Traffic Impact Analysis

Merced
Mixed-Use Development

Located on the Northeast Corner of "G" Street and Yosemite Avenue

In the City of Merced, California

Prepared for:

Yosemite and G, LLC
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September 24, 2019

JLB Project No. 035-003

APPENDIX B TO IS #19-28

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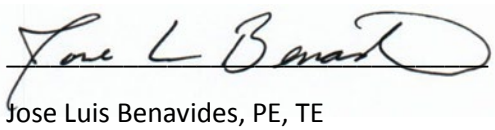
This Traffic Impact Analysis has been prepared under the direction of a licensed Traffic Engineer. The licensed Traffic Engineer attests to the technical information contained therein, and has judged the qualifications of any technical specialists providing engineering data from which recommendations, conclusions, and decisions are based.

Prepared by:



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Introduction and Summary

Introduction

This report describes a Traffic Impact Analysis (TIA) prepared by JLB Traffic Engineering, Inc. (JLB) for the proposed Merced Mixed-Use Development (Project) located on the northeast corner of "G" Street and Yosemite Avenue in the City of Merced. The Project proposes to develop 66,465 square feet of medical-dental office space, a 128-room hotel, 11,458 square feet of fast-food restaurant with drive-through window, a gasoline/service station with convenience market (12 fueling positions), 18,222 square feet of shopping center, 5,000 square feet high-turnover (sit-down) restaurant, 12,000 square feet of general office space, 4,804 square feet of day care center, and 44 multifamily units. Per information provided to JLB, the Project will undergo a General Plan Amendment through the City of Merced. Figure 1 shows the location of the proposed Project site relative to the surrounding roadway network.

The purpose of this TIA is to evaluate the potential on-site and off-site traffic impacts, identify short-term roadway and circulation needs, determine potential mitigation measures, and identify any critical traffic issues that should be addressed in the on-going planning process. The TIA primarily focused on evaluating traffic conditions at study intersections that may potentially be impacted by the proposed Project. The Scope of Work was prepared via consultation with City of Merced, County of Merced and Caltrans staff.

Summary

The potential traffic impacts of the proposed Project were evaluated in accordance with the standards set forth by the Level of Service (LOS) policy of the City of Merced, County of Merced and Caltrans.

Existing Traffic Conditions

- At present, all study intersections operate at an acceptable LOS during both peak periods.

Existing plus Project Traffic Conditions

- It is recommended that the Project Driveway 1 have a minimum throat depth of 150 feet before any vehicular openings to the north.
- At buildout, the latest Project Site Plan is estimated to generate a maximum of 13,160 daily trips, 1,009 AM peak hour trips and 1,059 PM peak hour trips (before internal capture and pass-by rate reductions are taken into account). Whereas the prior Project Site Plan is anticipated to generate a maximum of 13,741 daily trips, 1,092 AM peak hour trips and 1,074 PM peak hour trips (before internal capture and pass-by rate reductions are taken into account).
- Compared to the prior Project Site Plan, the latest Project Site Plan is estimated to yield less traffic by 581 daily trips, 83 AM peak hour trips and 15 PM peak hour trips (before internal capture and pass-by rate reductions are taken into account). Therefore, in order to provide a conservative analysis of the Project's traffic impacts, this TIA assumed the trip generation of the prior Project Site Plan.
- It is recommended that the Project implement a walkway along its frontage to Sandpiper Avenue and complete the walkway along its frontage to "G" Street.
- It is recommended that the Project implement a Class II Bike Lane along its frontage to "G" Street.

- To promote alternative modes of transportation to El Capitan High School, it is recommended that the MUHSD work with the City of Merced and County of Merced to implement a Safe Routes to School plan and to seek grant funding to help build walkways where they are lacking within a 2.5-mile radius of the existing school site.
- As the Project is within a defined service area, it is likely that the Project would not add VMT per capita of service population to the region. Additionally, the Project site is located near transit services and pedestrian and bicycle networks.
- Under this scenario, the intersection of "G" Street and Project Driveway 1 is projected to exceed its LOS threshold during one peak period. To improve the LOS at this intersection, it is recommended that this intersection be signalized with protective left-turn phasing in all directions. Additional details as to the recommended improvements for this intersection are presented later in this Report.

Near Term plus Project Traffic Conditions

- The total trip generation for the Near Term Projects by year 2025 is 76,956 daily trips, 4,228 AM peak hour trips and 7,565 PM peak hour trips.
- Under this scenario, the intersections of Sandpiper Avenue and Mercy Avenue and "G" Street and Project Driveway 1 are projected to exceed their LOS threshold during one or both peak periods. To improve the LOS at these intersections, the addition of lanes and modification of traffic control mechanisms is recommended. Additional details as to the recommended improvements for these intersections are presented later in this Report.
- Between the Existing Traffic Conditions and the Near Term plus Project Traffic Conditions, the Project accounts for 11.6 percent of the daily trips, 13.6 percent of the AM peak hour trips and 7.1 percent of the PM peak hour trips of growth in traffic while the rest can be attributable to the Near Term Projects. Therefore, one can deduce that the majority of the mitigation measures presented under this scenario may not be necessary immediately upon completion of the proposed Project.

Cumulative Year 2039 No Project Traffic Conditions

- Under this scenario, the intersections of Sandpiper Avenue and Mercy Avenue, "G" Street and Yosemite Avenue, and Paulson Road and Yosemite Avenue are projected to exceed their LOS threshold during one or both peak periods. To improve the LOS at these intersections, the addition of lanes and modification of traffic control mechanisms is recommended. Additional details as to the recommended improvements for these intersections are presented later in this Report.

Cumulative Year 2039 plus Project Traffic Conditions

- Under this scenario, the intersections of Sandpiper Avenue and Mercy Avenue, "G" Street and Project Driveway 1, "G" Street and Yosemite Avenue, and Paulson Road and Yosemite Avenue are projected to exceed their LOS threshold during one or both peak periods. To improve the LOS at these intersections, the addition of lanes and modification of traffic control mechanisms is recommended. Additional details as to the recommended improvements for these intersections are presented later in this Report.

Queuing Analysis

- It is recommended that the City consider left-turn and right-turn lane storage lengths as indicated in the Queuing Analysis.

Project's Equitable Fair Share

- It is recommended that the Project contribute its equitable fair share as listed in Table XV for the future improvements necessary to maintain an acceptable LOS.

Scope of Work

The study focused on evaluating traffic conditions at the existing study intersections that may potentially be impacted by the Project. On February 22, 2019, a Draft Scope of Work for the preparation of a TIA for this Project was provided to the City of Merced for their review and comment. The Draft Scope of Work was based on a conference call with City of Merced staff on February 20, 2019. City of Merced staff responded to the Draft Scope of Work via phone call and requested that the TIA include a qualitative discussion on vehicle miles traveled (VMT).

On March 26, 2019, a Draft Scope of Work for the preparation of a TIA for this Project was provided to the City of Merced, County of Merced and Caltrans for their review and comment. The Draft Scope of Work was based on communication with City of Merced staff. On April 2, 2019, Caltrans requested a clearer version of the Project Site Plan presented within Exhibit A. JLB provided Caltrans with the requested site plan on April 3, 2019.

The Draft Scope of Work and the comments received from the lead agency and responsible agencies are included in Appendix A.

Study Facilities

The existing peak hour turning movement counts were conducted at the study intersections in April 2019, while schools in the vicinity of the proposed Project were in session. The intersection turning movement counts included pedestrian volumes. The traffic counts for the existing study intersections are contained in Appendix B. The existing intersection turning movement volumes, intersection geometrics and traffic controls are illustrated in Figure 2.

Study Intersections

1. "G" Street / Mercy Avenue
2. Sandpiper Avenue / Mercy Avenue
3. "G" Street / Project Driveway 1
4. "G" Street / Project Driveway 2
5. "G" Street / Yosemite Avenue
6. Sandpiper Avenue / Yosemite Avenue
7. Mansionette Drive / Yosemite Avenue
8. Paulson Road / Yosemite Avenue

Study Scenarios

Existing Traffic Conditions

This scenario evaluates the Existing Traffic Conditions based on existing traffic volumes and roadway conditions from traffic counts and field surveys conducted in April 2019.

Existing plus Project Traffic Conditions

This scenario evaluates total traffic volumes and roadway conditions based on the Existing plus Project Traffic Conditions. The Existing plus Project traffic volumes were obtained by adding the Net New Project Only Trips to the Existing Traffic Conditions scenario. The Net New Project Only Trips to the study intersections were developed based on existing travel patterns, the existing roadway network, engineering judgment, data provided by the developer, knowledge of the study area, existing residential and commercial densities, and the Merced Vision 2030 General Plan Transportation and Circulation Element in the vicinity of the Project.

Near Term plus Project Traffic Conditions

This scenario evaluates total traffic volumes and roadway conditions based on the Near Term plus Project Traffic Conditions. The Near Term plus Project traffic volumes were obtained by adding the Near Term (Year 2025) related trips to the Existing plus Project Traffic Conditions scenario.

Cumulative Year 2039 No Project Traffic Conditions

This scenario evaluates total traffic volumes and roadway conditions based on the Cumulative Year 2039 No Project Traffic Conditions. The Cumulative Year 2039 No Project traffic volumes were obtained by subtracting the Net New Project Only Trips from the Cumulative Year 2039 plus Project Traffic Conditions scenario.

Cumulative Year 2039 plus Project Traffic Conditions

This scenario evaluates total traffic volumes and roadway conditions based on the Cumulative Year 2039 plus Project Traffic Conditions. The Cumulative Year 2039 plus Project traffic volumes were obtained by expanding Existing traffic volumes by an average annual growth rate of 3.0 percent, assuming full buildout of all Near Term Projects, and utilizing the greater of the two volumes. The average annual growth rate of 3.0 percent was approved by City of Merced staff.

Level of Service Analysis Methodology

Level of Service (LOS) is a qualitative index of the performance of an element of the transportation system. LOS is a rating scale running from "A" to "F", with "A" indicating no congestion of any kind and "F" indicating unacceptable congestion and delays. LOS in this study describes the operating conditions for signalized and unsignalized intersections.

The *Highway Capacity Manual* (HCM) 6th Edition is the standard reference published by the Transportation Research Board and contains the specific criteria and methods to be used in assessing LOS. U-turn movements were analyzed using HCM 2000 methodologies and would yield more accurate results for the reason that HCM 6th does not allow the analysis of U-turns or some shared turn lane movements. Synchro software was used to define LOS in this study. Details regarding these calculations are included in Appendix C.

Criteria of Significance

The Merced Vision 2030 General Plan has established LOS D as the acceptable level of traffic congestion on new and upgraded intersections and road segments. However, the City of Merced Vision 2030 General Plan recognizes that this may not always be feasible, appropriate or necessary. For those cases in which a LOS criterion for a roadway segment differs from that of the established LOS, such criteria are identified in the roadway description. Most study intersections within the City of Merced SOI utilize LOS D to evaluate the potential significance of LOS impacts pursuant to the Merced Vision 2030 General Plan.

The 2030 Merced County General Plan has established LOS C or better for roadways located within rural areas, LOS D or better for roadways located outside Urban Communities that serve as connectors between Urban Communities, and LOS D or better for roadways located within Urban Communities. Since all study intersections fall within the City of Merced SOI, the City of Merced LOS is utilized.

Caltrans endeavors to maintain a target LOS at the transition between LOS C and D on State highway facilities consistent with the *Caltrans Guide for the Preparation of Traffic Impact Studies* dated December 2002. However, Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS. In this TIA, however, all study facilities fall within the City of Merced. Therefore, the City of Merced LOS thresholds are utilized.

Operational Analysis Assumptions and Defaults

The following operational analysis values, assumptions and defaults were used in this study to ensure a consistent analysis of LOS among the various scenarios.

- Yellow time consistent with the California Manual of Uniform Traffic Control Devices (CA MUTCD) based on approach speeds
- All-red clearance intervals of 1.0 second for all phases
- Walk intervals of 7.0 seconds
- Flashing Don't Walk based on 3.5 feet/second walking speed with yellow plus all-red clearance subtracted and 2.0 seconds added
- All new or modified signals utilize protective left-turn phasing
- An average 3 percent heavy vehicle factor
- An average of 3 pedestrian calls per hour at signalized intersections
- The number of observed pedestrians at existing intersections was utilized under all study scenarios
- The observed approach Peak Hour Factor (PHF) at existing intersections was utilized in the Existing and Existing plus Project scenarios
- The intersections of "G" Street and Project Driveway 1 and 2 utilized the following PHFs:
  - A PHF of 0.78 (the average PHF between the intersections of "G" Street and Mercy Avenue and "G" Street and Yosemite Avenue) during the AM peak hour.
  - A PHF of 0.92 during the PM peak hour.
- A PHF of 0.88, or the existing PHF, if higher, is utilized for all intersections in the Near Term plus Project scenario
- A PHF of 0.92, or the existing PHF, if higher, is utilized for all intersections in the Cumulative Year 2039 scenarios

Existing Traffic Conditions

Roadway Network

The Project site and surrounding study area are illustrated in Figure 1. Important roadways serving the Project are discussed below.

"G" Street is an existing north-south four- to six-lane divided arterial adjacent to the proposed Project. In this area, "G" Street is a two-lane undivided minor arterial north of Farmland Road and between Cardella Road and Mercy Avenue, a four- to six-lane divided arterial between Farmland Road and 15th Street and becomes a two-lane undivided collector street south of 15th Street. The Merced Vision 2030 General Plan designates "G" Street as a major arterial between Old Lake Road and Yosemite Avenue, a divided arterial north of Old Lake Road and between Olive Avenue and 15th Street, a minor arterial between Yosemite Avenue and Olive Avenue and a collector street south of 15th Street.

Sandpiper Avenue is a proposed north-south two-lane undivided local roadway adjacent to the proposed Project. The Merced Vision 2030 General Plan does not include Sandpiper Avenue.

Mansionette Drive is an existing north-south two-lane undivided collector street in the vicinity of the proposed Project. In this area, Mansionette Drive is a two-lane undivided collector between Mercy Avenue and Yosemite Avenue. The Merced Vision 2030 General Plan designates Mansionette Drive as a two-lane collector street between Cardella Road and Yosemite Avenue and a conceptual collector street between Cardella Road and Bellevue Road.

Paulson Road is an existing north-south two-lane undivided collector street in the vicinity of the proposed Project. In this area, Paulson Road is a two-lane undivided collector between Dunn Road and Donna Drive. The Merced Vision 2030 General Plan designates Paulson Road as a collector street north of Bellevue Road and between Cardella Road and Donna Drive and a conceptual collector between Bellevue Road and Cardella Road.

Mercy Avenue is an existing east-west two-lane undivided collector street in the vicinity of the proposed Project. In this area, Mercy Avenue is a two-lane undivided collector east of "G" Street. The Merced Vision 2030 General Plan designates Mercy Avenue as a collector street east of "G" Street.

Yosemite Avenue is an existing east-west four-lane divided arterial adjacent to the proposed Project. In this area, Yosemite Avenue is a four-lane divided arterial between san Augustine Avenue and Parsons Avenue, a two- to four-lane divided arterial between Parsons and Lake Road and a two-lane undivided minor arterial east of Lake Road. The Merced Vision 2030 General Plan designates Yosemite Avenue as a divided arterial between "R" Street and Parsons Avenue and east of Lake Road, a major arterial west of "R" Street and classified as a special street section between Parsons Avenue and Lake Road. Furthermore, the Merced Vision 2030 General Plan acknowledged that Yosemite Avenue would exceed LOS D as a four-lane divided arterial between "R" Street and Parsons Avenue. However, City Council made appropriate findings to designate LOS F as the criteria of significance for Yosemite Avenue as four-lane facility between "R" Street and Parsons Avenue.

Traffic Signal Warrants

Peak hour traffic signal warrants, as appropriate, were prepared for the Existing Traffic Conditions scenario. These warrants are found in Appendix I. These warrants were prepared pursuant to the CA MUTCD guidelines for the preparation of traffic signal warrants. Under this scenario, none of the unsignalized intersections satisfy the peak hour signal warrant during either peak period.

Results of Existing Level of Service Analysis

Figure 2 illustrates the Existing turning movement volumes, intersection geometrics and traffic controls. LOS worksheets for the Existing Traffic Conditions scenario are provided in Appendix D. Table I presents a summary of the Existing peak hour LOS at the study intersections.

At present, all study intersections operate at an acceptable LOS during both peak periods.

