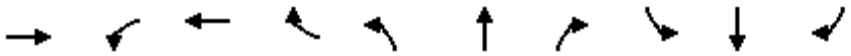
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	EBR	WBT	WBR	SBL	SBT	SBR
Lane Group Flow (vph)	1361	710	1034	482	376	354	345
v/c Ratio	0.63	0.67	0.73	0.51	0.57	0.60	0.58
Control Delay	14.8	4.9	17.8	3.5	18.5	17.9	17.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.8	4.9	17.8	3.5	18.5	17.9	17.3
Queue Length 50th (ft)	132	0	154	0	108	94	86
Queue Length 95th (ft)	174	54	218	46	188	180	166
Internal Link Dist (ft)	661		674			105	
Turn Bay Length (ft)		400		560	65		350
Base Capacity (vph)	2224	1061	1449	954	662	587	592
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	0.61	0.67	0.71	0.51	0.57	0.60	0.58

Intersection Summary

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	1195	593	1019	404	351	339	321
v/c Ratio	0.82	0.38	0.72	0.46	0.54	0.54	0.50
Control Delay	21.0	0.7	18.1	3.3	17.8	16.4	15.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.0	0.7	18.1	3.3	17.8	16.4	15.6
Queue Length 50th (ft)	191	0	154	0	97	86	76
Queue Length 95th (ft)	264	0	216	42	186	178	158
Internal Link Dist (ft)	674		169			405	
Turn Bay Length (ft)				1000	260		160
Base Capacity (vph)	1516	1547	1460	895	656	629	637
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	0.79	0.38	0.70	0.45	0.54	0.54	0.50

Intersection Summary



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	1157	86	595	317	12	215	85	79	59	5
v/c Ratio	0.92	0.88	0.29	0.34	0.19	0.13	0.14	0.86	0.04	0.01
Control Delay	45.4	111.4	18.9	2.4	53.3	12.8	0.5	110.5	17.2	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.4	111.4	18.9	2.4	53.3	12.8	0.5	110.5	17.2	0.0
Queue Length 50th (ft)	257	56	87	0	8	20	0	51	10	0
Queue Length 95th (ft)	298	#139	109	32	26	36	0	#131	25	0
Internal Link Dist (ft)	250		280			220			326	
Turn Bay Length (ft)		90		185	50		140	100		185
Base Capacity (vph)	1300	98	2029	937	63	1644	611	92	1578	680
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.89	0.88	0.29	0.34	0.19	0.13	0.14	0.86	0.04	0.01

Intersection Summary

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

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	132	34	1039	246	60	1142
v/c Ratio	0.37	0.10	0.57	0.29	0.38	0.55
Control Delay	21.1	6.7	17.2	3.9	36.6	11.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.1	6.7	17.2	3.9	36.6	11.0
Queue Length 50th (ft)	39	0	138	0	19	97
Queue Length 95th (ft)	76	16	#405	49	#76	330
Internal Link Dist (ft)	346		48			437
Turn Bay Length (ft)		85		230	275	
Base Capacity (vph)	515	473	1828	852	158	2091
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.07	0.57	0.29	0.38	0.55

Intersection Summary

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

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	60	280	308	170	1042	62	1007	492	826	441
v/c Ratio	0.53	0.57	1.75	0.65	1.43	0.83	0.60	0.73	1.30	0.30
Control Delay	65.4	39.9	390.6	55.0	226.8	117.0	32.0	19.4	184.2	17.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.4	39.9	390.6	55.0	226.8	117.0	32.0	19.4	184.2	17.8
Queue Length 50th (ft)	41	86	~167	115	~969	44	212	126	~387	90
Queue Length 95th (ft)	90	128	#286	197	#1309	#139	301	306	#580	152
Internal Link Dist (ft)		486		661			407			302
Turn Bay Length (ft)	300		240		120	130		180	260	
Base Capacity (vph)	162	745	176	331	728	75	1667	671	634	1478
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.38	1.75	0.51	1.43	0.83	0.60	0.73	1.30	0.30

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.

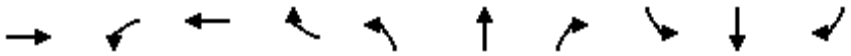
Lane Group	EBT	EBR	WBT	WBR	SBL	SBT	SBR
Lane Group Flow (vph)	1278	551	1305	757	253	338	336
v/c Ratio	0.56	0.57	0.77	0.67	0.51	0.75	0.72
Control Delay	11.0	3.6	15.6	4.2	21.5	29.7	27.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.0	3.6	15.6	4.2	21.5	29.7	27.7
Queue Length 50th (ft)	104	0	181	0	78	106	101
Queue Length 95th (ft)	139	41	257	46	144	#240	#222
Internal Link Dist (ft)	661		674			105	
Turn Bay Length (ft)		400		560	65		350
Base Capacity (vph)	2361	972	1735	1139	497	452	466
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	0.54	0.57	0.75	0.66	0.51	0.75	0.72

Intersection Summary

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

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	754	812	1322	610	288	282	261
v/c Ratio	0.44	0.57	0.78	0.57	0.59	0.57	0.46
Control Delay	10.7	1.7	16.4	3.3	22.9	20.2	10.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.7	1.7	16.4	3.3	22.9	20.2	10.6
Queue Length 50th (ft)	84	0	188	0	90	79	32
Queue Length 95th (ft)	122	0	265	44	165	156	90
Internal Link Dist (ft)	674		169			405	
Turn Bay Length (ft)				1000	260		160
Base Capacity (vph)	1766	1420	1749	1080	490	491	568
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	0.43	0.57	0.76	0.56	0.59	0.57	0.46

Intersection Summary



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	1086	83	2228	500	20	83	45	61	14	13
v/c Ratio	1.47dl	0.93	1.03	0.52	0.38	0.05	0.08	0.72	0.01	0.02
Control Delay	72.3	128.1	57.5	6.7	66.4	10.8	0.3	89.6	19.2	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.3	128.1	57.5	6.7	66.4	10.8	0.3	89.6	19.2	0.1
Queue Length 50th (ft)	~276	54	~564	53	13	5	0	39	2	0
Queue Length 95th (ft)	#345	#143	#620	119	#39	16	0	#103	9	0
Internal Link Dist (ft)	250		280			220			326	
Turn Bay Length (ft)		90		185	50		140	100		185
Base Capacity (vph)	1046	89	2155	955	53	1591	595	85	1537	628
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.04	0.93	1.03	0.52	0.38	0.05	0.08	0.72	0.01	0.02

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.

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	267	107	1327	187	19	2001
v/c Ratio	0.66	0.23	0.72	0.25	0.14	1.06
Control Delay	27.8	5.7	15.9	3.2	28.4	56.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.8	5.7	15.9	3.2	28.4	56.4
Queue Length 50th (ft)	80	0	148	0	6	~407
Queue Length 95th (ft)	140	26	#353	28	23	#533
Internal Link Dist (ft)	346		48			437
Turn Bay Length (ft)		85		230	275	
Base Capacity (vph)	523	563	1848	751	133	1882
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.19	0.72	0.25	0.14	1.06

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	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	75	222	372	142	923	20	524	307	1038	1274
v/c Ratio	0.61	0.34	2.10	0.61	1.17	0.24	0.29	0.39	1.60	0.70
Control Delay	71.0	30.0	542.1	54.5	114.6	61.2	27.7	4.0	307.6	24.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.0	30.0	542.1	54.5	114.6	61.2	27.7	4.0	307.6	24.1
Queue Length 50th (ft)	51	56	~215	96	~723	14	97	0	~543	300
Queue Length 95th (ft)	109	87	#347	163	#988	42	149	51	#765	583
Internal Link Dist (ft)		486		661			407			302
Turn Bay Length (ft)	300		240		120	130		180	260	
Base Capacity (vph)	159	969	177	305	790	88	1788	797	650	1814
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.23	2.10	0.47	1.17	0.23	0.29	0.39	1.60	0.70

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	EBR	WBT	WBR	SBL	SBT	SBR
Lane Group Flow (vph)	1603	708	1469	493	461	445	422
v/c Ratio	0.78	0.67	0.97	0.52	0.70	0.73	0.73
Control Delay	18.0	4.8	35.3	3.5	22.7	23.6	23.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.0	4.8	35.3	3.5	22.7	23.6	23.5
Queue Length 50th (ft)	173	0	258	0	143	134	121
Queue Length 95th (ft)	227	54	#410	46	#248	#281	#257
Internal Link Dist (ft)	661		674			105	
Turn Bay Length (ft)		400		560	65		350
Base Capacity (vph)	2047	1057	1518	956	656	606	581
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	0.78	0.67	0.97	0.52	0.70	0.73	0.73

Intersection Summary

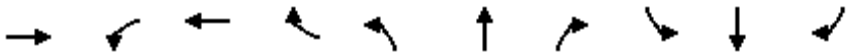
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	1587	678	1084	414	460	449	412
v/c Ratio	1.06	0.44	0.72	0.46	0.71	0.71	0.66
Control Delay	62.0	0.9	17.8	3.3	23.5	22.2	19.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.0	0.9	17.8	3.3	23.5	22.2	19.7
Queue Length 50th (ft)	~347	0	165	0	140	130	110
Queue Length 95th (ft)	#469	0	228	43	#296	#293	220
Internal Link Dist (ft)	674		169			405	
Turn Bay Length (ft)				1000	260		160
Base Capacity (vph)	1494	1547	1509	893	646	632	628
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	1.06	0.44	0.72	0.46	0.71	0.71	0.66