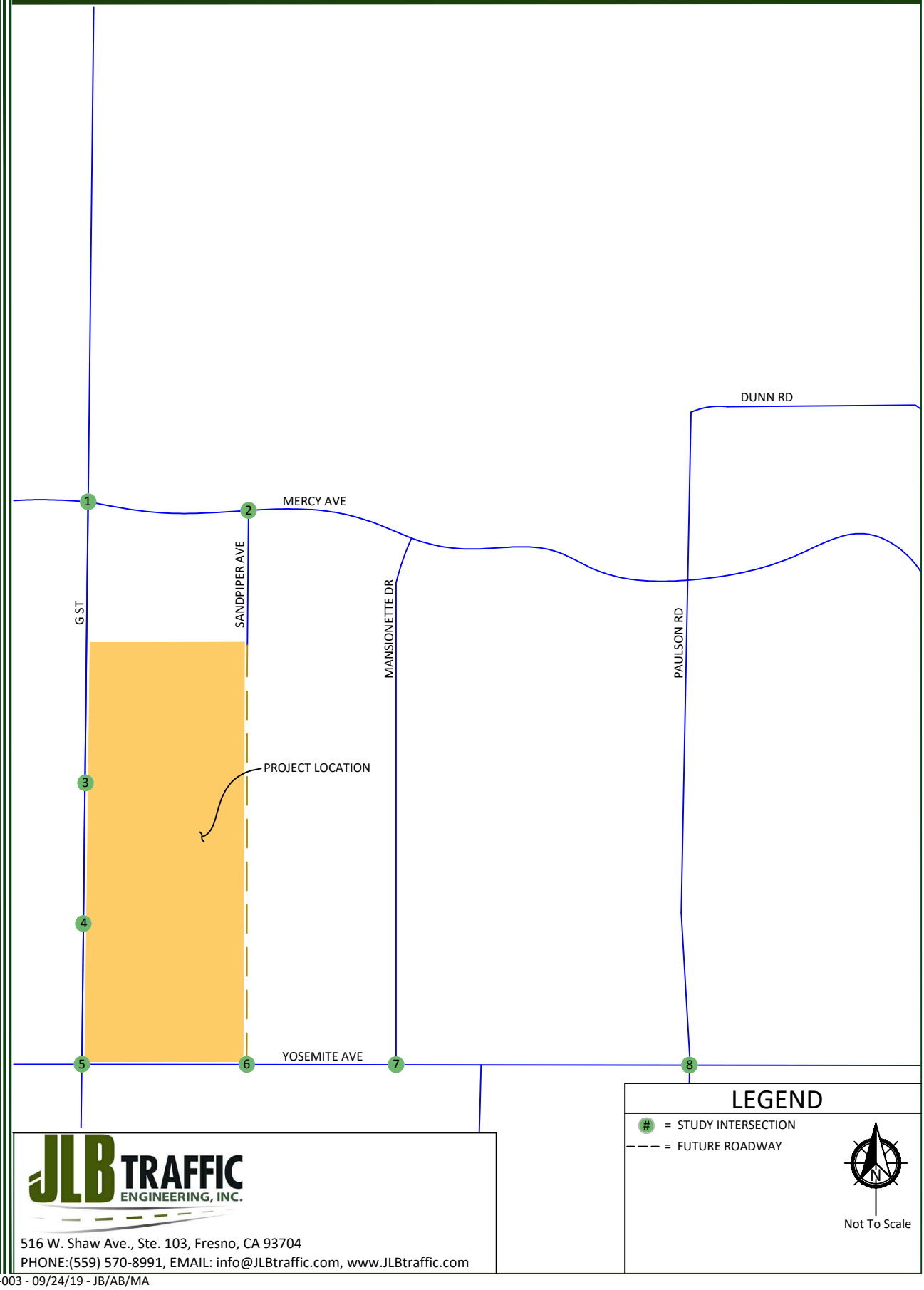
Table I: Existing Intersection LOS Results

ID	*Intersection*	*Intersection Control*	*AM (7-9) Peak Hour*		*PM (4-6) Peak Hour*	
			Average Delay (sec/veh)	*LOS*	*Average Delay (sec/veh)*	*LOS*
1	"G" Street / Mercy Avenue	Signalized	27.0	C	26.2	C
2	Sandpiper Avenue / Mercy Avenue	Two-Way Stop	28.0	D	14.2	B
3	"G" Street / Project Driveway 1	Does Not Exist	N/A	N/A	N/A	N/A
4	"G" Street / Project Driveway 2	Does Not Exist	N/A	N/A	N/A	N/A
5	"G" Street / Yosemite Avenue	Signalized	36.9	D	36.2	D
6	Sandpiper Avenue / Yosemite Avenue	One-Way Stop	11.2	B	11.8	B
7	Mansionette Drive / Yosemite Avenue	Signalized	7.5	A	6.3	A
8	Paulson Road / Yosemite Avenue	Signalized	45.5	D	33.0	C

Note: LOS = Level of Service based on average delay on signalized intersections and All-Way STOP Controls.
LOS for two-way STOP controlled intersections are based on the worst approach/movement of the minor street.

Merced Mixed-Use Development - City of Merced
Vicinity Map

Figure 1



LEGEND

= STUDY INTERSECTION

– – – = FUTURE ROADWAY

N

Not To Scale

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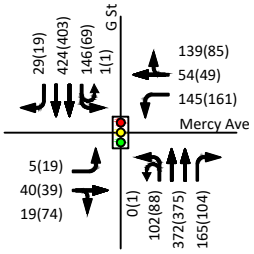
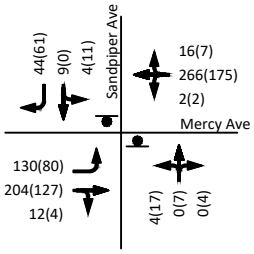
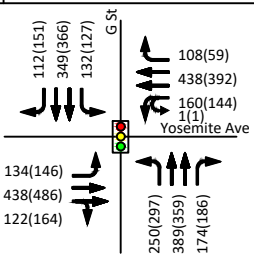
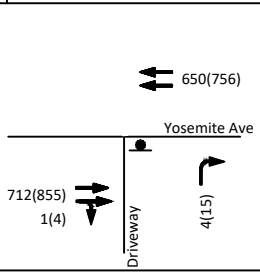
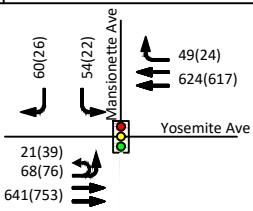
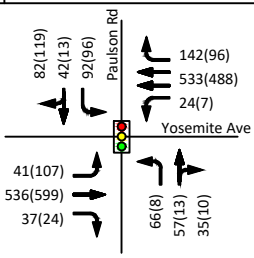
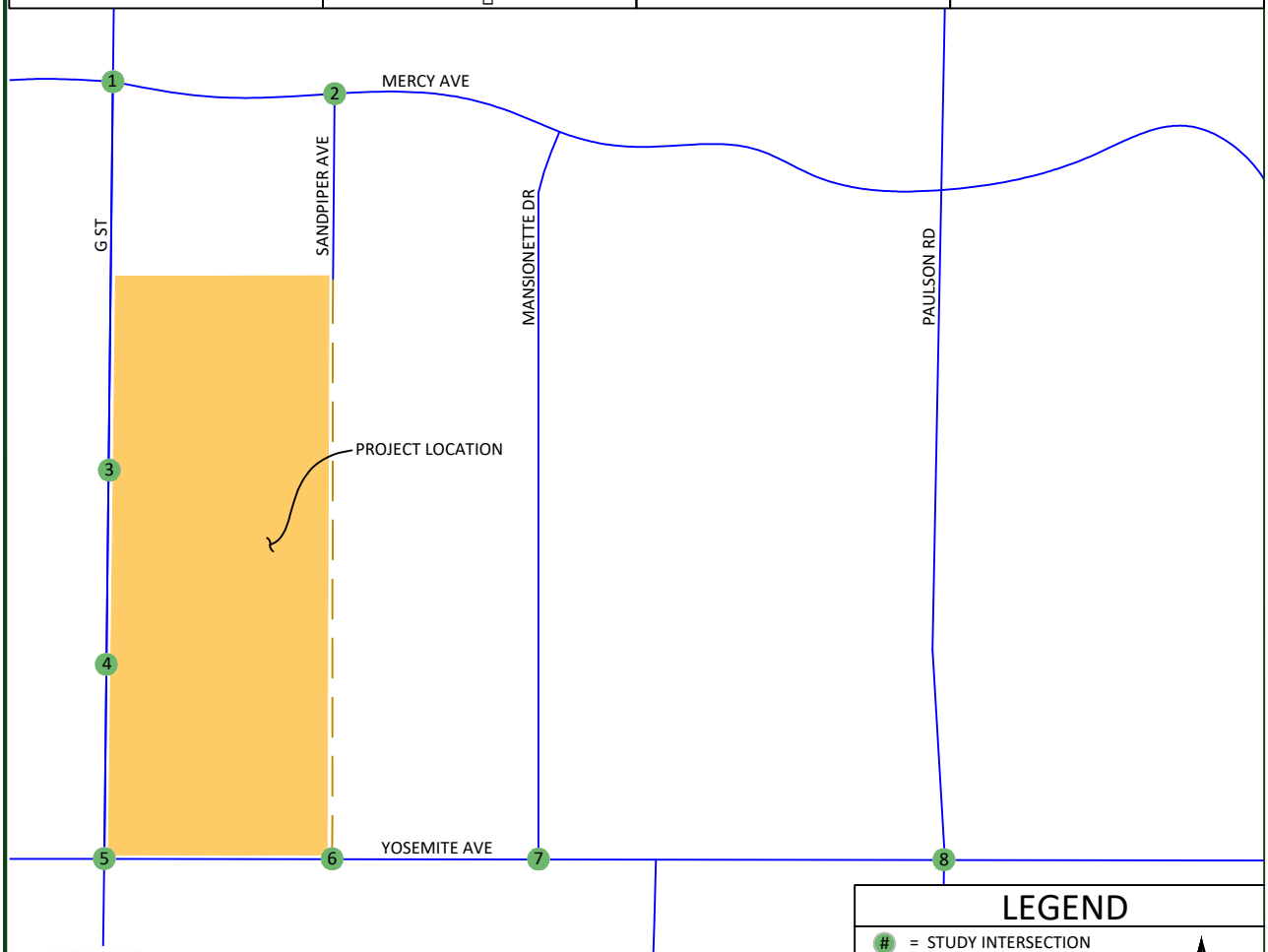
Merced Mixed-Use Development - City of Merced
Existing - Traffic Volumes, Geometrics and Controls

Figure 2

1. G St & Mercy Ave	2. Sandpiper Ave & Mercy Ave	3. G St & Project Drwy 1	4. G St & Project Drwy 2
		DOES NOT EXIST	DOES NOT EXIST

5. G St & Yosemite Ave	6. Sandpiper Ave & Yosemite Ave	7. Mansionette Ave & Yosemite Ave	8. Paulson Rd & Yosemite Ave
			



LEGEND

- # = STUDY INTERSECTION
- = FUTURE ROADWAY
- XX = AM PEAK HOUR TRIPS
- (XX) = PM PEAK HOUR TRIPS
- = SIGNALIZED INTERSECTION
- = STOP SIGN

N

Not To Scale

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Existing plus Project Traffic Conditions

Project Description

The Project proposes to develop 66,465 square feet of medical-dental office space, a 128-room hotel, 11,458 square feet of fast-food restaurant with drive-through window, a gasoline/service station with convenience market (12 fueling positions), 18,222 square feet of shopping center, 5,000 square feet high-turnover (sit-down) restaurant, 12,000 square feet of general office space, 4,804 square feet of day care center, and 44 multifamily units. Per information provided to JLB, the Project will undergo a General Plan Amendment through the City of Merced. Figure 3 illustrates the latest Project Site Plan provided to JLB by the developer.

Project Access

Based on the latest Project Site Plan, access to and from the Project site will be from five (5) access driveways located along Mercy Avenue, "G" Street, and Yosemite Avenue. The access point to Mercy Avenue is located at Sandpiper Avenue and is proposed as a full access. Two (2) access points are proposed to be located along the east side of "G" Street. One is located approximately 1,250 south of Mercy Avenue and is proposed as a full access. The other is located approximately 625 feet north of Yosemite Avenue and is proposed as left-in, right-in and right-out access only. The remaining two (2) access points are proposed to be located along the north side of Yosemite Avenue. One is located at Sandpiper Avenue and is limited to right-in and right-out access only. The other access point is located approximately 300 feet east of "G" Street and is also limited to right-in and right-out access only.

JLB analyzed the location of the proposed driveways relative to the existing local roads and driveways in the Project's vicinity. Based on this review, it is recommended that the Project incorporate the recommendations presented in more detail within the Queuing Analysis for the intersections of "G" Street and Project Driveway 1 and 2. It is recommended that Project Driveway 1 have a minimum throat depth of 150 feet before any vehicular openings to the north. By incorporating the recommendations presented in the Queuing Analysis, onsite and offsite traffic operations and circulation along with pedestrian safety should be improved.

Walkways

Currently, walkways exist in the vicinity of the proposed Project site along "G" Street, Yosemite Avenue and Mercy Avenue. The Merced Vision 2030 General Plan recommends that walkways be implemented during all phases of a Project to guarantee adequate and safe pedestrian facilities at all times. Therefore, it is recommended that the Project implement a walkway along its frontage to Sandpiper Avenue and complete the walkway along its frontage to "G" Street.

Bikeways

Currently, bikeways exist in the vicinity of the proposed Project site along "G" Street, Yosemite Avenue, Mercy Avenue and Mansionette Drive. The Merced Vision 2030 General Plan recommends that a Class II Bike Lane be implemented on "G" Street north of Yosemite Avenue and a Class I Bike Lane beginning on "G" Street and extending approximately 950 feet north of Mercy Avenue. Therefore, it is recommended that the Project implement a Class II Bike Lane along its frontage to "G" Street.

Transit

The Bus, Merced's Regional Transit System, is the single public transportation service provider for all of Merced County. At present, there are three routes - M3, M4 and UC - that have stops adjacent to the proposed Project and two more - M1 and M2 - that stop approximately 0.5 miles from the Project. Retention of the existing and expansion of future transit routes is dependent on transit ridership demand and available funding.

Route M3 runs on "G" Street and Yosemite Avenue adjacent to the proposed Project. Its nearest stops to the Project are located along the south side of Yosemite Avenue approximately 100 feet east of "G" Street and along the west side of "G" Street approximately 1,600 feet north of Yosemite Avenue. Route M3 operates at 30-minute intervals on weekdays and 90-minute intervals on weekends. This route provides a direct connection to County Administration, Police Department, Target, Walmart, Merced Mall, Merced College, Social Security, Mercy Hospital, and Raley's.

Route M4 runs on "G" Street and Yosemite Avenue adjacent to the proposed Project. Its nearest stops to the Project are located along the south side of Yosemite Avenue approximately 100 feet east of "G" Street and along the west side of "G" Street approximately 1,600 feet north of Yosemite Avenue. Route M4 operates at 30-minute intervals on weekdays and 90-minute intervals on weekends. This route provides a direct connection to East Campus, Savemart, Raley's, Merced College, Mercy Medical, Health Department, Family Care Clinic, Fairgrounds, and Mental Health.

Route UC runs on "G" Street adjacent to the proposed Project. Its nearest stop to the Project is located along the west side of "G" Street approximately 1,600 feet north of Yosemite Avenue. Route UC operates at 40-minute intervals on weekdays and weekends. This route provides a direct connection to Merced College, Amtrak, Mercy Medical, Promenade, UC Merced, Social Security, Downtown area, and University Medical.

Trip Generation

Trip generation rates for the proposed Project were obtained from the 10th Edition of the Trip Generation Manual published by the Institute of Transportation Engineers (ITE). Table II presents the trip generation for the proposed Project site with trip generation rates for Medical-Dental Office Building, Hotel, Fast-Food Restaurant with Drive-Through Window, Gasoline/Service Station with Convenience Market, Shopping Center, High-Turnover (Sit-Down) Restaurant, General Office Building, Day Care Center, and Apartments. The Project buildout is estimated to generate a maximum of 13,160 daily trips, 1,009 AM peak hour trips and 1,059 PM peak hour trips (before internal capture and pass-by rate reductions are taken into account).

JLB also analyzed the estimated maximum trip generation of a prior version of the Project Site Plan. Due to a lack of secured users for the site, the exact square footages of the pads shown on the latest Project Site Plan may differ. This TIA provides an analysis of potential traffic impacts based on the best knowledge available to the developer as to the mix of land uses and square footages that can be accommodated within the Project site. Table III presents the trip generation for a prior Project Site Plan with trip generation rates for Medical Dental Office Building, Hotel, Fast-Food Restaurant with Drive-Through Window, Gasoline/Service Station with Convenience Market, Shopping Center, Coffee/Donut Shop with Drive-Through Window, Automated Car Wash, General Office Building, Day Care Center and Apartments. At buildout, the prior Project Site Plan is anticipated to generate a maximum of 13,741 daily trips, 1,092 AM peak hour trips and 1,074 PM peak hour trips (before internal capture and pass-by rate reductions are taken into account).

Compared to the prior Project Site Plan, the latest Project Site Plan is estimated to yield less traffic by 581 daily trips, 83 AM peak hour trips and 15 PM peak hour trips (before internal capture and pass-by rate reductions are taken into account). Therefore, in order to provide a conservative analysis of the Project's traffic impacts, this TIA assumed the trip generation of the prior Project Site Plan. The difference in trip generation is summarized in Table IV.

Table II: Project Trip Generation based on Latest Project Site Plan

Land Use (ITE Code)	*Size*	*Unit*	*Daily*		*AM (7-9) Peak Hour*						*PM (4-6) Peak Hour*					
			Rate	*Total*	*Trip Rate*	*In %*	*Out %*	*In*	*Out*	*Total*	*Trip Rate*	*In %*	*Out %*	*In*	*Out*	*Total*
Medical-Dental Office Building (720)	66.465	k.s.f.	34.8	2,313	2.78	78	22	144	41	185	3.46	28	72	64	166	230
Hotel (310)	128	o.r.	8.36	1,070	0.47	59	41	35	25	60	0.60	51	49	39	38	77
Fast-Food Restaurant with Drive-Through Window (934)	11.458	k.s.f.	470.95	5,396	40.19	51	49	235	225	460	32.67	52	48	194	180	374
Gasoline/Service Station with Convenience Market (945)	12	f.p.	205.36	2,464	12.47	51	49	77	73	150	13.99	51	49	86	82	168
Shopping Center (820)	18.222	k.s.f.	37.75	688	0.94	62	38	11	6	17	3.81	48	52	33	36	69
High-Turnover (Sit-Down) Restaurant (932)	5.000	k.s.f.	112.18	561	9.94	55	45	28	22	50	9.77	62	38	30	19	49
General Office Building (710)	12.000	k.s.f.	9.74	117	1.16	86	14	12	2	14	1.15	16	84	2	12	14
Day Care Center (565)	4.804	k.s.f.	47.62	229	11.00	53	47	28	25	53	11.12	47	53	25	28	53
Apartment (220)	44	d.u.	7.32	322	0.46	23	77	5	15	20	0.56	63	37	16	9	25
Total Project Trip Generation				**13,160**				**575**	**434**	**1,009**				**489**	**570**	**1,059**

Note: * = Daily Rate assumed to be 12 times the PM peak hour rate. AM peak hour rate assumed to be the equal to the PM peak hour rate.
k.s.f. = Thousand Square Feet
o.r. = Occupied Rooms
f.p. = Fueling Positions
d.u. = Dwelling Units

Table III: Project Trip Generation based on Prior Project Site Plan

Land Use (ITE Code)	Size	Unit	Daily		AM (7-9) Peak Hour						PM (4-6) Peak Hour					
			Rate	Total	Trip Rate	In %	Out %	In	Out	Total	Trip Rate	In %	Out %	In	Out	Total
Medical-Dental Office Building (720)	66.465	k.s.f.	34.8	2,313	2.78	78	22	144	41	185	3.46	28	72	64	166	230
Hotel (310)	107	o.r.	8.36	895	0.47	59	41	30	20	50	0.60	51	49	33	31	64
Fast-Food Restaurant with Drive-Through Window (934)	9.066	k.s.f.	470.95	4,270	40.19	51	49	186	178	364	32.67	52	48	154	142	296
Gasoline/Service Station with Convenience Market (945)	12	f.p.	205.36	2,464	12.47	51	49	77	73	150	13.99	51	49	86	82	168
Shopping Center (820)	20.896	k.s.f.	37.75	789	0.94	62	38	12	8	20	3.81	48	52	38	42	80
Coffee/Donut Shop with Drive-Through Window (937)	2.016	k.s.f.	820.38	1,654	88.99	51	49	91	88	179	43.38	50	50	44	43	87
Automated Car Wash (948)*	3.866	k.s.f.	170.40	659	14.20	50	50	28	27	55	14.20	50	50	28	27	55
General Office Building (710)	12.000	k.s.f.	9.74	117	1.16	86	14	12	2	14	1.15	16	84	2	12	14
Day Care Center (565)	4.804	k.s.f.	47.62	229	11.00	53	47	28	25	53	11.12	47	53	25	28	53
Apartment (220)	48	d.u.	7.32	351	0.46	23	77	5	17	22	0.56	63	37	17	10	27
Total Project Trip Generation				**13,741**				**613**	**479**	**1,092**				**491**	**583**	**1,074**

Note: * = Daily Rate assumed to be 12 times the PM peak hour rate. AM peak hour rate assumed to be the equal to the PM peak hour rate.
k.s.f. = Thousand Square Feet
o.r. = Occupied Rooms
f.p. = Fueling Positions
d.u. = Dwelling Units

Table IV: Difference in Trip Generation

	Daily	AM (7-9) Peak Hour			PM (4-6) Peak Hour		
	Total	In	Out	Total	In	Out	Total
Latest Project Site Plan	13,160	575	434	1,009	489	570	1,059
Prior Project Site Plan	13,741	613	479	1,092	491	583	1,074
Difference in Trip Generation	**-581**	**-38**	**-45**	**-83**	**-2**	**-13**	**-15**

The TIA takes into account reductions in trip generation as a result of internal capture. Internal capture rates were prepared pursuant to the NCHRP 684 Internal Trip Capture procedure. Internal capture trip reductions are applied to account for the interaction between various individual land uses assumed for the trip generation of the Project. For example, in a mixed-use development containing offices and shops, trips made by the office workers to the shops within the site are defined as internal, or captured, trips within the site. Table V presents the results of the internal capture trip analysis for the proposed Project. Captured trips are presented as negative numbers because they are deducted from the total number of trips presented in Table III. Table VI presents the adjusted trip generation resulting from the internal capture reductions.

Table V: Internal Capture Trip Reductions

Land Use (ITE Code)	*Daily*	*AM (7-9) Peak Hour*			*PM (4-6) Peak Hour*		
	Total	*In*	*Out*	*Total*	*In*	*Out*	*Total*
Medical-Dental Office Building (720)	-370	-30	-37	-67	-8	-14	-22
Hotel (310)	-143	-1	-10	-11	-19	-12	-31
Fast-Food Restaurant with Drive-Through Window (934)	-683	-29	-20	-49	-40	-64	-104
Gasoline/Service Station with Convenience Market (945)	-394	-19	-15	-34	-54	-34	-88
Shopping Center (820)	-126	-3	-2	-5	-24	-18	-42
Coffee/Donut Shop with Drive-Through Window (937)	-265	-14	-10	-24	-12	-20	-32
Automated Car Wash (948)	0	0	0	0	0	0	0
General Office Building (710)	-19	-3	-2	-5	0	-1	-1
Day Care Center (565)	0	0	0	0	0	0	0
Apartment (220)	56	0	-3	-3	-12	-6	-18
Internal Capture Trip Reductions	**-2,056**	**-99**	**-99**	**-198**	**-169**	**-169**	**-338**

Table VI: Project Trip Generation Adjusted for Internal Capture Trip Reductions

Land Use (ITE Code)	*Daily*	*AM (7-9) Peak Hour*			*PM (4-6) Peak Hour*		
	Total	*In*	*Out*	*Total*	*In*	*Out*	*Total*
Medical-Dental Office Building (720)	1,943	114	4	118	56	152	208
Hotel (310)	752	29	10	39	14	19	33
Fast-Food Restaurant with Drive-Through Window (934)	3,587	157	158	315	114	78	192
Gasoline/Service Station with Convenience Market (945)	2,070	58	58	116	32	48	80
Shopping Center (820)	663	9	6	15	14	24	38
Coffee/Donut Shop with Drive-Through Window (937)	1,389	77	78	155	32	23	55
Automated Car Wash (948)	659	28	27	55	28	27	55
General Office Building (710)	98	9	0	9	2	11	13
Day Care Center (565)	229	28	25	53	25	28	53
Apartment (220)	295	5	14	19	5	4	9
Adjusted Project Trip Generation	**11,685**	**514**	**380**	**894**	**322**	**414**	**736**

In addition to internal capture trip reductions, the TIA also applies pass-by trip reductions pursuant to the 3rd Edition of the Trip Generation handbook published by ITE. Pass-by trip reductions are applied to vehicles already on the road that the Project may attract. Table VII presents the results of the pass-by trip reduction analysis for the proposed Project. Pass-by trips are presented as negative numbers because they are deducted from the total number of trips presented in Table VI. Table VIII presents the adjusted trip generation resulting from the pass-by trip reductions. As can be seen from Table VIII, the maximum net new trips that the Project is estimated to generate are 10,096 daily trips, 664 AM peak hour trips and 582 PM peak hour trips.

Table VII: Pass-By Trip Reductions

Land Use (ITE Code)	*Daily*	*AM (7-9) Peak Hour*			*PM (4-6) Peak Hour*		
	Total	*In*	*Out*	*Total*	*In*	*Out*	*Total*
Medical-Dental Office Building (720)	0	0	0	0	0	0	0
Hotel (310)	0	0	0	0	0	0	0
Fast-Food Restaurant with Drive-Through Window (934)	-897	-77	-77	-154	-48	-48	-96
Gasoline/Service Station with Convenience Market (945)	-580	-38	-38	-76	-22	-22	-44
Shopping Center (820)	-113	0	0	0	-7	-7	-14
Coffee/Donut Shop with Drive-Through Window (937)	0	0	0	0	0	0	0
Automated Car Wash (948)	0	0	0	0	0	0	0
General Office Building (710)	0	0	0	0	0	0	0
Day Care Center (565)	0	0	0	0	0	0	0
Apartment (220)	0	0	0	0	0	0	0
Pass-By Trip Reductions	**-1,589**	**-115**	**-115**	**-230**	**-77**	**-77**	**-154**

Table VIII: Project Trip Generation Adjusted for Pass-By Trip Reductions

Land Use (ITE Code)	*Daily*	*AM (7-9) Peak Hour*			*PM (4-6) Peak Hour*		
	Total	*In*	*Out*	*Total*	*In*	*Out*	*Total*
Medical-Dental Office Building (720)	1,943	114	4	118	56	152	208
Hotel (310)	752	29	10	39	14	19	33
Fast-Food Restaurant with Drive-Through Window (934)	3,587	80	81	161	66	30	96
Gasoline/Service Station with Convenience Market (945)	2,070	20	20	40	10	26	36
Shopping Center (820)	663	9	6	15	7	17	24
Coffee/Donut Shop with Drive-Through Window (937)	1,389	77	78	155	32	23	55
Automated Car Wash (948)	659	28	27	55	28	27	55
General Office Building (710)	98	9	0	9	2	11	13
Day Care Center (565)	229	28	25	53	25	28	53
Apartment (220)	295	5	14	19	5	4	9
Adjusted Project Trip Generation	**10,096**	**399**	**265**	**664**	**245**	**337**	**582**

Trip Distribution

The Total Project Only Trips to the study intersections were developed based on existing travel patterns, the existing roadway network, engineering judgment, data provided by the developer, knowledge of the study area, existing residential and commercial densities, and the Merced Vision 2030 General Plan Transportation and Circulation Element in the vicinity of the Project. Figure 4 presents the Project Only Trips to the study intersections, Figure 5 presents the Project's Pass-By Trip Reductions at the study intersections, and Figure 6 presents the Net New Project Only Trips at the study intersections.

Safe Routes to School

Kindergarten through 8th grade students from the Project will be served by the Merced City School District (MCSD) and 9th through 12th grade students will be served by the Merced Union High School District (MUHSD). The MUHSD provides transportation for students who live in excess of an established radius (2.5 miles) zone.

Based on attendance area boundaries at the time of the preparation of this TIA, elementary school students would attend Peterson Elementary School located on the southwest corner of the intersection of Paulson Road and Donna Drive. Peterson Elementary School is located 0.56 and 0.65 miles from the nearest and farthest future home on the Project. Therefore, it is anticipated that the majority of elementary school students will need to walk, bike or be driven to school.

The most direct path from the Project to the Peterson Elementary School campus would begin from the intersection of Sandpiper Avenue and Yosemite Avenue. The intersection of Sandpiper Avenue and Yosemite Avenue will be controlled by a one-way stop on Sandpiper Avenue and contained a marked crosswalk on the southbound approach. Students would proceed to cross Sandpiper Avenue along the north side of Yosemite Avenue and continue east along the north side of Yosemite Avenue toward the intersection of Mansionette Drive and Yosemite Avenue. The intersection of Mansionette Drive and Yosemite Avenue is signalized and contains crosswalks on the westbound and southbound approaches. Students would proceed to cross Mansionette Drive and Yosemite Avenue and continue east along the south side of Yosemite Avenue toward the intersection of Cordova Avenue and Yosemite Avenue. The intersection of Cordova Avenue and Yosemite Avenue is controlled by a one-way stop on Cordova Avenue and contains unmarked crosswalks. Students may proceed south along the west side of Cordova Avenue toward the intersection of Cordova Avenue and Donna Drive. The intersection of Cordova Avenue and Donna Drive is controlled by an all-way stop and contains marked crosswalks on all approaches. Students may proceed to cross Donna Drive along the west side of Cordova Avenue and then cross Cordova Avenue along the south side of Donna Drive. Students may then continue east along the south side of Donna Drive until reaching the nearest campus entrance.

Based on attendance area boundaries at the time of the preparation of this TIA, middle school students would attend Cruickshank Middle School located north of the intersection of Mansionette Drive and Mercy Avenue. Cruickshank Middle School is located 0.30 and 0.39 miles from the nearest and farthest future home on the Project. Therefore, it is anticipated that the majority of middle school students will need to walk, bike or be driven to school.

The most direct path from the Project to the Cruickshank Middle School campus would begin from the intersection of Sandpiper Avenue and Mercy Avenue. The intersection of Sandpiper Avenue and Mercy Avenue is controlled by a two-way stop on Sandpiper Avenue and the driveway located immediately to the north and contains a marked crosswalk on the northbound approach. Students would proceed to cross Sandpiper Avenue along the south side of Mercy Avenue and continue east along the south side of Mercy Avenue toward the intersection of Mansionette Drive and Mercy Avenue. The intersection of Mansionette Drive and Mercy Avenue is controlled by an all-way stop and contains high-visibility crosswalks across the

westbound and northbound approaches. Students may proceed to cross Mansionette Drive and Yosemite Avenue to reach the nearest campus entrance.

Based on attendance area boundaries at the time of the preparation of this TIA, high school students would attend El Capitan High School located on the southwest corner of the intersection of "G" Street and Farmland Road. El Capitan High School is located 2.17 and 2.25 miles from the nearest and farthest future home on the Project. Therefore, it is anticipated that most students will need to walk, bike or be driven to school. Based on the distance between the Project site and the high school campus, it is estimated that the majority of high school students will be driven to school.

The most direct path from the Project to the El Capitan High School campus would begin from the intersection of "G" Street and Mercy Avenue. The intersection of "G" Street and Mercy Avenue is signalized and contains marked crosswalks across the eastbound, westbound and southbound approaches. Students would proceed to cross Mercy Avenue and "G" Street. Although there is a lack of walkways along the west side of "G" Street, students would proceed north along the west side of "G" Street toward the intersection of "G" Street and Cardella Road. The intersection of "G" Street and Cardella Road is signalized and contains unmarked crosswalks on all approaches. Students would proceed to cross Cardella Road, however, to do so it would be necessary to add a pedestrian phase across the west approach of Cardella Road. Students would then continue north along the west side of "G" Street toward the intersection of "G" Street and Noble Drive. The intersection of "G" Street and Noble Drive is controlled by a one-way stop on Noble Drive and contains a marked crosswalk on the eastbound approach. Students would proceed to cross Noble Drive and continue north along the west side of "G" Street toward the intersection of "G" Street and Foothill Drive. The intersection of "G" Street and Foothill Drive is signalized and contains a marked crosswalk on the eastbound approach. Students would proceed to cross Foothill Drive and continue north along the west side of "G" Street toward the intersection of "G" Street and Mandeville Lane. The intersection of "G" Street and Mandeville Lane is controlled by a one-way stop on Mandeville Lane and contains a marked crosswalk on the eastbound approach. Students would proceed to cross Mandeville Lane and continue north along the west side of "G" Street toward the intersection of "G" Street and Bellevue Road. The intersection of "G" Street and Bellevue Road is signalized and contains marked crosswalks across the eastbound and southbound approaches. Students would proceed to cross Bellevue Road and continue north along the west side of "G" Street toward the intersection of "G" Street and Farmland Avenue to reach the nearest campus entrance.

Since the walking distance between the Project and the El Capitan High School campus is approximately 2.25 miles and there is a lack of walkways, it is anticipated that a large percentage of high school students will likely be driven to school. To promote alternative modes of transportation to El Capitan High School, it is recommended that the MUHSD work with the City of Merced and County of Merced to implement a Safe Routes to School plan and to seek grant funding to help build walkways where they are lacking within a 2.5-mile radius of the existing school site.

Vehicle Miles Traveled

Senate Bill (SB) 743 (Steinberg 2013) was approved by then Governor Brown on September 27, 2013. SB 743 created a path to revise the definition of transportation impacts according to CEQA. The revised CEQA Guidelines requiring VMT analysis became effective December 28, 2018; however, agencies have until July 1, 2020 to finalize their local guidelines on VMT analysis. Therefore, as agencies finalize their VMT analysis protocol, CEQA transportation impacts are to be determined using LOS of intersections and roadways, which is a measure of congestion. The intent of SB 743 is to align CEQA transportation study methodology with and promote the statewide goals and policies of reducing vehicle miles traveled (VMT) and greenhouse gases (GHG). Three objectives of SB 743 related to development are to reduce GHG, diversify land uses, and focus on creating a multimodal environment. It is hoped that this will spur infill development.

The Technical Advisory on Evaluating Transportation Impacts in CEQA published by the Governor's Office of Planning and Research (OPR) dated December 2018 acknowledges that lead agencies should set criteria and thresholds for VMT and transportation impacts. However, the Technical Advisory provides guidance to residential, office and retail uses, citing these as the most common land uses. Beyond these three land uses, there is no guidance provided for any other land use type. The Technical Advisory also notes that land uses may have a less than significant impact if located within low VMT areas of a region. Screening maps are suggested for this determination.

VMT is simply the product of a number of trips and the length of those trips. The first step in a VMT analysis is to establish the baseline average VMT, which requires the definition of a region. The Technical Advisory states that existing VMT may be measured at the regional or city level. On the contrary, the Technical Advisory also notes that VMT analyses should not be truncated due to "jurisdictional or other boundaries."

As the Project is within a defined service area, it is likely that the Project would not add VMT per capita of service population to the region. Additionally, the Project site is located near transit services and pedestrian and bicycle networks. In the near future, the City may wish to coordinate with the regional agency (MCAG) and develop criteria and thresholds that balance the direction from OPR and the goals of sB743 with the vision for Merced and economic development, affordable housing, access to goods and services, and overall quality of life.

Traffic Signal Warrants

Peak hour traffic signal warrants, as appropriate, were prepared for the Existing plus Project Traffic Conditions scenario. These warrants are found in Appendix I. These warrants were prepared pursuant to the CA MUTCD guidelines for the preparation of traffic signal warrants. Under this scenario, the intersection of "G" Street and Project Driveway 1 is projected to satisfy the peak hour signal warrant during both peak periods. Based on the signal warrant and engineering judgment, signalization of this intersection is recommended.

Results of Existing plus Project Level of Service Analysis

The Existing plus Project Traffic Conditions scenario assumes the same roadway geometrics and traffic controls as those assumed in the Existing Traffic Conditions scenario. Figure 7 illustrates the Existing plus Project turning movement volumes, intersection geometrics and traffic controls. LOS worksheets for the Existing plus Project Traffic Conditions scenario are provided in Appendix E. Table IX presents a summary of the Existing plus Project peak hour LOS at the study intersections.

Under this scenario, the intersection of "G" Street and Project Driveway 1 is projected to exceed its LOS threshold during the AM peak period only. To improve the LOS at this intersection, it is recommended that the following improvements be implemented.

- "G" Street / Project Driveway 1
  - Signalize the intersection with protective left-turn phasing in all directions.

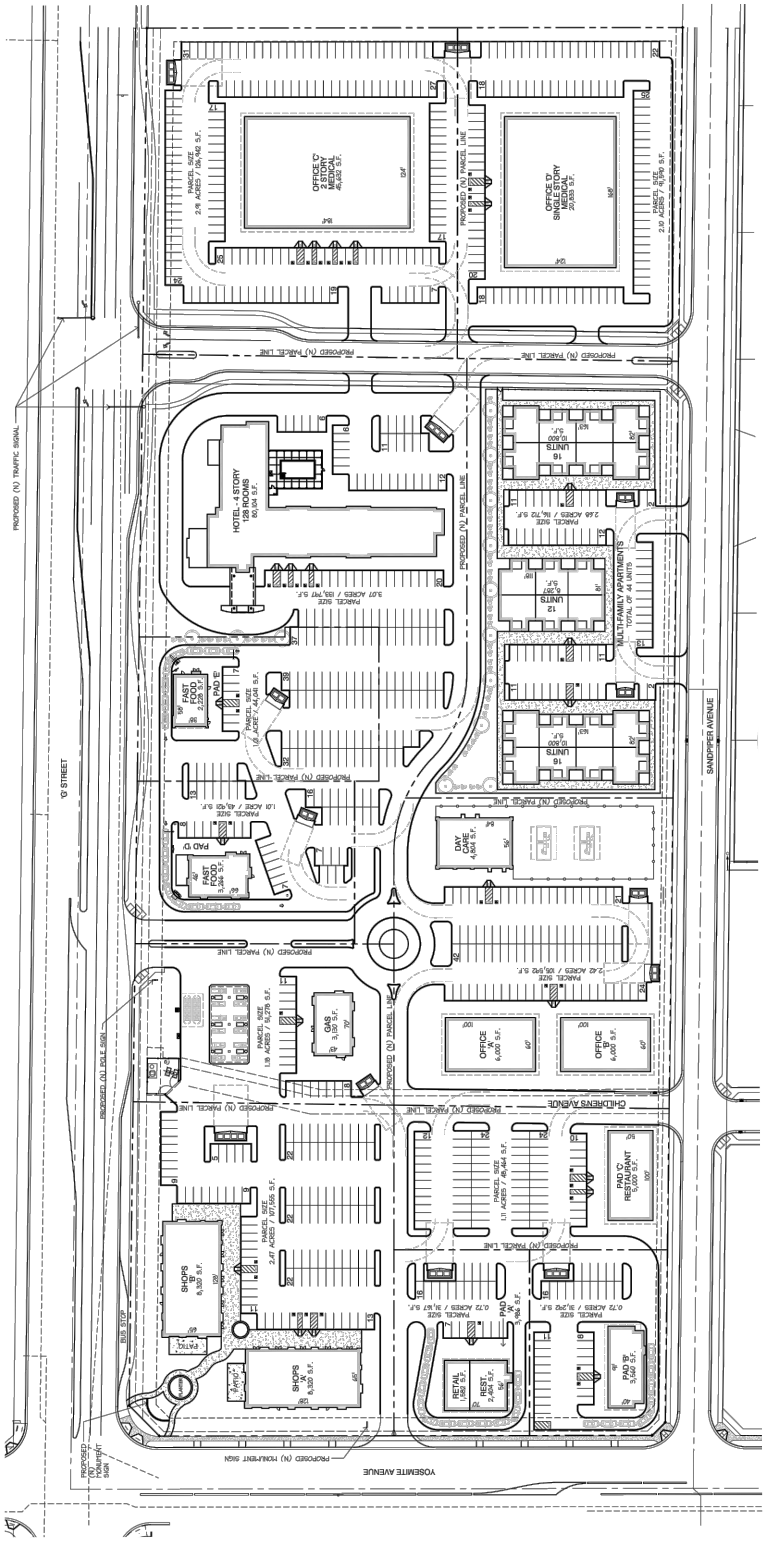
Table IX: Existing plus Project Intersection LOS Results

ID	*Intersection*	*Intersection Control*	*AM (7-9) Peak Hour*		*PM (4-6) Peak Hour*	
			Average Delay (sec/veh)	*LOS*	*Average Delay (sec/veh)*	*LOS*
1	"G" Street / Mercy Avenue	Signalized	35.4	D	27.9	C
2	Sandpiper Avenue / Mercy Avenue	Two-Way Stop	24.9	C	15.0	C
3	"G" Street / Project Driveway 1	One-Way Stop	**51.9**	**F**	31.7	D
		Signalized (Mitigated)	15.3	B	8.9	A
4	"G" Street / Project Driveway 2	One-Way Stop	12.2	B	10.7	B
5	"G" Street / Yosemite Avenue	Signalized	46.4	D	47.1	D
6	Sandpiper Avenue / Yosemite Avenue	One-Way Stop	11.4	B	12.2	B
7	Mansionette Drive / Yosemite Avenue	Signalized	8.2	A	6.7	A
8	Paulson Road / Yosemite Avenue	Signalized	46.2	D	31.0	C

Note: LOS = Level of Service based on average delay on signalized intersections and All-Way STOP Controls.
LOS for two-way STOP controlled intersections are based on the worst approach/movement of the minor street.