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	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	2719	100	1838	328	16	179	88	134	35	10
v/c Ratio	2.69	1.03	0.89	0.36	0.26	0.11	0.14	1.47	0.02	0.02
Control Delay	781.8	148.8	33.2	4.0	56.6	11.0	0.5	298.2	18.9	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	781.8	148.8	33.2	4.0	56.6	11.0	0.5	298.2	18.9	0.0
Queue Length 50th (ft)	~1107	~68	389	19	10	14	0	~119	6	0
Queue Length 95th (ft)	#1138	#163	427	54	31	29	0	#225	17	0
Internal Link Dist (ft)	250		280			220			326	
Turn Bay Length (ft)		90		185	50		140	100		185
Base Capacity (vph)	1011	97	2058	919	62	1609	607	91	1493	654
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	2.69	1.03	0.89	0.36	0.26	0.11	0.14	1.47	0.02	0.02

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	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	132	39	1044	246	97	1149
v/c Ratio	0.38	0.12	0.61	0.30	0.62	0.55
Control Delay	21.4	6.5	18.6	3.9	49.6	10.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.4	6.5	18.6	3.9	49.6	10.9
Queue Length 50th (ft)	39	0	140	0	31	98
Queue Length 95th (ft)	76	17	#408	49	#131	333
Internal Link Dist (ft)	346		48			437
Turn Bay Length (ft)		85		230	275	
Base Capacity (vph)	510	471	1722	817	156	2105
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.08	0.61	0.30	0.62	0.55

Intersection Summary

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

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	60	280	308	170	1124	62	1018	492	832	443
v/c Ratio	0.53	0.57	1.75	0.65	1.55	0.83	0.61	0.73	1.31	0.30
Control Delay	65.4	39.9	390.6	55.0	276.7	117.0	32.1	19.4	188.0	17.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.4	39.9	390.6	55.0	276.7	117.0	32.1	19.4	188.0	17.8
Queue Length 50th (ft)	41	86	~167	115	~1093	44	215	126	~391	90
Queue Length 95th (ft)	90	128	#286	197	#1450	#139	305	306	#586	152
Internal Link Dist (ft)		486		661			407			302
Turn Bay Length (ft)	300		240		120	130		180	260	
Base Capacity (vph)	162	745	176	331	727	75	1667	671	634	1478
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.38	1.75	0.51	1.55	0.83	0.61	0.73	1.31	0.30

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	EBR	WBT	WBR	SBL	SBT	SBR
Lane Group Flow (vph)	1280	554	1380	757	253	338	336
v/c Ratio	0.55	0.57	0.81	0.67	0.51	0.75	0.73
Control Delay	11.0	3.6	17.0	4.2	21.7	30.2	28.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.0	3.6	17.0	4.2	21.7	30.2	28.1
Queue Length 50th (ft)	104	0	199	0	78	106	101
Queue Length 95th (ft)	139	41	283	46	144	#240	#222
Internal Link Dist (ft)	661		674			105	
Turn Bay Length (ft)		400		560	65		350
Base Capacity (vph)	2340	969	1720	1136	493	448	462
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	0.55	0.57	0.80	0.67	0.51	0.75	0.73

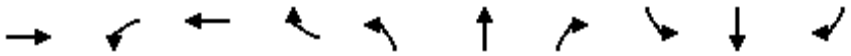
Intersection Summary

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

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	756	812	1332	610	313	306	277
v/c Ratio	0.44	0.57	0.79	0.57	0.64	0.62	0.49
Control Delay	10.7	1.7	16.6	3.3	24.6	21.7	11.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.7	1.7	16.6	3.3	24.6	21.7	11.4
Queue Length 50th (ft)	84	0	191	0	101	89	36
Queue Length 95th (ft)	122	0	268	44	#183	172	98
Internal Link Dist (ft)	674		169			405	
Turn Bay Length (ft)				1000	260		160
Base Capacity (vph)	1765	1420	1749	1080	489	492	567
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	0.43	0.57	0.76	0.56	0.64	0.62	0.49

Intersection Summary

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



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	1086	83	2228	500	20	91	45	61	48	13
v/c Ratio	1.47dl	0.93	1.03	0.52	0.38	0.06	0.08	0.72	0.03	0.02
Control Delay	72.3	128.1	57.5	6.7	66.4	11.4	0.3	89.6	18.8	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.3	128.1	57.5	6.7	66.4	11.4	0.3	89.6	18.8	0.1
Queue Length 50th (ft)	~276	54	~564	53	13	6	0	39	8	0
Queue Length 95th (ft)	#345	#143	#620	119	#39	18	0	#103	21	0
Internal Link Dist (ft)	250		280			220			326	
Turn Bay Length (ft)		90		185	50		140	100		185
Base Capacity (vph)	1046	89	2155	955	53	1607	595	85	1537	628
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.04	0.93	1.03	0.52	0.38	0.06	0.08	0.72	0.03	0.02

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.

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	267	135	1354	187	46	2007
v/c Ratio	0.67	0.28	0.82	0.27	0.35	1.06
Control Delay	28.6	5.6	22.6	3.7	34.6	53.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.6	5.6	22.6	3.7	34.6	53.3
Queue Length 50th (ft)	85	0	235	0	16	~423
Queue Length 95th (ft)	140	29	#364	28	43	#535
Internal Link Dist (ft)	346		48			437
Turn Bay Length (ft)		85		230	275	
Base Capacity (vph)	513	573	1646	690	130	1902
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.24	0.82	0.27	0.35	1.06

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	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	75	222	372	142	978	20	532	307	1064	1284
v/c Ratio	0.61	0.34	2.10	0.61	1.24	0.24	0.30	0.39	1.64	0.71
Control Delay	71.0	30.0	542.1	54.5	144.7	61.2	27.8	4.0	324.7	24.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.0	30.0	542.1	54.5	144.7	61.2	27.8	4.0	324.7	24.2
Queue Length 50th (ft)	51	56	~215	96	~810	14	98	0	~563	304
Queue Length 95th (ft)	109	87	#347	163	#1086	42	152	51	#788	#593
Internal Link Dist (ft)		486		661			407			302
Turn Bay Length (ft)	300		240		120	130		180	260	
Base Capacity (vph)	159	969	177	305	787	88	1788	797	650	1815
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.23	2.10	0.47	1.24	0.23	0.30	0.39	1.64	0.71

Intersection Summary

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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	EBR	WBT	WBR	SBL	SBT	SBR
Lane Group Flow (vph)	1613	720	1519	493	461	445	422
v/c Ratio	0.81	0.68	1.00	0.52	0.70	0.73	0.73
Control Delay	18.7	4.9	42.7	3.5	22.7	23.6	23.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.7	4.9	42.7	3.5	22.7	23.6	23.5
Queue Length 50th (ft)	176	0	~274	0	143	134	121
Queue Length 95th (ft)	232	55	#432	46	#248	#281	#257
Internal Link Dist (ft)	661		674			105	
Turn Bay Length (ft)		400		560	65		350
Base Capacity (vph)	2003	1064	1518	956	656	606	581
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	0.81	0.68	1.00	0.52	0.70	0.73	0.73

Intersection Summary

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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	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	1597	678	1091	414	468	467	428
v/c Ratio	1.07	0.44	0.72	0.46	0.72	0.74	0.68
Control Delay	64.3	0.9	17.9	3.3	24.1	23.5	20.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.3	0.9	17.9	3.3	24.1	23.5	20.9
Queue Length 50th (ft)	~352	0	166	0	143	138	116
Queue Length 95th (ft)	#474	0	230	43	#304	#312	#241
Internal Link Dist (ft)	674		169			405	
Turn Bay Length (ft)				1000	260		160
Base Capacity (vph)	1494	1547	1509	893	646	634	628
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	1.07	0.44	0.72	0.46	0.72	0.74	0.68

Intersection Summary

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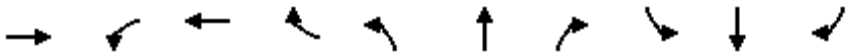
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	2719	100	1838	328	16	216	88	134	58	10
v/c Ratio	2.69	1.03	0.89	0.36	0.26	0.13	0.14	1.47	0.04	0.02
Control Delay	781.8	148.8	33.2	4.0	56.6	12.6	0.5	298.2	18.8	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	781.8	148.8	33.2	4.0	56.6	12.6	0.5	298.2	18.8	0.0
Queue Length 50th (ft)	~1107	~68	389	19	10	20	0	~119	10	0
Queue Length 95th (ft)	#1138	#163	427	54	31	36	0	#225	24	0
Internal Link Dist (ft)	250		280			220			326	
Turn Bay Length (ft)		90		185	50		140	100		185
Base Capacity (vph)	1011	97	2058	919	62	1627	607	91	1493	654
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	2.69	1.03	0.89	0.36	0.26	0.13	0.14	1.47	0.04	0.02

Intersection Summary

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Queue shown is maximum after two cycles.

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

Intersection	
Int Delay, s/veh	0.8

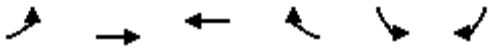
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	45	32	1158	73	15	1622
Future Vol, veh/h	45	32	1158	73	15	1622
Conflicting Peds, #/hr	0	0	0	4	4	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	7	8	0	6
Mvmt Flow	48	34	1245	78	16	1744

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2192	666	0	0	1327	0
Stage 1	1288	-	-	-	-	-
Stage 2	904	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	~ 40	407	-	-	527	-
Stage 1	226	-	-	-	-	-
Stage 2	360	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 39	405	-	-	525	-
Mov Cap-2 Maneuver	181	-	-	-	-	-
Stage 1	225	-	-	-	-	-
Stage 2	349	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	28.4	0	0.1
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	235	525	-
HCM Lane V/C Ratio	-	-	0.352	0.031	-
HCM Control Delay (s)	-	-	28.4	12.1	-
HCM Lane LOS	-	-	D	B	-
HCM 95th %tile Q(veh)	-	-	1.5	0.1	-