Merced Mixed-Use Development - City of Merced
Project Site Plan

Figure 3



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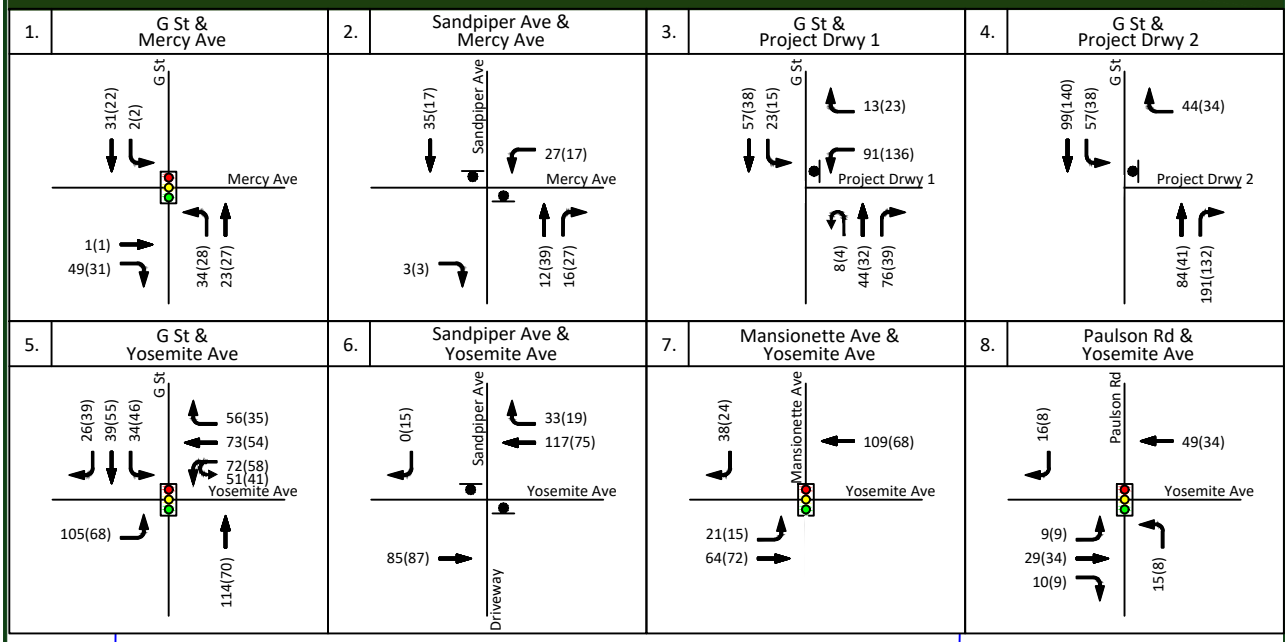
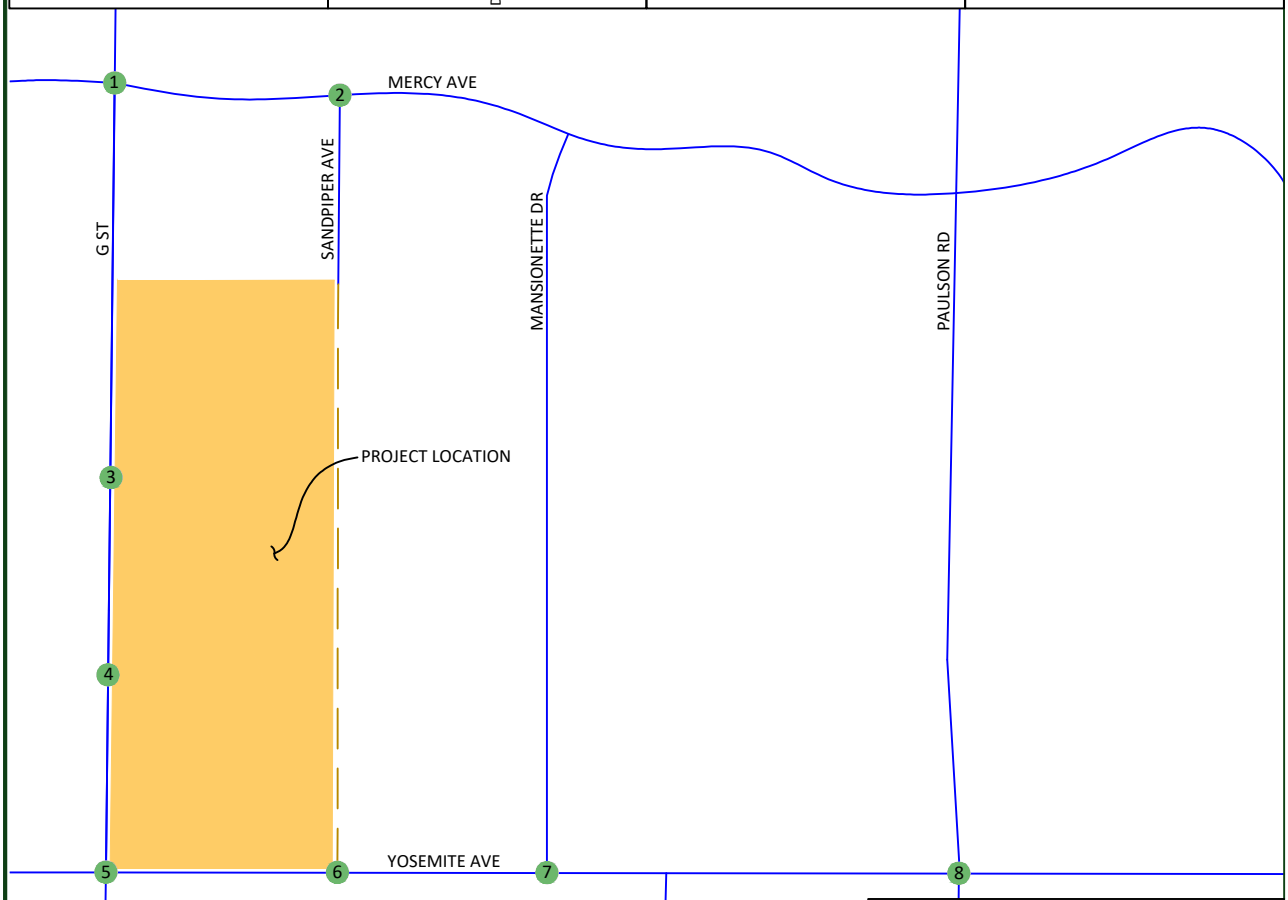
Not To Scale

Merced Mixed-Use Development - City of Merced
Total Project Only Trips

Figure 4





LEGEND

- # = STUDY INTERSECTION
- = FUTURE ROADWAY
- XX = AM PROJECT ONLY TRIPS
- (XX) = PM PROJECT ONLY TRIPS
- = SIGNALIZED INTERSECTION
- = STOP SIGN

N

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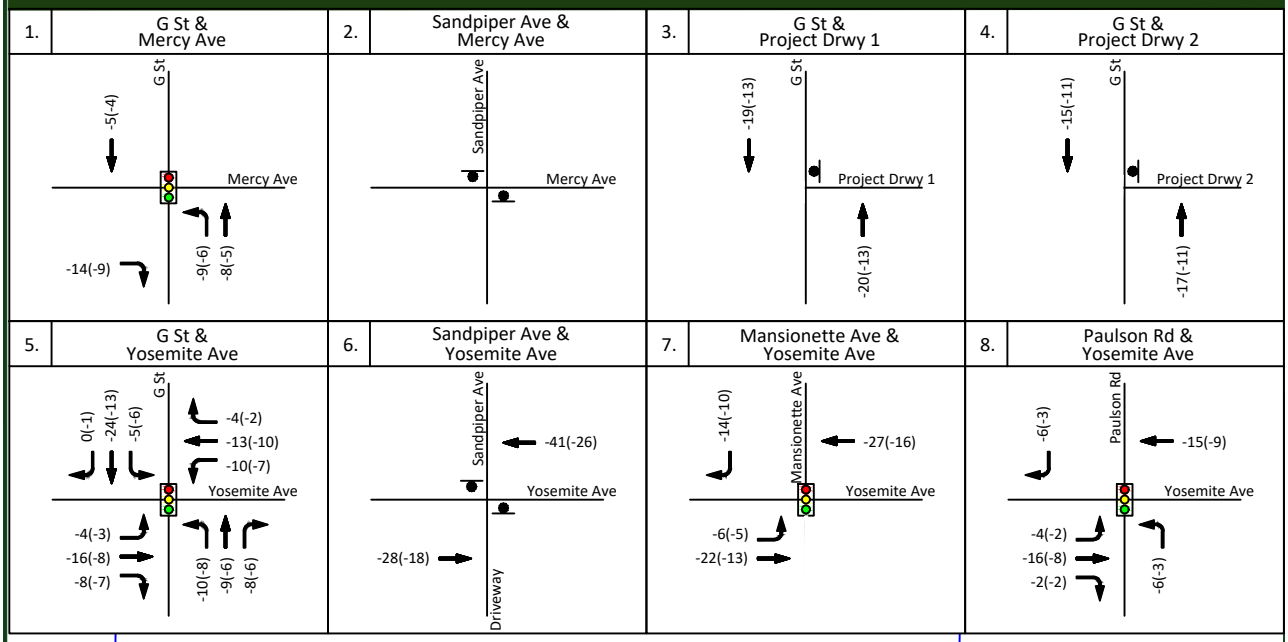
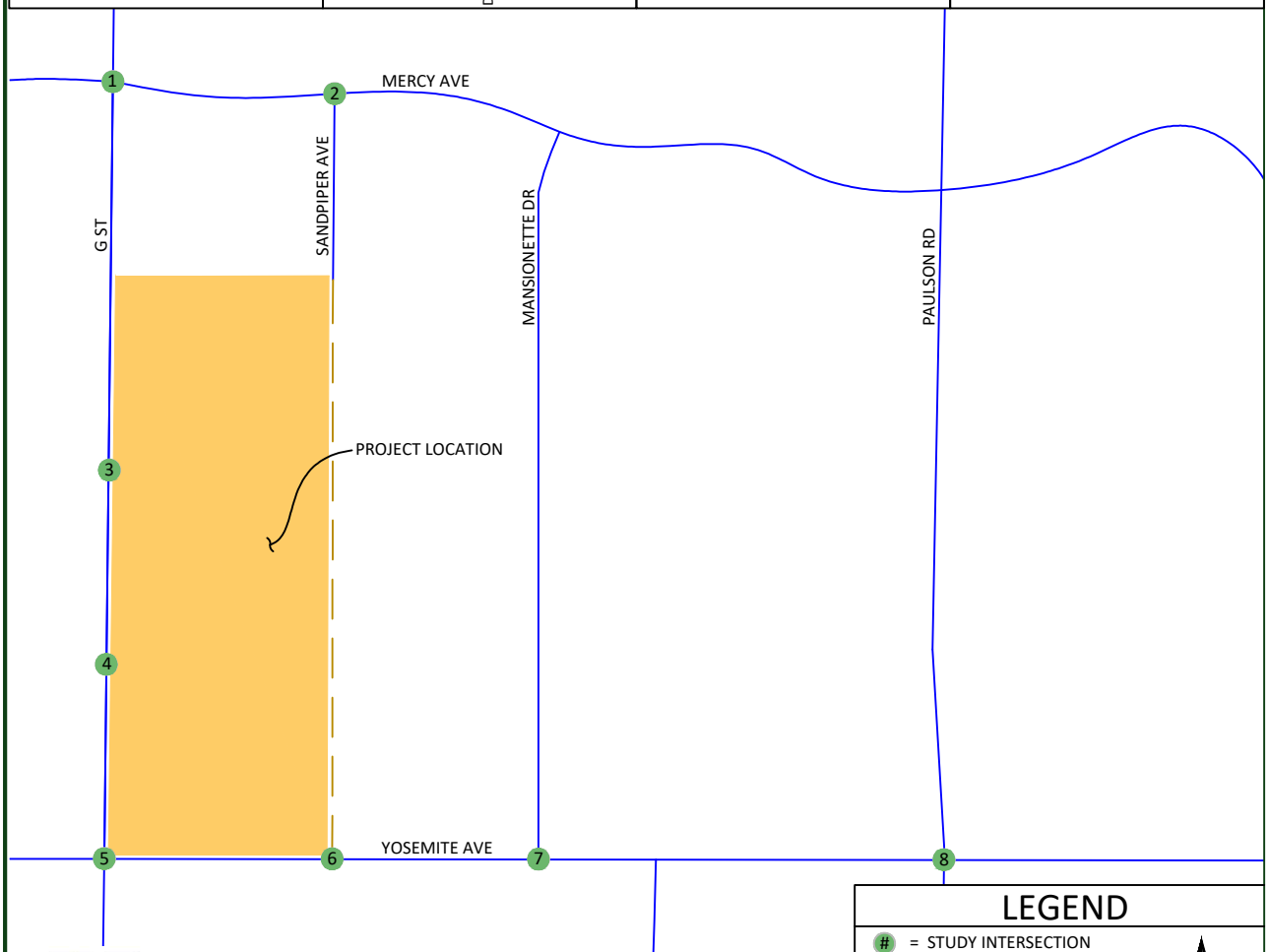
Merced Mixed-Use Development - City of Merced
Pass-By Trip Reductions

Figure 5





LEGEND

- # = STUDY INTERSECTION
- = FUTURE ROADWAY
- XX = AM PASS BY TRIPS
- (XX) = PM PASS BY TRIPS
- = SIGNALIZED INTERSECTION
- = STOP SIGN

N

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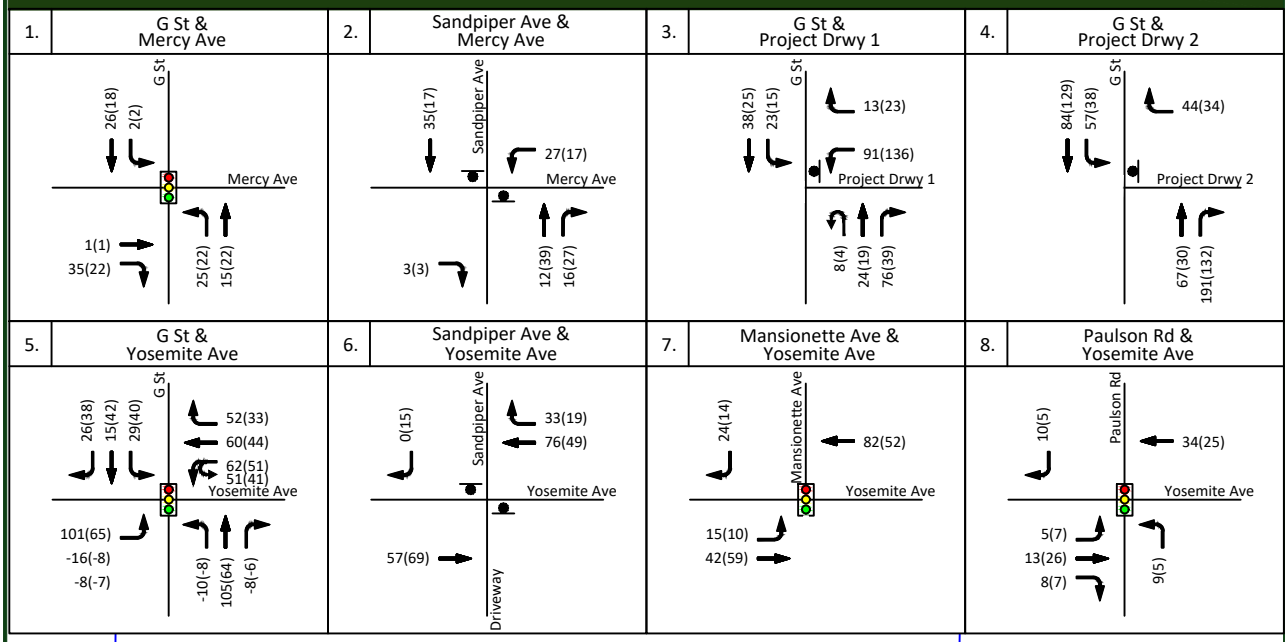
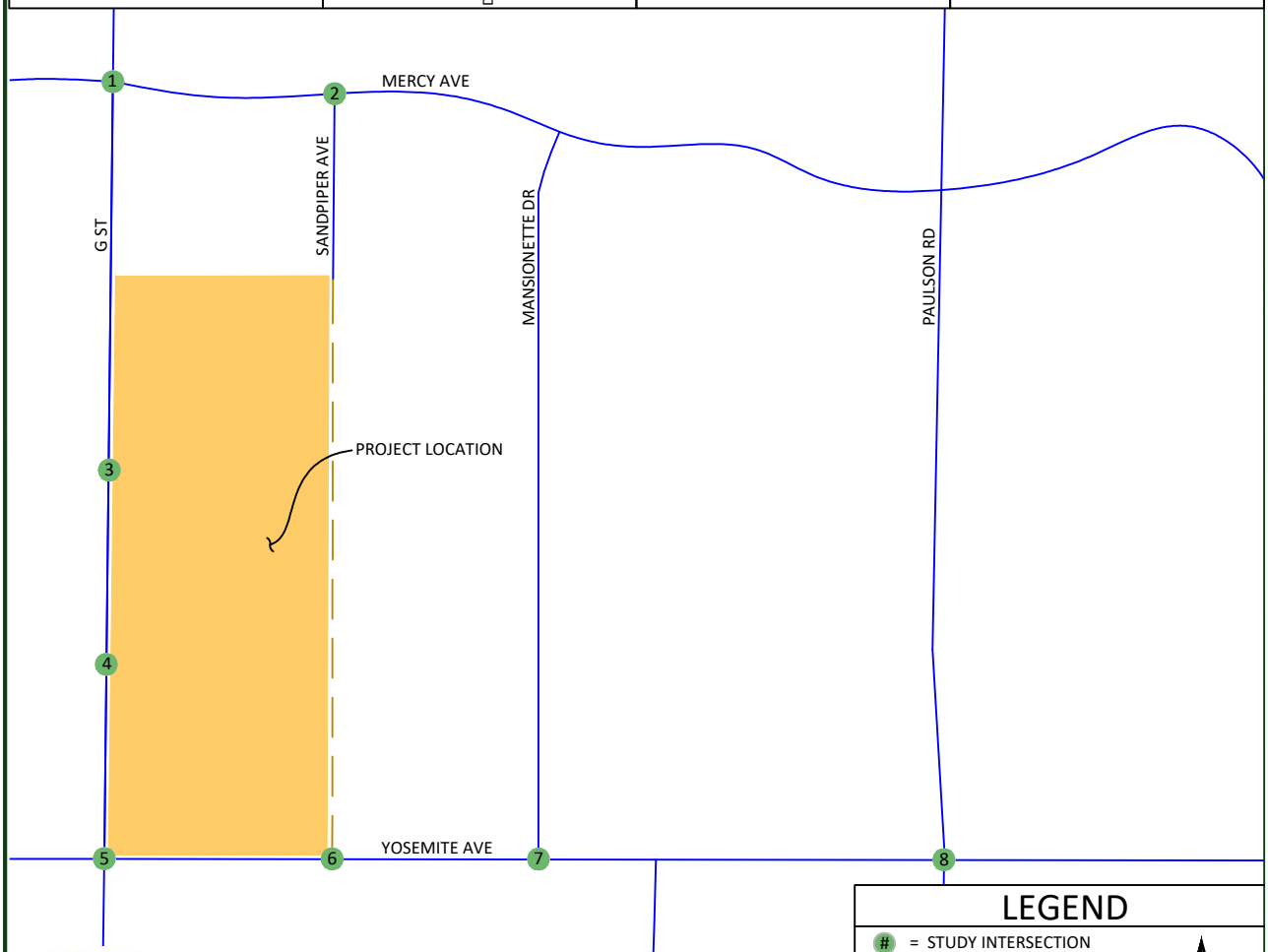
Merced Mixed-Use Development - City of Merced
Net New Project Only Trips

Figure 6





LEGEND

- # = STUDY INTERSECTION
- = FUTURE ROADWAY
- XX = AM NET NEW PROJECT TRIPS
- (XX) = PM NET NEW PROJECT TRIPS
- = SIGNALIZED INTERSECTION
- = STOP SIGN

N

Not To Scale

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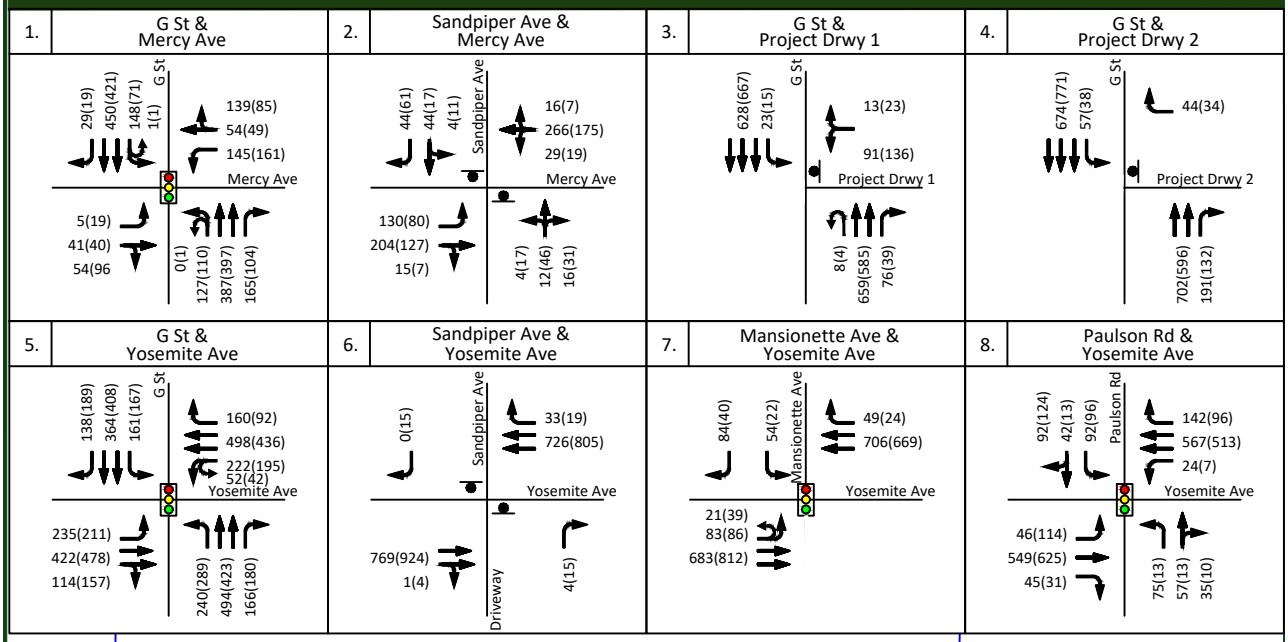
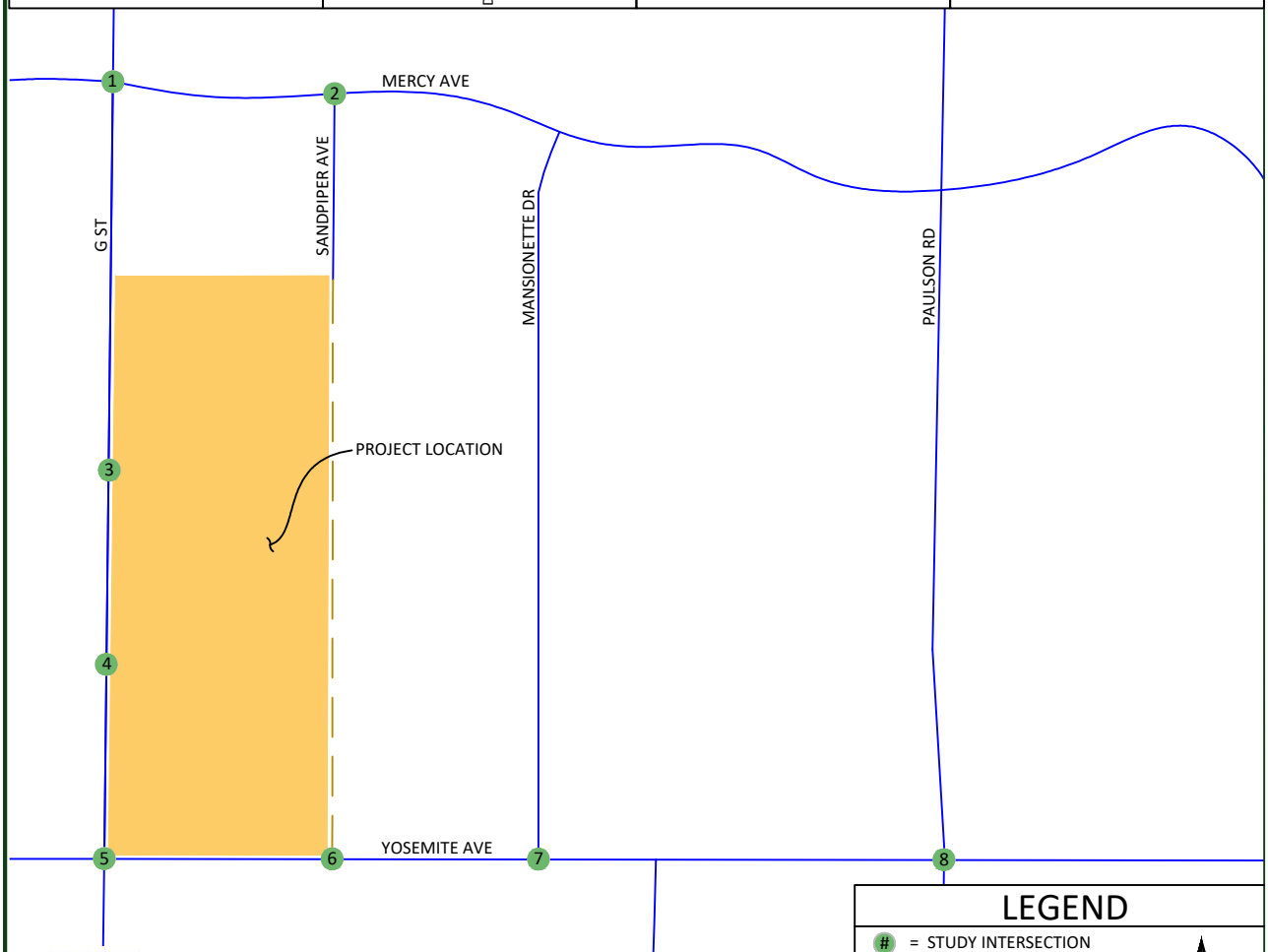
Merced Mixed-Use Development - City of Merced
Existing plus Project - Traffic Volumes, Geometrics and Controls

Figure 7





LEGEND

- # = STUDY INTERSECTION
- = FUTURE ROADWAY
- XX = AM PEAK HOUR TRIPS
- (XX) = PM PEAK HOUR TRIPS
- = SIGNALIZED INTERSECTION
- = STOP SIGN

N

Not To Scale

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Near Term plus Project Traffic Conditions

Description of Approved and Pipeline Projects

Approved and Pipeline Projects consist of developments that are either under construction, built but not fully occupied, are not built but have final site development review (SDR) approval, or for which the lead agency or responsible agencies have knowledge of. The City of Merced, County of Merced and Caltrans staff were consulted throughout the preparation of this TIA regarding approved and/or known projects that could potentially impact the study intersections. JLB staff conducted a reconnaissance of the surrounding area to confirm the Near Term Projects. Subsequently, it was agreed that the projects listed in Table X were approved, near approval, or in the pipeline within the proximity of the Project site.

The trip generation listed in Table X is that which is anticipated to be added to the streets and highways by these projects between the time of the preparation of this report and five years after build-out of the Project estimated to be year 2025. As shown in Table X, the total trip generation for the Near Term Projects by year 2025 is 76,956 daily trips, 4,228 AM peak hour trips and 7,565 PM peak hour trips. Figure 8 illustrates the location of the approved, near approval, or pipeline projects and their combined trip assignment to the study intersections under the Near Term plus Project Traffic Conditions scenario.

Table X: Near Term Projects' Trip Generation

Approved Project Location	*Approved or Pipeline Project Name*	*Daily Trips*	*AM Peak Hour*	*PM Peak Hour*
A	Bellevue Ranch 2, Phases 3 & 4[1]	274	21	29
B	Bellevue Ranch North, Village 23[1]	548	43	57
C	Bellevue Ranch West, Villages 17 & 18[1]	2,351	184	247
D	Bellevue Ranch East, Village 15 (Phase I) (portion of)[1]	66	5	7
E	Bellevue Ranch East, Village 14 (Phase 2) (portion of)[1]	94	7	10
F	Bellevue Ranch West, Village 12[1]	2,284	179	240
G	Bellevue Ranch West, Village 10 (portion of)[1]	972	76	102
H	Bellevue Ranch East, Village 8 (Phase I) (portion of)[1]	104	8	11
I	Bellevue Ranch East, Village 8 (Phase 2)[1]	85	7	9
J	Bright Development[1]	1,586	124	166
K	Regency Court Apartments[1]	1,318	83	101
L	Bellevue Ranch East, Lot Q (portion of)[1]	198	16	21
M	Bellevue Ranch East, Village 7 (portion of)[1]	104	8	11
N	Bellevue Ranch West, Village 5 (portion of)[1]	689	54	72
O	Bellevue Ranch West, Village 4 (portion of)[1]	727	57	76
P	Bellevue Ranch West, Village 3 (portion of)[1]	2,058	161	216
Q	Bellevue Ranch West, Village 2 (portion of)[1]	1,576	124	165
R	Latana Estates South, Phase I (portion of)[1]	566	44	59
S	Terrazzo[1]	661	52	69
T	Shadow Creek at Campus Pointe (portion of)[1]	142	11	15
U	Cottages at El Redondo (portion of)[1]	755	59	79
V	Northview Medical Offices[1]	2,312	185	230

Note: 1 = Trip Generation prepared by JLB Traffic Engineering, Inc. based on readily available information
2 = Trip Generation based on LSA Associates, Inc. Traffic Impact Analysis Report

Table X: Near Term Projects' Trip Generation (cont.)

Approved Project Location	*Approved or Pipeline Project Name*	*Daily Trips*	*AM Peak Hour*	*PM Peak Hour*
W	Mansionette Estates, Phase 5[1]	189	15	20
X	University Village Merced Annexation[1]	3,926	190	337
Y	Yosemite & McKee Commercial Center[1]	2,341	58	236
Z	Moraga (Phase I) (portion of)[1]	1,992	156	209
AA	University Village Merced – Lake[1]	1,896	110	151
AB	Campus Vista Unit 2 (portion of)[1]	217	17	23
AC	Camelot 2[1]	179	14	19
AD	Summer Creek[1]	1,331	104	140
AE	Bianchi/Norcal Cajun Annexation[1]	1,586	39	160
AF	Merced Mall Expansion & Redevelopment (Alt. 1)[2]	4,892	47	367
AG	Pro-Lube/Car Wash/Sandwich Shop[1]	593	15	60
AH	Prime Shine[1]	944	79	79
AI	El Capitan Hotel[1]	836	47	60
AJ	Sierra Vista (Phases 2 &3) (portion of)[1]	623	49	65
AK	Tuscany East[1]	444	35	47
AL	PG&E Regional Utility Center[1]	636	111	109
AM	Gas Station/Convenience Market/Car Wash[1]	242	6	24
AN	Towne Place Suites[1]	727	41	52
AO	Salazar[1]	387	30	41
AP	Summer Field[1]	2,379	186	249
AQ	The Crossing at River Oaks[1]	2,615	205	274
AR	Cypress Terrace (Phases 6 & 7)[1]	2,454	192	257
AS	Sandcastle (Phase 3) [1]	859	67	90
AT	Cypress Terrace East (portion of)[1]	746	58	78
AU	Merced Gateway Center[1]	20,964	587	2,081
AV	Mission Ranch (portion of)[1]	1,246	98	131
AW	Stoneridge South[1]	2,242	164	214
Total Approved and Pipeline Project Trips		**76,956**	**4,228**	**7,565**

Note: 1 = Trip Generation prepared by JLB Traffic Engineering, Inc. based on readily available information
2 = Trip Generation based on LSA Associates, Inc. Traffic Impact Analysis Report

Traffic Signal Warrants

Peak hour traffic signal warrants, as appropriate, were prepared for the Near Term plus Project Traffic Conditions scenario. These warrants are found in Appendix I. These warrants were prepared pursuant to the CA MUTCD guidelines for the preparation of traffic signal warrants. Under this scenario, the intersection of "G" Street and Project Driveway 1 is projected to satisfy the peak hour signal warrant during both peak periods. Based on the signal warrant and engineering judgment, signalization of this intersection is recommended.

Results of Near Term plus Project Level of Service Analysis

The Near Term plus Project Traffic Conditions scenario assumes the same roadway geometrics and traffic controls as those assumed in the Existing Traffic Conditions scenario. Figure 9 illustrates the Near Term plus Project turning movement volumes, intersection geometrics and traffic controls. LOS worksheets for the Near Term plus Project Traffic Conditions scenario are provided in Appendix F. Table XI presents a summary of the Near Term plus Project peak hour LOS at the study intersections.

Under this scenario, the intersections of Sandpiper Avenue and Mercy Avenue and "G" Street and Project Driveway 1 are projected to exceed their LOS threshold during one or both peak periods. To improve the LOS at these intersections, it is recommended that the following improvements be implemented.

- Sandpiper Avenue / Mercy Avenue
  - Stripe a northbound left-turn lane; and
  - Modify the northbound left-through-right lane to a through-right lane.
- "G" Street / Project Driveway 1
  - Signalize the intersection with protective left-turn phasing in all directions.

Between the Existing Traffic Conditions and the Near Term plus Project Traffic Conditions, the Project accounts for 11.6 percent of the daily trips, 13.6 percent of the AM peak hour trips and 7.1 percent of the PM peak hour trips of growth in traffic while the rest can be attributable to the Near Term Projects. Therefore, one can deduce that the majority of the mitigation measures presented under this scenario may not be necessary immediately upon completion of the proposed Project. However, if all of the Near Term Projects are completed close to the completion date of the proposed Project, the detailed recommended improvements presented under this scenario may be necessary in order to improve the LOS to the City's target threshold.