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



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	152	0	0	53	29	60
Future Volume (Veh/h)	152	0	0	53	29	60
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	171	0	0	60	33	67
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	160	100	133	0	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	160	100	133	0	0	
tC, single (s)	7.1	6.5	6.5	6.2	4.1	
tC, 2 stage (s)						
tF (s)	3.5	4.0	4.0	3.3	2.2	
p0 queue free %	77	100	100	94	98	
cM capacity (veh/h)	747	773	740	1082	1617	

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	171	60	100
Volume Left	171	0	33
Volume Right	0	60	67
cSH	747	1082	1617
Volume to Capacity	0.23	0.06	0.02
Queue Length 95th (ft)	22	4	2
Control Delay (s)	11.2	8.5	2.5
Lane LOS	B	A	A
Approach Delay (s)	11.2	8.5	2.5
Approach LOS	B	A	

Intersection Summary			
Average Delay	8.1		
Intersection Capacity Utilization	27.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	152	26	52	225	69	135
Future Volume (Veh/h)	152	26	52	225	69	135
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	171	29	58	253	78	152
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	426					
pX, platoon unblocked						
vC, conflicting volume			200		554	186
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			200		554	186
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			96		83	82
cM capacity (veh/h)			1360		469	857

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	200	311	230
Volume Left	0	58	78
Volume Right	29	0	152
cSH	1700	1360	669
Volume to Capacity	0.12	0.04	0.34
Queue Length 95th (ft)	0	3	38
Control Delay (s)	0.0	1.8	13.2
Lane LOS		A	B
Approach Delay (s)	0.0	1.8	13.2
Approach LOS			B

Intersection Summary			
Average Delay	4.8		
Intersection Capacity Utilization	46.4%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	4.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	152	26	52	225	69	135
Future Vol, veh/h	152	26	52	225	69	135
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	89	89	89	89	89	89
Heavy Vehicles, %	26	24	4	6	4	2
Mvmt Flow	171	29	58	253	78	152

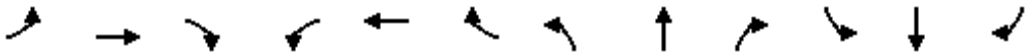
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	200	0	555	186
Stage 1	-	-	-	-	186	-
Stage 2	-	-	-	-	369	-
Critical Hdwy	-	-	4.14	-	6.44	6.22
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	-	-	2.236	-	3.536	3.318
Pot Cap-1 Maneuver	-	-	1360	-	489	856
Stage 1	-	-	-	-	841	-
Stage 2	-	-	-	-	695	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1360	-	465	856
Mov Cap-2 Maneuver	-	-	-	-	465	-
Stage 1	-	-	-	-	841	-
Stage 2	-	-	-	-	660	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.5	13.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	666	-	-	1360	-
HCM Lane V/C Ratio	0.344	-	-	0.043	-
HCM Control Delay (s)	13.2	-	-	7.8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	1.5	-	-	0.1	-

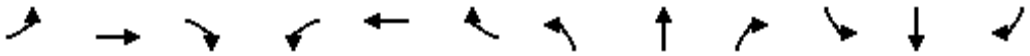
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	224	113	1137	157	39	1686
Future Volume (vph)	224	113	1137	157	39	1686
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.2	5.2	5.8	5.8	4.6	5.8
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	1.00	1.00	0.97	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1641	1538	3505	1259	1504	3374
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1641	1538	3505	1259	1504	3374
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	267	135	1354	187	46	2007
RTOR Reduction (vph)	0	103	0	102	0	0
Lane Group Flow (vph)	267	32	1354	85	46	2007
Confl. Peds. (#/hr)				1	1	
Confl. Bikes (#/hr)				5		
Heavy Vehicles (%)	10%	5%	3%	25%	20%	7%
Turn Type	Perm	Perm	NA	Perm	Prot	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2		
Actuated Green, G (s)	14.2	14.2	27.2	27.2	2.8	34.6
Effective Green, g (s)	14.2	14.2	27.2	27.2	2.8	34.6
Actuated g/C Ratio	0.24	0.24	0.45	0.45	0.05	0.58
Clearance Time (s)	5.2	5.2	5.8	5.8	4.6	5.8
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	389	365	1594	572	70	1952
v/s Ratio Prot			0.39		0.03	c0.59
v/s Ratio Perm	c0.16	0.02		0.07		
v/c Ratio	0.69	0.09	0.85	0.15	0.66	1.03
Uniform Delay, d1	20.8	17.8	14.5	9.5	28.0	12.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.0	0.1	5.9	0.5	20.1	27.9
Delay (s)	25.7	17.9	20.3	10.1	48.1	40.5
Level of Service	C	B	C	B	D	D
Approach Delay (s)	23.1		19.1			40.7
Approach LOS	C		B			D