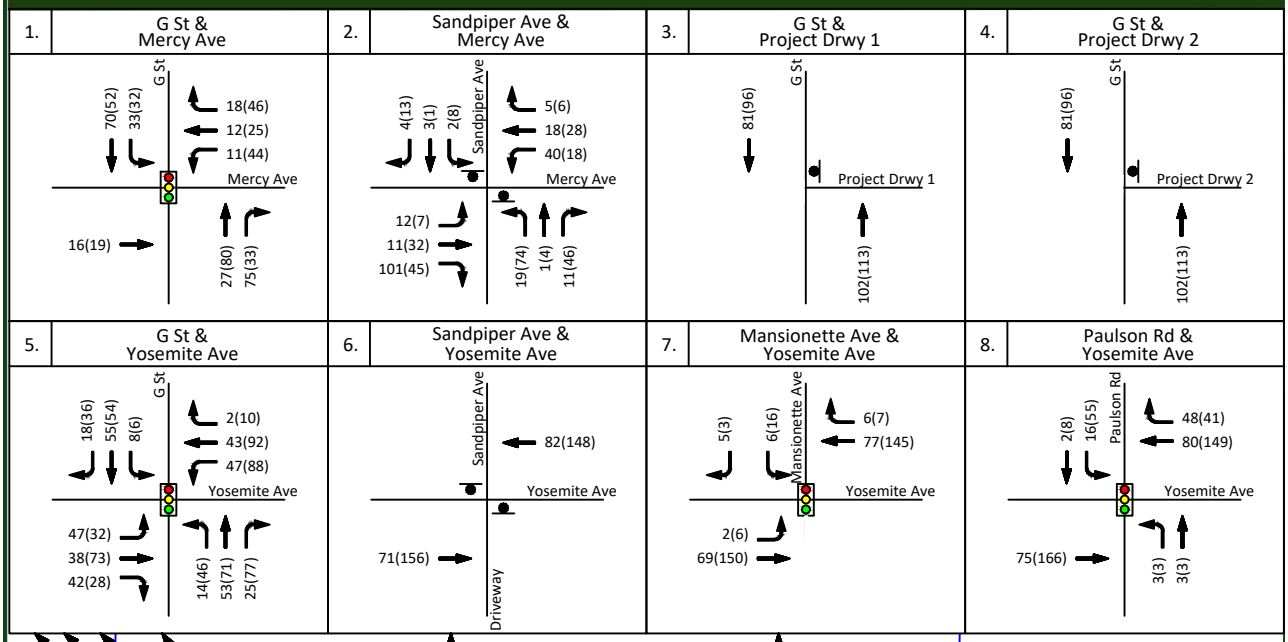
Table XI: Near Term plus Project Intersection LOS Results

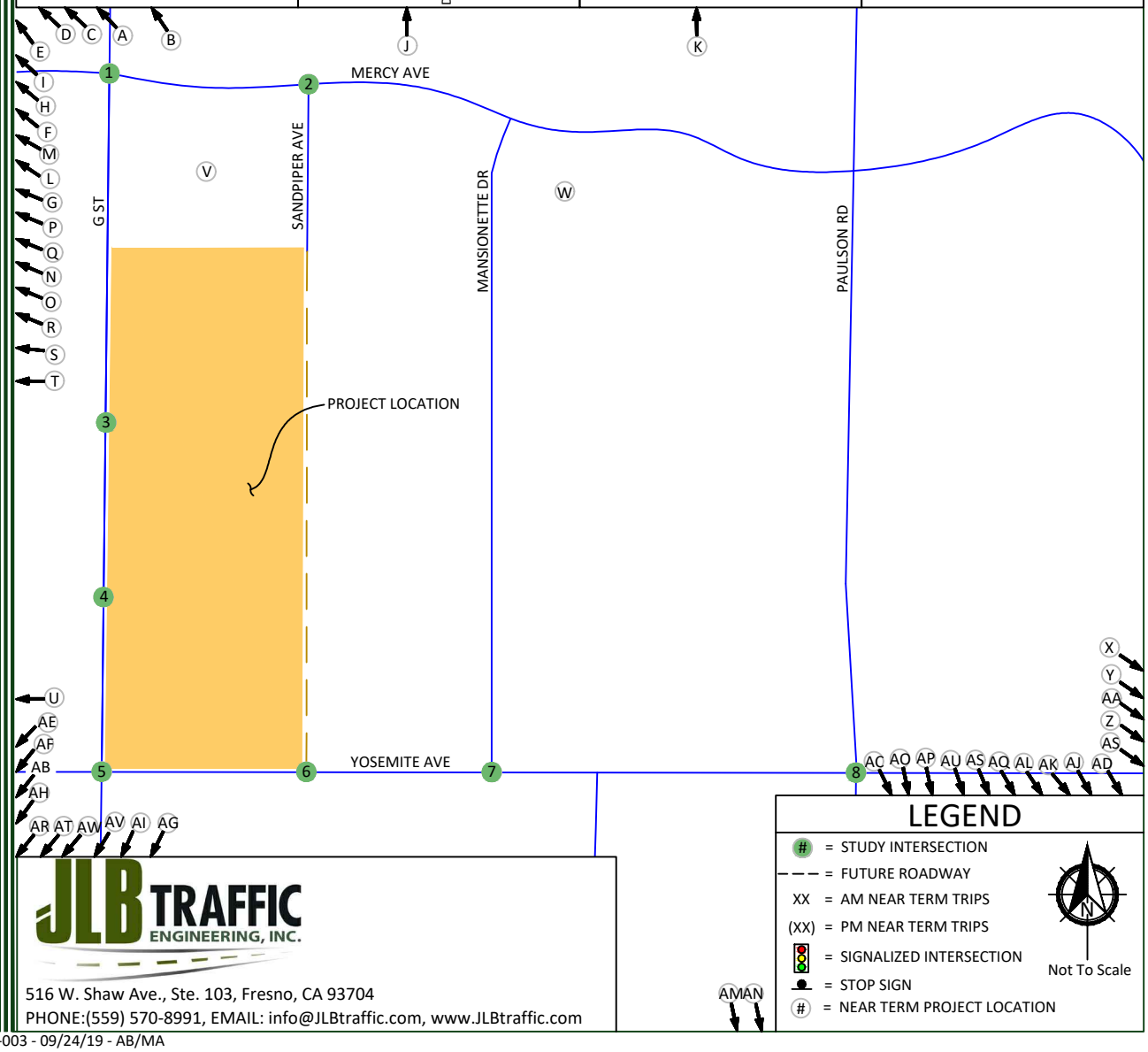
ID	*Intersection*	*Intersection Control*	*AM (7-9) Peak Hour*		*PM (4-6) Peak Hour*	
			Average Delay (sec/veh)	*LOS*	*Average Delay (sec/veh)*	*LOS*
1	"G" Street / Mercy Avenue	Signalized	26.9	C	32.3	C
2	Sandpiper Avenue / Mercy Avenue	Two-Way Stop	**39.8**	**E**	34.9	D
		Two-Way Stop (Mitigated)	32.0	D	20.8	C
3	"G" Street / Project Driveway 1	One-Way Stop	**46.1**	**E**	**49.0**	**E**
		Signalized (Mitigated)	10.7	B	8.0	A
4	"G" Street / Project Driveway 2	One-Way Stop	12.2	B	11.3	B
5	"G" Street / Yosemite Avenue	Signalized	53.3	D	59.5	E
6	Sandpiper Avenue / Yosemite Avenue	One-Way Stop	11.8	B	13.1	B
7	Mansionette Drive / Yosemite Avenue	Signalized	10.1	B	8.2	A
8	Paulson Road / Yosemite Avenue	Signalized	47.5	D	41.4	D

Note: LOS = Level of Service based on average delay on signalized intersections and All-Way STOP Controls.
LOS for two-way STOP controlled intersections are based on the worst approach/movement of the minor street.

Merced Mixed-Use Development - City of Merced
Near Term Projects' Trip Assignment

Figure 8





LEGEND

- # = STUDY INTERSECTION
- = FUTURE ROADWAY
- XX = AM NEAR TERM TRIPS
- (XX) = PM NEAR TERM TRIPS
- = SIGNALIZED INTERSECTION
- = STOP SIGN
- # = NEAR TERM PROJECT LOCATION

N

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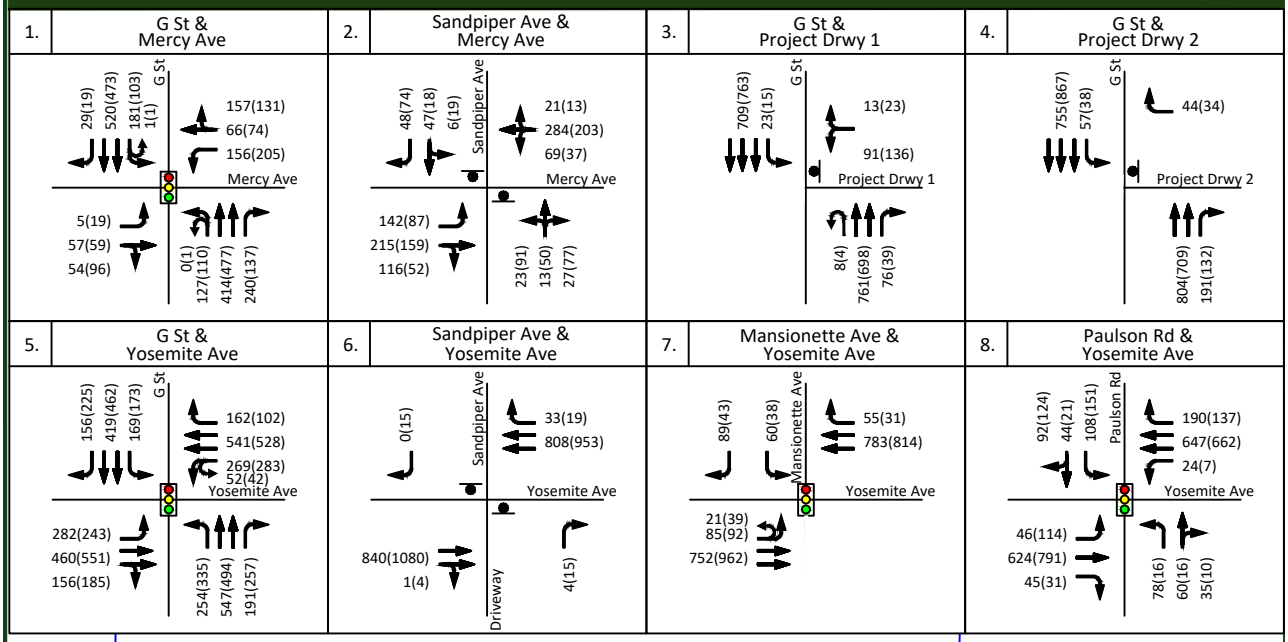
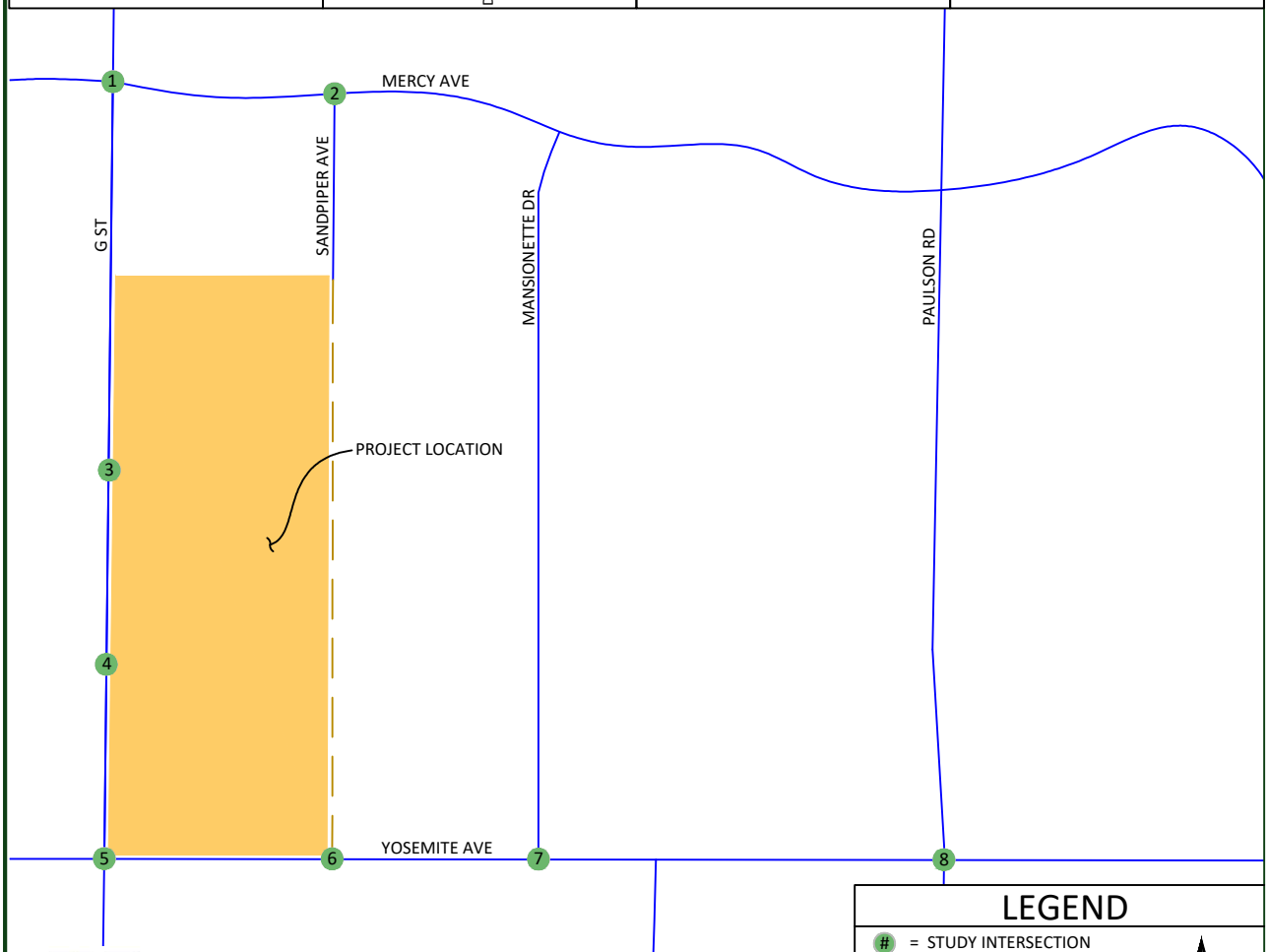
Merced Mixed-Use Development - City of Merced — Figure 9
Near Term plus Project - Traffic Volumes, Geometrics and Controls





LEGEND

- # = STUDY INTERSECTION
- = FUTURE ROADWAY
- XX = AM PEAK HOUR TRIPS
- (XX) = PM PEAK HOUR TRIPS
- = SIGNALIZED INTERSECTION
- = STOP SIGN

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Cumulative Year 2039 No Project Traffic Conditions

Traffic Signal Warrants

Peak hour traffic signal warrants, as appropriate, were prepared for the Cumulative Year 2039 No Project Traffic Conditions scenario. These warrants are found in Appendix I. These warrants were prepared pursuant to the CA MUTCD guidelines for the preparation of traffic signal warrants. Under this scenario, none of the unsignalized intersections are projected to satisfy the peak hour signal warrant during either peak period.

Results of Cumulative Year 2039 No Project Level of Service Analysis

The Cumulative Year 2039 No Project Traffic Conditions scenario assumes the same roadway geometrics and traffic controls as those assumed in the Existing Traffic Conditions scenario. Figure 10 illustrates the Cumulative Year 2039 No Project turning movement volumes, intersection geometrics and traffic controls. LOS worksheets for the Cumulative Year 2039 No Project Traffic Conditions scenario are provided in Appendix G. Table XII presents a summary of the Cumulative Year 2039 No Project peak hour LOS at the study intersections.

Under this scenario, the intersections of Sandpiper Avenue and Mercy Avenue, "G" Street and Yosemite Avenue, and Paulson Road and Yosemite Avenue are projected to exceed their LOS threshold during one or both peak periods. To improve the LOS at these intersections, it is recommended that the following improvements be considered for implementation by the City on a Project by Project assessment as cumulative impacts develop.

- Sandpiper Avenue / Mercy Avenue
  - For the intersection of Sandpiper Avenue and Mercy Avenue, two (2) options for improvement were considered. Option A consists of limiting access from Sandpiper Avenue and the driveway located immediately to the north to Mercy Avenue but maintaining the two-way stop control, while Option B consists of modifying the lane geometrics and implementing an all-way stop control. As can be seen from Table XII, both options provide for an acceptable LOS. However, Option A provides significantly lower delay during the AM peak period when compared to Option B. The recommended improvements for each option are described below.
    - Option A: Two-Way Stop
      - Stripe a westbound left-turn lane;
      - Modify the westbound left-through-right lane to a through-right lane;
      - Modify the northbound left-through-right lane to a right-turn lane; and
      - Remove the southbound left-through lane.
      - To accomplish this, it is recommended that a raised median island be implemented. With the introduction of the raised median island, northbound left-turns would need to be redirected. Northbound left-turning traffic from Sandpiper Avenue would need to either a) make a westbound right-turn lane onto "G" Street via a future driveway access and then proceed to make their desired movement at the intersection of "G" Street and Mercy Avenue or b) make a northbound left-turn at Mansionette Drive and Mercy Avenue,

proceed through the intersection of Sandpiper Avenue and Mercy Avenue and then proceed to make their desired movement at the intersection of "G" Street and Mercy Avenue. Furthermore, southbound left-turns from the driveway located immediately to the north would need to be redirected. Southbound left-turning traffic from the driveway located immediately to the north would need to use the driveway access located approximately 450 feet east of the Sandpiper alignment to make their desired movement.

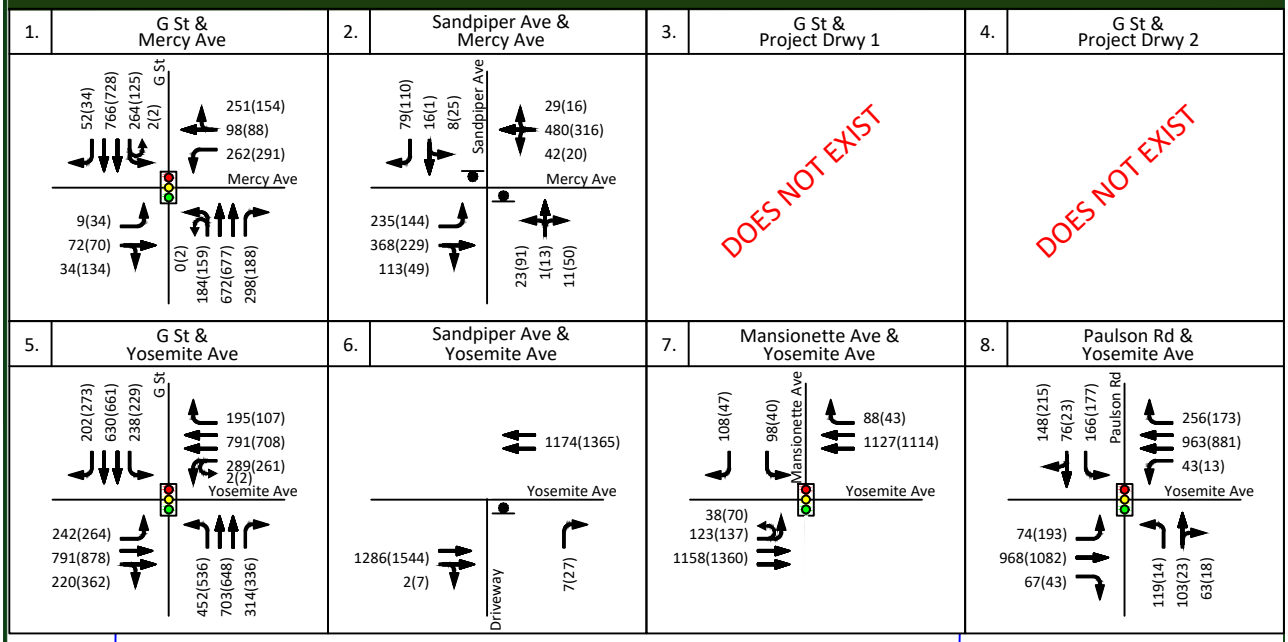
  - Option B: All-Way Stop
    - Add a westbound left-turn lane;
    - Modify the westbound left-through-right lane to a through-right lane;
    - Stripe a northbound left-turn;
    - Modify the northbound left-through-right lane to a through-right lane; and
    - Implement an all-way stop control.
- "G" Street / Yosemite Avenue
  - Add a second southbound left-turn lane; and
  - Modify the traffic signal to implement overlap phasing of the northbound right-turn with the westbound left-turn phase and prohibit westbound to eastbound U-turns.
- Paulson Road / Yosemite Avenue
  - Add an eastbound through-right lane with a receiving lane east of Paulson Road.