Intersection Summary			
HCM 2000 Control Delay	30.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	59.8	Sum of lost time (s)	15.6
Intersection Capacity Utilization	68.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	144	51	327	125	861	18	468	270	936	1081	49
Future Volume (vph)	66	144	51	327	125	861	18	468	270	936	1081	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	5.2		4.6	5.2	4.6	4.6	5.4	4.6	4.6	5.8	
Lane Util. Factor	1.00	0.95		0.97	1.00	1.00	1.00	0.91	1.00	0.97	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.96		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1188	2894		3045	1226	1568	1543	5036	1474	3335	3284	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1188	2894		3045	1226	1568	1543	5036	1474	3335	3284	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	75	164	58	372	142	978	20	532	307	1064	1228	56
RTOR Reduction (vph)	0	33	0	0	0	122	0	0	176	0	2	0
Lane Group Flow (vph)	75	189	0	372	142	856	20	532	131	1064	1282	0
Confl. Peds. (#/hr)			5	5					2	2		
Confl. Bikes (#/hr)			1						5			1
Heavy Vehicles (%)	52%	18%	23%	15%	55%	3%	17%	3%	8%	5%	7%	55%
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8	1	5	2	3	1	6	
Permitted Phases						8			2			
Actuated Green, G (s)	9.9	24.4		6.5	21.0	42.6	2.3	42.2	48.7	21.6	61.1	
Effective Green, g (s)	9.9	24.4		6.5	21.0	42.6	2.3	42.2	48.7	21.6	61.1	
Actuated g/C Ratio	0.09	0.21		0.06	0.18	0.37	0.02	0.37	0.43	0.19	0.53	
Clearance Time (s)	4.6	5.2		4.6	5.2	4.6	4.6	5.4	4.6	4.6	5.8	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	102	616		172	224	583	30	1856	626	629	1752	
v/s Ratio Prot	0.06	c0.07		c0.12	0.12	c0.28	0.01	0.11	0.01	c0.32	c0.39	
v/s Ratio Perm						0.27			0.08			
v/c Ratio	0.74	0.31		2.16	0.63	1.47	0.67	0.29	0.21	1.69	0.73	
Uniform Delay, d1	51.0	37.9		54.0	43.2	36.0	55.7	25.5	20.7	46.5	20.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	23.8	0.3		542.0	5.8	220.1	44.1	0.4	0.2	318.1	2.7	
Delay (s)	74.8	38.2		596.0	49.0	256.1	99.9	25.9	20.9	364.5	23.2	
Level of Service	E	D		F	D	F	F	C	C	F	C	
Approach Delay (s)		47.5			321.1			25.8			177.8	
Approach LOS		D			F			C			F	

Intersection Summary			
HCM 2000 Control Delay	186.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.21		
Actuated Cycle Length (s)	114.5	Sum of lost time (s)	20.2
Intersection Capacity Utilization	102.1%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	66	144	51	327	125	861	18	468	270	936	1081	49
Future Volume (veh/h)	66	144	51	327	125	861	18	468	270	936	1081	49
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1129	1633	1559	1678	1085	1856	1648	1856	1781	1826	1796	1085
Adj Flow Rate, veh/h	75	164	58	372	142	978	20	532	307	1064	1228	56
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	52	18	23	15	55	3	17	3	8	5	7	55
Cap, veh/h	85	579	197	173	252	657	32	1651	568	629	1633	74
Arrive On Green	0.08	0.26	0.26	0.06	0.23	0.23	0.02	0.33	0.33	0.19	0.49	0.49
Sat Flow, veh/h	1076	2261	768	3100	1085	1562	1570	5066	1484	3374	3320	151
Grp Volume(v), veh/h	75	110	112	372	142	978	20	532	307	1064	631	653
Grp Sat Flow(s),veh/h/ln	1076	1552	1478	1550	1085	1562	1570	1689	1484	1687	1706	1765
Q Serve(g_s), s	7.9	6.5	7.0	6.4	13.3	26.7	1.5	9.1	18.5	21.4	34.2	34.3
Cycle Q Clear(g_c), s	7.9	6.5	7.0	6.4	13.3	26.7	1.5	9.1	18.5	21.4	34.2	34.3
Prop In Lane	1.00		0.52	1.00		1.00	1.00		1.00	1.00		0.09
Lane Grp Cap(c), veh/h	85	397	378	173	252	657	32	1651	568	629	839	868
V/C Ratio(X)	0.88	0.28	0.29	2.15	0.56	1.49	0.62	0.32	0.54	1.69	0.75	0.75
Avail Cap(c_a), veh/h	138	473	451	173	252	657	86	1651	568	629	839	868
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.3	34.2	34.4	54.2	38.9	33.4	55.8	29.1	27.7	46.7	23.5	23.5
Incr Delay (d2), s/veh	29.3	0.4	0.4	537.2	2.8	228.2	17.9	0.5	3.7	318.0	6.1	6.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	2.5	2.6	15.4	3.7	59.0	0.7	3.6	7.0	36.5	14.3	14.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	81.6	34.6	34.8	591.4	41.7	261.6	73.6	29.7	31.3	364.7	29.7	29.5
LnGrp LOS	F	C	C	F	D	F	E	C	C	F	C	C
Approach Vol, veh/h		297			1492			859			2348	
Approach Delay, s/veh		46.5			322.9			31.3			181.4	
Approach LOS		D			F			C			F	

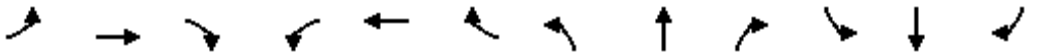
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	26.0	43.2	11.0	34.6	7.0	62.2	13.7	31.9
Change Period (Y+Rc), s	4.6	* 5.8	4.6	5.2	4.6	5.8	4.6	5.2
Max Green Setting (Gmax), s	21.4	* 37	6.4	35.0	6.3	52.1	14.7	26.7
Max Q Clear Time (g_c+I1), s	23.4	20.5	8.4	9.0	3.5	36.3	9.9	28.7
Green Ext Time (p_c), s	0.0	4.1	0.0	1.3	0.0	7.5	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	189.8
HCM 6th LOS	F

Notes

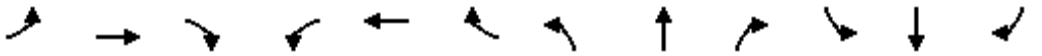
User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



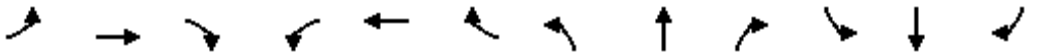
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↱		↑↑	↱				↰	✥	↱
Traffic Volume (vph)	1	1564	698	0	1473	478	0	0	0	667	0	621
Future Volume (vph)	1	1564	698	0	1473	478	0	0	0	667	0	621
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0		5.0	5.0				5.8	5.8	5.8
Lane Util. Factor		0.91	1.00		0.95	1.00				0.95	0.91	0.95
Frpb, ped/bikes		1.00	0.98		1.00	0.98				1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00				1.00	1.00	1.00
Frt		1.00	0.85		1.00	0.85				1.00	0.93	0.85
Flt Protected		1.00	1.00		1.00	1.00				0.95	0.98	1.00
Satd. Flow (prot)		5085	1515		3505	1563				1698	1510	1447
Flt Permitted		0.91	1.00		1.00	1.00				0.95	0.98	1.00
Satd. Flow (perm)		4624	1515		3505	1563				1698	1510	1447
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1	1612	720	0	1519	493	0	0	0	688	0	640
RTOR Reduction (vph)	0	0	408	0	0	279	0	0	0	0	22	22
Lane Group Flow (vph)	0	1613	312	0	1519	214	0	0	0	461	423	400
Confl. Peds. (#/hr)	1		4	4		1						
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	2%	4%	0%	3%	1%	0%	0%	0%	1%	0%	6%
Turn Type	Perm	NA	Perm		NA	Perm				Split	NA	Perm
Protected Phases		2			6					4	4	
Permitted Phases	2		2			6						4
Actuated Green, G (s)		26.0	26.0		26.0	26.0				23.2	23.2	23.2
Effective Green, g (s)		26.0	26.0		26.0	26.0				23.2	23.2	23.2
Actuated g/C Ratio		0.43	0.43		0.43	0.43				0.39	0.39	0.39
Clearance Time (s)		5.0	5.0		5.0	5.0				5.8	5.8	5.8
Vehicle Extension (s)		3.0	3.0		3.0	3.0				3.0	3.0	3.0
Lane Grp Cap (vph)		2003	656		1518	677				656	583	559
v/s Ratio Prot					c0.43					0.27	c0.28	
v/s Ratio Perm		0.35	0.21			0.14						0.28
v/c Ratio		0.81	0.48		1.00	0.32				0.70	0.73	0.72
Uniform Delay, d1		14.8	12.1		17.0	11.2				15.5	15.7	15.6
Progression Factor		1.00	1.00		1.00	1.00				1.00	1.00	1.00
Incremental Delay, d2		2.5	0.5		23.3	0.3				6.2	7.7	7.6
Delay (s)		17.3	12.7		40.3	11.4				21.7	23.4	23.2
Level of Service		B	B		D	B				C	C	C
Approach Delay (s)		15.8			33.2			0.0			22.7	
Approach LOS		B			C			A			C	