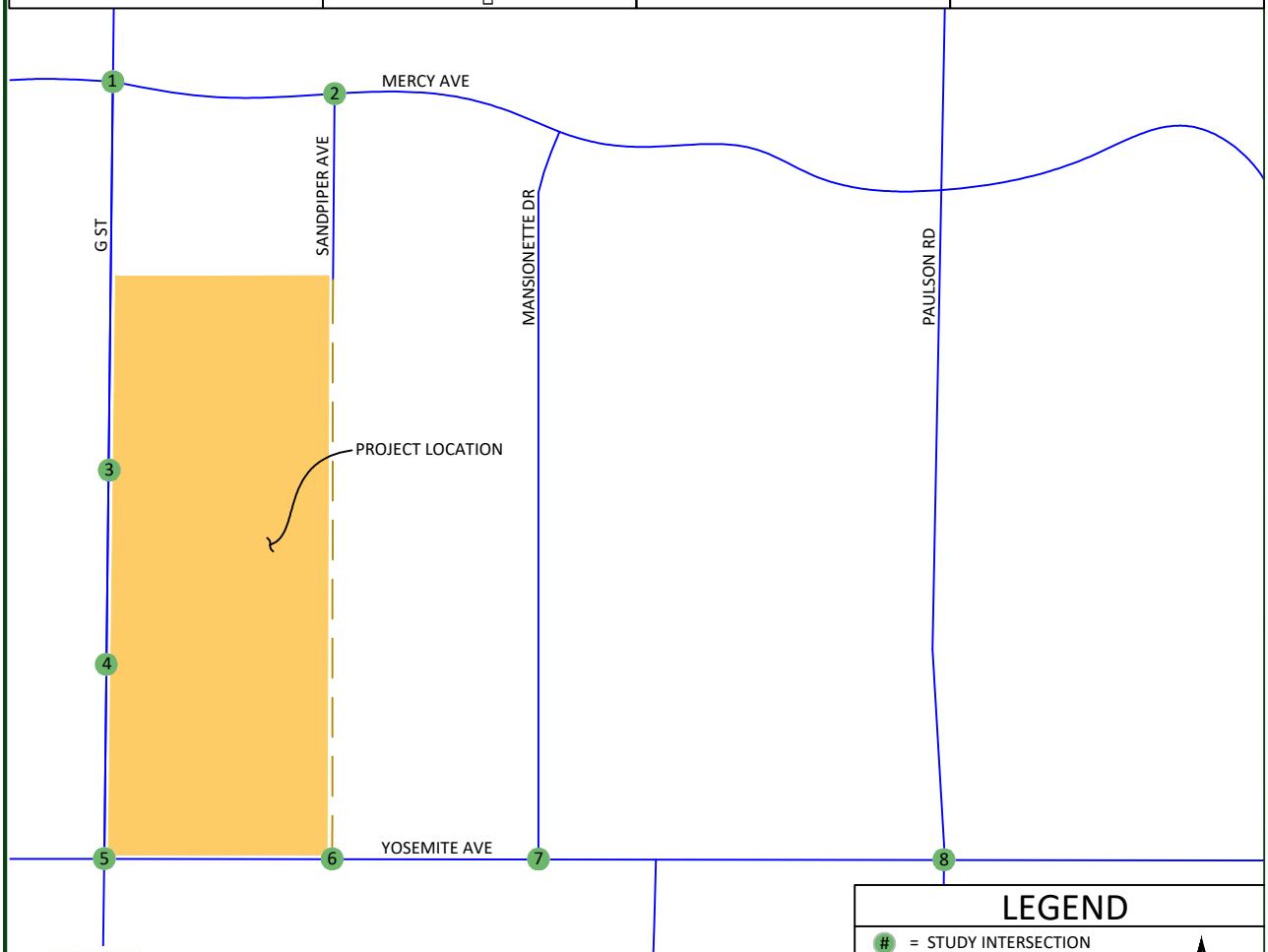
Table XII: Cumulative Year 2039 No Project Intersection LOS Results

ID	*Intersection*	*Intersection Control*	*AM (7-9) Peak Hour*		*PM (4-6) Peak Hour*	
			Average Delay (sec/veh)	*LOS*	*Average Delay (sec/veh)*	*LOS*
1	"G" Street / Mercy Avenue	Signalized	39.1	D	39.2	D
2	Sandpiper Avenue / Mercy Avenue	Two-Way Stop	**>120.0**	**F**	**72.5**	**F**
		Two-Way Stop (Improved – Option A)	13.2	B	12.1	B
		All-Way Stop (Improved – Option B)	30.7	D	14.9	B
3	"G" Street / Project Driveway 1	Does Not Exist	N/A	N/A	N/A	N/A
4	"G" Street / Project Driveway 2	Does Not Exist	N/A	N/A	N/A	N/A
5	"G" Street / Yosemite Avenue	Signalized	**92.2**	**F**	**112.8**	**F**
		Signalized (Improved)	72.2	E	94.4	F
6	Sandpiper Avenue / Yosemite Avenue	One-Way Stop	14.8	B	17.4	C
7	Mansionette Drive / Yosemite Avenue	Signalized	12.0	B	9.3	A
8	Paulson Road / Yosemite Avenue	Signalized	39.9	D	**97.0**	**F**
		Signalized (Improved)	42.1	D	40.7	D

Note: LOS = Level of Service based on average delay on signalized intersections and All-Way STOP Controls.
LOS for two-way STOP controlled intersections are based on the worst approach/movement of the minor street.

Merced Mixed-Use Development - City of Merced — Figure 10
Cumulative Year 2039 No Project - Traffic Volumes, Geometrics and Controls





LEGEND

- # = STUDY INTERSECTION
- = FUTURE ROADWAY
- XX = AM PEAK HOUR TRIPS
- (XX) = PM PEAK HOUR TRIPS
- = SIGNALIZED INTERSECTION
- = STOP SIGN

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Cumulative Year 2039 plus Project Traffic Conditions

Traffic Signal Warrants

Peak hour traffic signal warrants, as appropriate, were prepared for the Cumulative Year 2039 plus Project Traffic Conditions scenario. These warrants are found in Appendix I. These warrants were prepared pursuant to the CA MUTCD guidelines for the preparation of traffic signal warrants. Under this scenario, the intersection of "G" Street and Project Driveway 1 is projected to satisfy the peak hour signal warrant during both peak periods. Based on the signal warrant and engineering judgment, signalization of this intersection is recommended.

Results of Cumulative Year 2039 plus Project Level of Service Analysis

The Cumulative Year 2039 plus Project Traffic Conditions scenario assumes the same roadway geometrics and traffic controls as those assumed in the Existing Traffic Conditions scenario. Figure 11 illustrates the Cumulative Year 2039 plus Project turning movement volumes, intersection geometrics and traffic controls. LOS worksheets for the Cumulative Year 2039 plus Project Traffic Conditions scenario are provided in Appendix H. Table XIII presents a summary of the Cumulative Year 2039 plus Project peak hour LOS at the study intersections.

Under this scenario, the intersections of Sandpiper Avenue and Mercy Avenue, "G" Street and Project Driveway 1, "G" Street and Yosemite Avenue, and Paulson Road and Yosemite Avenue are projected to exceed their LOS threshold during one or both peak periods. To improve the LOS at these intersections, it is recommended that the following improvements be implemented.

- Sandpiper Avenue / Mercy Avenue
  - For the intersection of Sandpiper Avenue and Mercy Avenue, two (2) options for improvement were considered. Option A consists of limiting access from Sandpiper Avenue and the driveway located immediately to the north to Mercy Avenue but maintaining the two-way stop control, while Option B consists of modifying the lane geometrics and implementing an all-way stop control. As can be seen from Table XIII, Option A provides significantly lower delay during the AM peak period when compared to Option B. The recommended improvements for each option are described below.
    - Option A: Two-Way Stop
      - Stripe a westbound left-turn lane;
      - Modify the westbound left-through-right lane to a through-right lane;
      - Modify the northbound left-through-right lane to a right-turn lane; and
      - Remove the southbound left-through lane.
      - To accomplish this, it is recommended that a raised median island be implemented. With the introduction of the raised median island, northbound left-turns would need to be redirected. Northbound left-turning traffic from Sandpiper Avenue would need to either a) make a westbound right-turn lane onto "G" Street via a future driveway access and then proceed to make their desired movement at the intersection of "G" Street and Mercy Avenue or b) make a northbound left-turn at Mansionette Drive and Mercy Avenue,

proceed through the intersection of Sandpiper Avenue and Mercy Avenue and then proceed to make their desired movement at the intersection of "G" Street and Mercy Avenue. Furthermore, southbound left-turns from the driveway located immediately to the north would need to be redirected. Southbound left-turning traffic from the driveway located immediately to the north would need to use the driveway access located approximately 450 feet east of the Sandpiper alignment to make their desired movement.

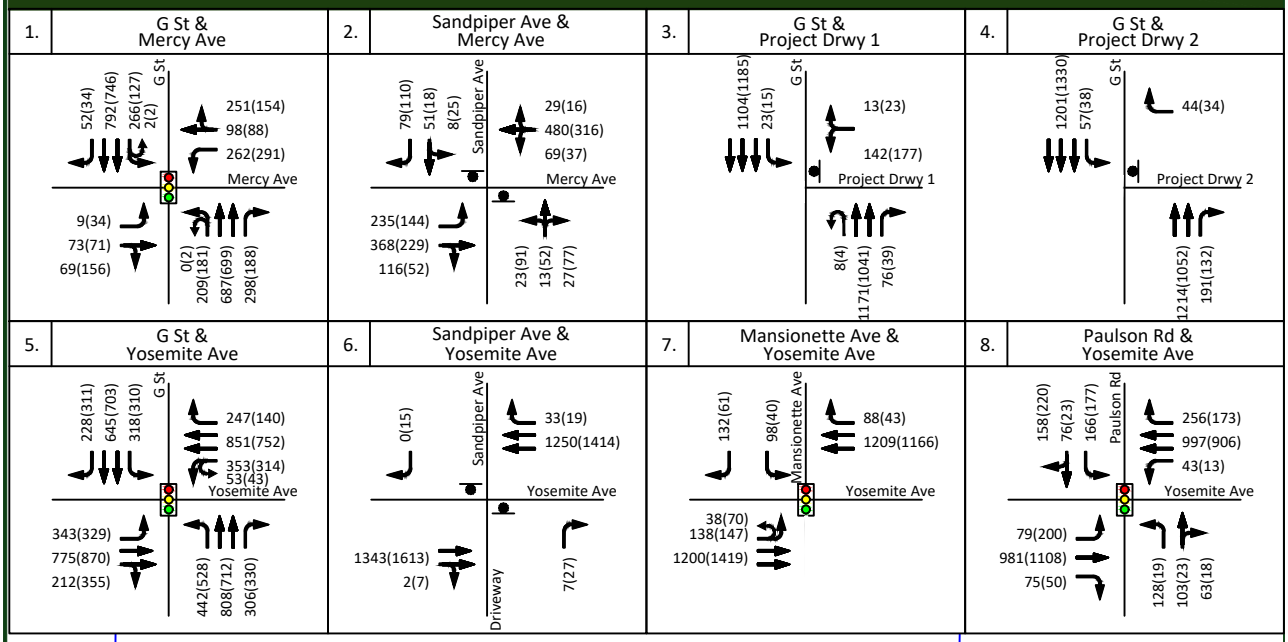
  - Option B: All-Way Stop
    - Stripe a westbound left-turn lane;
    - Modify the westbound left-through-right lane to a through-right lane;
    - Stripe a northbound left-turn;
    - Modify the northbound left-through-right lane to a through-right lane; and
    - Implement an all-way stop control.
- "G" Street / Project Driveway 1
  - Signalize the intersection with protective left-turn phasing in all directions.
- "G" Street / Yosemite Avenue
  - Add a second southbound left-turn lane; and
  - Modify the traffic signal to implement overlap phasing of the northbound right-turn with the westbound left-turn phase and prohibit westbound to eastbound U-turns.
- Paulson Road / Yosemite Avenue
  - Add an eastbound through-right lane with a receiving lane east of Paulson Road.

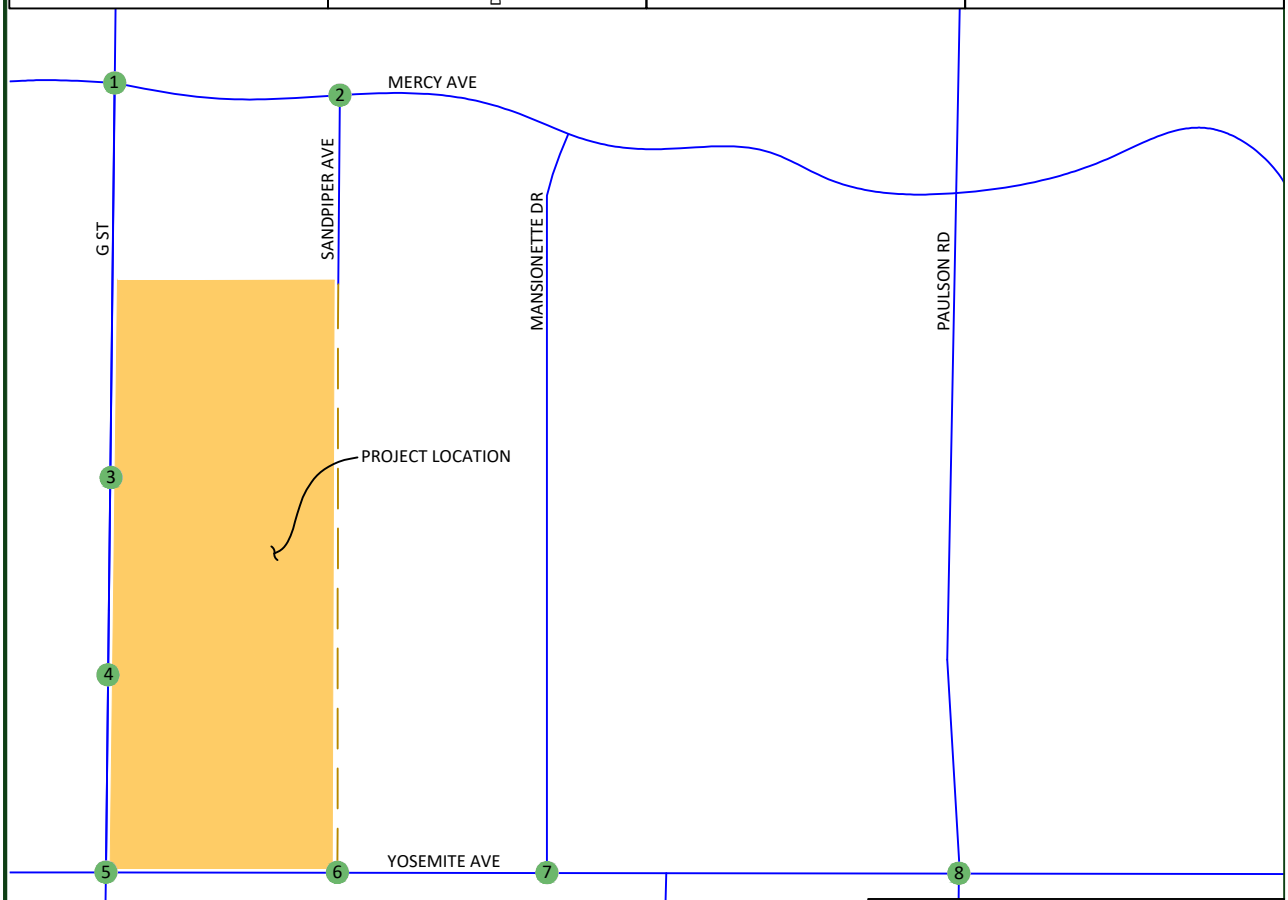
Table XIII: Cumulative Year 2039 plus Project Intersection LOS Results

ID	*Intersection*	*Intersection Control*	*AM (7-9) Peak Hour*		*PM (4-6) Peak Hour*	
			Average Delay (sec/veh)	*LOS*	*Average Delay (sec/veh)*	*LOS*
1	"G" Street / Mercy Avenue	Signalized	41.4	D	41.7	D
2	Sandpiper Avenue / Mercy Avenue	Two-Way Stop	**>120.0**	**F**	**>120.0**	**F**
		Two-Way Stop (Mitigated – Option A)	13.0	B	11.5	B
		Two-Way Stop (Mitigated – Option B)	**39.7**	**E**	16.5	C
3	"G" Street / Project Driveway 1	One-Way Stop	**>120.0**	**F**	**>120.0**	**F**
		Signalized (Mitigated)	11.1	B	12.4	B
4	"G" Street / Project Driveway 2	One-Way Stop	15.1	C	13.5	B
5	"G" Street / Yosemite Avenue	Signalized	**113.8**	**F**	**>120.0**	**F**
		Signalized (Mitigated)	79.8	E	108.4	F
6	Sandpiper Avenue / Yosemite Avenue	One-Way Stop	15.3	C	18.1	C
7	Mansionette Drive / Yosemite Avenue	Signalized	11.2	B	9.0	A
8	Paulson Road / Yosemite Avenue	Signalized	54.3	D	**60.9**	**E**
		Signalized (Mitigated)	42.4	D	40.5	D

Note: LOS = Level of Service based on average delay on signalized intersections and All-Way STOP Controls.
LOS for two-way STOP controlled intersections are based on the worst approach/movement of the minor street.