Intersection Summary			
HCM 2000 Control Delay	23.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.8
Intersection Capacity Utilization	77.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1565	664	0	1069	406	818	0	517	0	0	0
Future Volume (vph)	0	1565	664	0	1069	406	818	0	517	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	4.0		5.0	5.0	5.8	5.8	5.8			
Lane Util. Factor		0.95	1.00		0.95	1.00	0.95	0.91	0.95			
Frpb, ped/bikes		1.00	0.98		1.00	0.98	1.00	1.00	1.00			
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Frt		1.00	0.85		1.00	0.85	1.00	0.97	0.85			
Flt Protected		1.00	1.00		1.00	1.00	0.95	0.96	1.00			
Satd. Flow (prot)		3539	1547		3574	1550	1618	1535	1519			
Flt Permitted		1.00	1.00		1.00	1.00	0.95	0.96	1.00			
Satd. Flow (perm)		3539	1547		3574	1550	1618	1535	1519			
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	1597	678	0	1091	414	835	0	528	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	239	0	22	22	0	0	0
Lane Group Flow (vph)	0	1597	678	0	1091	175	468	445	406	0	0	0
Confl. Peds. (#/hr)	1		5	5		1						
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	0%	2%	2%	0%	1%	2%	6%	0%	1%	0%	0%	0%
Turn Type		NA	Free		NA	Perm	Perm	NA	Perm			
Protected Phases		2			6			8				
Permitted Phases			Free			6	8		8			
Actuated Green, G (s)		25.6	60.6		25.6	25.6	24.2	24.2	24.2			
Effective Green, g (s)		25.6	60.6		25.6	25.6	24.2	24.2	24.2			
Actuated g/C Ratio		0.42	1.00		0.42	0.42	0.40	0.40	0.40			
Clearance Time (s)		5.0			5.0	5.0	5.8	5.8	5.8			
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)		1495	1547		1509	654	646	612	606			
v/s Ratio Prot		c0.45			0.31							
v/s Ratio Perm			0.44			0.11	0.29	0.29	0.27			
v/c Ratio		1.07	0.44		0.72	0.27	0.72	0.73	0.67			
Uniform Delay, d1		17.5	0.0		14.6	11.4	15.4	15.4	14.9			
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2		43.9	0.9		1.7	0.2	6.9	7.4	5.8			
Delay (s)		61.4	0.9		16.3	11.6	22.3	22.8	20.7			
Level of Service		E	A		B	B	C	C	C			
Approach Delay (s)		43.4			15.0			22.0			0.0	
Approach LOS		D			B			C			A	

Intersection Summary			
HCM 2000 Control Delay	29.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	60.6	Sum of lost time (s)	10.8
Intersection Capacity Utilization	80.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	81	2250	8	86	1581	282	14	110	151	115	50	9
Future Volume (vph)	81	2250	8	86	1581	282	14	110	151	115	50	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8		4.6	5.0	4.6	4.6	5.0	5.0	4.6	5.0	5.0
Lane Util. Factor		0.91		1.00	0.91	1.00	1.00	0.86	0.86	1.00	0.95	1.00
Frpb, ped/bikes		1.00		1.00	1.00	1.00	1.00	0.99	0.99	1.00	1.00	0.99
Flpb, ped/bikes		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00		1.00	1.00	0.85	1.00	0.94	0.85	1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		4843		1752	4715	1482	1253	4280	1318	1770	3505	1274
Flt Permitted		0.64		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		3085		1752	4715	1482	1253	4280	1318	1770	3505	1274
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	94	2616	9	100	1838	328	16	128	176	134	58	10
RTOR Reduction (vph)	0	1	0	0	0	139	0	54	54	0	0	6
Lane Group Flow (vph)	0	2718	0	100	1838	189	16	162	34	134	58	4
Confl. Peds. (#/hr)							2		1	1		2
Heavy Vehicles (%)	4%	7%	0%	3%	10%	9%	44%	9%	4%	2%	3%	25%
Turn Type	pm+pt	NA		Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases	4					8			2			6
Actuated Green, G (s)		33.0		5.6	44.0	49.2	2.0	39.8	39.8	5.2	43.0	43.0
Effective Green, g (s)		33.0		5.6	44.0	49.2	2.0	39.8	39.8	5.2	43.0	43.0
Actuated g/C Ratio		0.32		0.05	0.42	0.47	0.02	0.38	0.38	0.05	0.42	0.42
Clearance Time (s)		5.8		4.6	5.0	4.6	4.6	5.0	5.0	4.6	5.0	5.0
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		982		94	2002	703	24	1644	506	88	1454	528
v/s Ratio Prot				0.06	c0.39	0.01	0.01	c0.04		c0.08	c0.02	
v/s Ratio Perm		c0.88				0.11			0.03			0.00
v/c Ratio		2.77		1.06	0.92	0.27	0.67	0.10	0.07	1.52	0.04	0.01
Uniform Delay, d1		35.3		49.0	28.1	16.4	50.5	20.4	20.2	49.2	18.0	17.8
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		798.5		111.2	7.2	0.2	52.8	0.1	0.3	284.5	0.1	0.0
Delay (s)		833.8		160.2	35.3	16.6	103.3	20.5	20.4	333.7	18.1	17.8
Level of Service		F		F	D	B	F	C	C	F	B	B
Approach Delay (s)		833.8			38.1			24.6			227.4	
Approach LOS		F			D			C			F	

Intersection Summary			
HCM 2000 Control Delay	437.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.30		
Actuated Cycle Length (s)	103.6	Sum of lost time (s)	20.0
Intersection Capacity Utilization	130.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group