Merced Mixed-Use Development - City of Merced — Figure 11
Cumulative Year 2039 plus Project - Traffic Volumes, Geometrics and Controls





LEGEND

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- = FUTURE ROADWAY
- XX = AM PEAK HOUR TRIPS
- (XX) = PM PEAK HOUR TRIPS
- = SIGNALIZED INTERSECTION
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N

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Queuing Analysis

Table XIV provides a queue length summary for left-turn and right-turn lanes at the study intersections under all study scenarios. The queuing analyses for the study intersections are contained in the LOS worksheets for the respective scenarios. Appendix D contains the methodologies used to evaluate these intersections.

Queuing analyses were completed using Sim Traffic output information. Synchro provides both 50th and 95th percentile maximum queue lengths (in feet). According to the Synchro manual, "the 50th percentile maximum queue is the maximum back of queue on a typical cycle and the 95th percentile queue is the maximum back of queue with 95th percentile volumes." The queues shown on Table XIV are the 95th percentile queue lengths for the respective lane movements.

The Highway Design Manual (HDM) provides guidance for determining deceleration lengths for the left-turn and right-turn lanes based on design speeds. Per the HDM criteria, "tapers for right-turn lanes are usually un-necessary since the main line traffic need not be shifted laterally to provide space for the right-turn lane. If, in some rare instances, a lateral shift were needed, the approach taper would use the same formula as for a left-turn lane." Therefore, a bay taper length pursuant to the Caltrans HDM would need to be added, as necessary, to the recommended storage lengths presented below.

Based on the SimTraffic output files and engineering judgement, it is recommended that the storage capacity for the following be considered for the Cumulative Year 2039 plus Project Traffic Conditions. At the remaining approaches to the study intersections, the existing storage capacity will be sufficient to accommodate the maximum queue.

- "G" Street / Mercy Avenue
  - The existing storage capacity of the westbound left-turn lane is projected to exceed that available during the Cumulative Year 2039 scenarios. However, increasing the storage capacity of this movement is not possible without impacting the eastbound left-turn pocket at the intersection of Sandpiper Avenue and Mercy Avenue. Therefore, this cumulative impact is considered adverse but not significant.
  - Consider increasing the storage capacity of the northbound left-turn lane to 325 feet.
  - The existing storage capacity of the southbound left-turn lane is projected to exceed that available during the AM peaks in the Cumulative Year 2039 scenarios. While there are no constraints to increasing the storage capacity of this movement, it is recommended that this movement be monitored.
- "G" Street / Project Driveway 1
  - Consider setting the storage capacity of the westbound right-turn lane to 150 feet.
  - Consider setting the storage capacity of the northbound U-turn/left-turn lane to 150 feet.
  - Consider setting the storage capacity of the northbound right-turn lane to 75 feet.
  - Consider setting the storage capacity of the southbound left-turn lane to 150 feet.
- "G" Street / Project Driveway 2
  - Consider setting the storage capacity of the northbound right-turn lane to 75 feet.
  - Consider setting the storage capacity of the southbound left-turn lane to 150 feet.

- "G" Street / Yosemite Avenue
  - Consider increasing the storage capacity of the eastbound left-turn lane to 300 feet.
  - The existing storage capacity of the westbound left-turn lane is projected to exceed that available during the Cumulative Year 2039 scenarios. However, increasing the storage capacity of this movement is not possible without impacting the westbound left-turn pocket located immediately to the east. Therefore, this cumulative impact is considered adverse but not significant.
  - Consider increasing the storage capacity of the northbound left-turn lane to 250.
  - Consider increasing the storage capacity of the northbound right-turn lane to 250 feet.
  - Consider setting the storage capacity of the southbound dual left-turn lanes to 350 feet.
- Paulson Avenue / Yosemite Avenue
  - Consider increasing the storage capacity of the eastbound left-turn lane to 125 feet.
  - Consider increasing the storage capacity of the westbound left-turn lane to 100 feet.
  - Consider increasing the storage capacity of the westbound right-turn lane to 175 feet.
  - Consider increasing the storage capacity of the northbound left-turn lane to 125.
  - Consider increasing the storage capacity of the southbound left-turn lane to 250 feet.

Table XIV: Queuing Analysis

ID	*Intersection*	*Existing Queue Storage Length (ft.)*		*Existing*		*Existing plus Project*		*Near Term plus Project*		*Cumulative Year 2039 No Project*		*Cumulative Year 2039 plus Project*	
				AM	*PM*	*AM*	*PM*	*AM*	*PM*	*AM*	*PM*	*AM*	*PM*
1	"G" Street / Mercy Avenue	EB L	250	13	42	9	61	10	49	34	89	34	82
		EB TR	250	89	89	90	162	116	188	172	288	237	280
		WB L	260	110	147	131	188	129	259	364	318	285	333
		WB TR	>500	80	77	81	133	98	213	468	272	344	209
		NB L	250	129	105	101	156	169	129	324	298	329	328
		NB T	>500	176	170	230	239	249	204	358	349	427	446
		NB T	>500	108	85	109	176	204	104	302	308	395	364
		NB R	250	66	71	98	65	112	54	127	165	145	81
		SB L	260	98	80	133	100	122	122	320	176	302	177
		SB T	>500	88	85	104	139	129	173	288	242	296	272
		SB T	>500	106	98	94	146	133	169	293	247	284	276
		SB R	250	43	23	33	38	31	24	35	29	41	31

Note: * = Does not exist or is not projected to exist

Table XIV: Queuing Analysis (cont.)

ID	Intersection	Existing Queue Storage Length (ft.)		Existing		Existing plus Project		Near Term plus Project		Cumulative Year 2039 No Project		Cumulative Year 2039 plus Project	
				AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
2	Sandpiper Avenue / Mercy Avenue	EB L	200	46	34	57	35	53	43	89	85	106	49
		EB TR	>500	0	0	0	0	20	11	10	0	19	0
		WB LTR	>500	10	14	31	22	86	46	*	*	*	*
		WB L	*	*	*	*	*	*	*	42	20	57	32
		WB TR	*	*	*	*	*	*	*	9	16	18	0
		NB LTR	>500	14	53	42	58	*	*	*	*	*	*
		NB L	*	*	*	*	*	50	61	*	*	*	*
		NB TR	>500	*	*	*	*	71	85	*	*	*	*
		NB R	*	*	*	*	*	*	*	24	48	46	82
		SB LT	60	30	32	46	47	51	64	*	*	*	*
		SB R	60	48	51	48	53	48	57	63	58	52	54
3	"G" Street / Project Driveway 1	WB LR	*	*	*	70	146	131	167	*	*	*	*
		WB L	*	*	*	*	*	*	*	*	*	175	246
		WB R	*	*	*	*	*	*	*	*	*	53	149
		NB L	*	*	*	26	24	31	17	*	*	41	16
		NB T	>500	*	*	168	116	208	158	*	*	179	213
		NB T	>500	*	*	116	64	148	109	*	*	120	138
		NB R	*	*	*	34	22	36	23	*	*	21	23
		SB L	*	*	*	37	41	63	36	*	*	45	39
		SB T	>500	*	*	81	90	76	67	*	*	224	238
		SB T	>500	*	*	93	92	105	95	*	*	170	219
		SB T	>500	*	*	48	57	50	56	*	*	136	179
4	"G" Street / Project Driveway 2	WB R	*	*	*	40	46	37	43	*	*	41	36
		NB T	>500	*	*	0	0	0	0	*	*	0	0
		NB T	>500	*	*	0	0	0	0	*	*	0	0
		NB R	*	*	*	11	13	24	7	*	*	13	7
		SB L	*	*	*	48	29	63	44	*	*	116	142
		SB T	>500	*	*	0	0	0	0	*	*	283	407
		SB T	>500	*	*	0	0	0	0	*	*	252	333
		SB T	>500	*	*	0	0	0	0	*	*	0	138

Note: * = Does not exist or is not projected to exist

Table XIV: Queuing Analysis (cont.)

ID	Intersection	Existing Queue Storage Length (ft.)		Existing		Existing plus Project		Near Term plus Project		Cumulative Year 2039 No Project		Cumulative Year 2039 plus Project	
				AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
5	"G" Street / Yosemite Avenue	EB L	200	171	211	280	278	350	358	409	843	840	876
		EB T	>500	223	263	233	293	531	470	718	1427	1228	3084
		EB TR	>500	197	200	203	223	461	407	760	1422	1180	3065
		WB L	370	188	181	358	326	298	424	402	548	477	535
		WB T	>500	176	122	211	201	260	329	341	605	549	617
		WB T	>500	157	125	171	195	250	204	356	404	489	322
		WB R	>500	48	44	68	47	105	64	98	77	142	81
		NB L	75	210	215	212	205	216	218	818	762	876	855
		NB T	>500	251	453	417	287	363	520	2376	4899	2973	4346
		NB T	>500	159	250	330	291	362	396	2134	4980	2913	4337
		NB R	75	118	111	222	192	229	229	228	243	253	235
		SB L	250	147	167	197	188	275	211	*	*	*	*
		SB LL	*	*	*	*	*	*	*	240	185	363	321
		SB T	>500	129	149	166	191	217	246	476	318	637	601
		SB T	>500	132	160	172	205	189	253	486	313	647	601
		SB R	>500	69	56	64	79	88	128	115	125	276	208
6	Sandpiper Avenue / Yosemite Avenue	EB T	>500	0	0	0	0	0	0	0	0	0	0
		EB T	>500	0	0	0	0	0	0	0	0	0	0
		EB R	60	0	0	0	0	0	0	0	0	0	0
		WB T	>500	0	3	0	0	0	19	32	680	76	844
		WB T	>500	0	0	0	0	0	0	0	648	0	124
		WB R	>500	0	0	0	0	0	0	0	0	0	0
		NB R	100	7	21	17	27	11	28	19	36	17	32
		SB R	>500	0	0	0	38	32	64	0	0	0	96
7	Mansionette Drive / Yosemite Avenue	EB L	375	94	87	113	128	132	162	167	235	230	282
		EB T	>500	147	154	195	122	266	233	89	87	150	88
		EB T	>500	17	0	0	0	16	16	90	93	151	87
		WB T	>500	91	104	103	118	121	265	394	291	224	509
		WB T	>500	75	73	85	112	125	215	389	264	231	403
		WB R	105	32	22	33	21	64	59	117	24	68	28
		SB L	>500	82	54	83	38	108	77	158	62	154	104
		SB R	150	57	51	68	52	52	65	65	52	81	60

Note: * = Does not exist or is not projected to exist

Table XIV: Queuing Analysis (cont.)

ID	Intersection	Existing Queue Storage Length (ft.)		Existing		Existing plus Project		Near Term plus Project		Cumulative Year 2039 No Project		Cumulative Year 2039 plus Project	
				AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
8	Paulson Avenue / Yosemite Avenue	EB L	50	81	113	94	111	82	111	110	115	105	117
		EB T	>500	285	333	361	550	367	611	306	351	269	334
		EB TR	>500	*	*	*	*	*	*	329	340	305	325
		EB R	110	75	127	29	103	34	103	*	*	*	*
		WB L	50	62	51	80	41	58	66	86	63	80	45
		WB T	>500	133	132	188	166	200	268	467	409	413	613
		WB T	>500	156	117	190	143	212	274	483	419	446	648
		WB R	70	113	65	121	63	128	139	158	146	156	158
		NB L	50	83	18	99	35	97	34	125	53	115	60
		NB TR	>500	109	46	112	42	138	52	368	69	451	58
		SB L	115	118	112	139	119	148	173	235	222	243	254
		SB TR	>500	110	85	133	92	123	171	206	233	233	295

Note: * = Does not exist or is not projected to exist

Project's Pro-Rata Fair Share of Future Transportation Improvements

The Project's fair share percentage impact to study intersections projected to fall below their LOS threshold and which are not covered by an existing impact fee program is provided in Table XV. The Project's fair share percentage impacts were calculated pursuant to the Caltrans Guide for the Preparation of Traffic Impact Studies. The Project's pro-rata fair shares were calculated utilizing the Existing volumes, Net New Project Only Trips and Cumulative Year 2039 plus Project volumes. Figure 2 illustrates the Existing traffic volumes, Figure 6 illustrates the Net New Project Only Trips, and Figure 11 illustrates the Cumulative Year 2039 plus Project traffic volumes. Since the critical peak period for the study facilities was determined to be during the AM peak, the AM peak volumes are utilized to determine the Project's pro-rata fair share.

It is recommended that the Project contribute its equitable fair share as listed in Table XV for the future improvements necessary to maintain an acceptable LOS. However, fair share contributions should only be made for those facilities or portion thereof currently not funded by the responsible agencies roadway impact fee program(s) or grant funding, as appropriate. For those improvements not presently covered by local and regional roadway impact fee programs or grant funding, it is recommended that the Project contribute its equitable fair share. Payment of the Project's equitable fair share in addition to the local and regional impact fee programs would satisfy the Project's cumulative traffic impacts.

This study does not provide construction costs for the recommended mitigation measures; therefore, if the recommended mitigation measures are implemented, it is recommended that the developer work with the City of Merced to develop the estimated construction cost.

Table XV: Project's Fair Share of Future Roadway Improvements

ID	*Intersection*	*Existing Traffic Volumes (AM Peak)*	*Cumulative Year 2039 plus Project Traffic Volumes (AM Peak)*	*Net New Project Only Trips (AM Peak)*	*Project's Fair Share (%)*
1	"G" Street / Mercy Avenue	1,641	3,068	104	7.29
2	Sandpiper Avenue / Mercy Avenue	691	1,498	93	11.52
5	"G" Street / Yosemite Avenue	2,807	5,528	459	16.87
6	Sandpiper Avenue / Yosemite Avenue	1,367	2,635	166	13.09
7	Mansionette Drive / Yosemite Avenue	1,517	2,903	163	11.76
8	Paulson Road / Yosemite Avenue	1,687	3,125	79	5.49

Note: Project Fair Share = ((Net New Project Only Trips) / (Cumulative Year 2039 + Project Traffic Volumes - Existing Traffic Volumes)) x 100

Conclusions and Recommendations

Conclusions and recommendations regarding the proposed Project are presented below.

Existing Traffic Conditions

- At present, all study intersections operate at an acceptable LOS during both peak periods.

Existing plus Project Traffic Conditions

- It is recommended that the Project Driveway 1 have a minimum throat depth of 150 feet before any vehicular openings to the north.
- The Project buildout is estimated to generate a maximum of 13,160 daily trips, 1,009 AM peak hour trips and 1,059 PM peak hour trips (before internal capture and pass-by rate reductions are taken into account). At buildout, the prior Project Site Plan is anticipated to generate a maximum of 13,741 daily trips, 1,092 AM peak hour trips and 1,074 PM peak hour trips (before internal capture and pass-by rate reductions are taken into account).
- Compared to the prior Project Site Plan, the latest Project Site Plan is estimated to yield less traffic by 581 daily trips, 83 AM peak hour trips and 15 PM peak hour trips (before internal capture and pass-by rate reductions are taken into account). Therefore, in order to provide a conservative analysis of the Project's traffic impacts, this TIA assumed the trip generation of the prior Project Site Plan.
- It is recommended that the Project implement a walkway along its frontage to Sandpiper Avenue and complete the walkway along its frontage to "G" Street.
- It is recommended that the Project implement a Class II Bike Lane along its frontage to "G" Street.
- To promote alternative modes of transportation to El Capitan High School, it is recommended that the MUHSD work with the City of Merced and County of Merced to implement a Safe Routes to School plan and to seek grant funding to help build walkways where they are lacking within a 2.5-mile radius of the existing school site.
- As the Project is within a defined service area, it is likely that the Project would not add VMT per capita of service population to the region. Additionally, the Project site is located near transit services and pedestrian and bicycle networks.
- Under this scenario, the intersection of "G" Street and Project Driveway 1 is projected to exceed its LOS threshold during one peak period. To improve the LOS at this intersection, it is recommended that the following improvements be implemented.
  - "G" Street / Project Driveway 1
    - Signalize the intersection with protective left-turn phasing in all directions.

Near Term plus Project Traffic Conditions

- The total trip generation for the Near Term Projects by year 2025 is 76,956 daily trips, 4,228 AM peak hour trips and 7,565 PM peak hour trips.
- Under this scenario, the intersections of Sandpiper Avenue and Mercy Avenue and "G" Street and Project Driveway 1 are projected to exceed their LOS threshold during one or both peak periods. To improve the LOS at these intersections, it is recommended that the following improvements be implemented.

- Sandpiper Avenue / Mercy Avenue
  - Stripe a northbound left-turn lane; and
  - Modify the northbound left-through-right lane to a through-right lane.
- "G" Street / Project Driveway 1
  - Signalize the intersection with protective left-turn phasing in all directions.

- Between the Existing Traffic Conditions and the Near Term plus Project Traffic Conditions, the Project accounts for 11.6 percent of the daily trips, 13.6 percent of the AM peak hour trips and 7.1 percent of the PM peak hour trips of growth in traffic while the rest can be attributable to the Near Term Projects. Therefore, one can deduce that the majority of the mitigation measures presented under this scenario may not be necessary immediately upon completion of the proposed Project. However, if all of the Near Term Projects are completed close to the completion date of the proposed Project, the detailed recommended improvements presented under this scenario may be necessary in order to improve the LOS to the City's target threshold.

Cumulative Year 2039 No Project Traffic Conditions

- Under this scenario, the intersections of Sandpiper Avenue and Mercy Avenue, "G" Street and Yosemite Avenue, and Paulson Road and Yosemite Avenue are projected to exceed their LOS threshold during one or both peak periods. To improve the LOS at these intersections, it is recommended that the following improvements be considered for implementation by the City on a Project by Project assessment as cumulative impacts develop.
  - Sandpiper Avenue / Mercy Avenue
    - For the intersection of Sandpiper Avenue and Mercy Avenue, two (2) options for improvement were considered. Option A consists of limiting access from Sandpiper Avenue and the driveway located immediately to the north to Mercy Avenue but maintaining the two-way stop control, while Option B consists of modifying the lane geometrics and implementing an all-way stop control. As can be seen from Table X, both options provide for an acceptable LOS. However, Option A provides significantly lower delay during the AM peak period when compared to Option B. The recommended improvements for each option are described below.
      - Option A: Two-Way Stop
        - Stripe a westbound left-turn lane;
        - Modify the westbound left-through-right lane to a through-right lane;
        - Modify the northbound left-through-right lane to a right-turn lane; and
        - Remove the southbound left-through lane.
        - To accomplish this, it is recommended that a raised median island be implemented. With the introduction of the raised median island, northbound left-turns would need to be redirected. Northbound left-turning traffic from Sandpiper Avenue would need to either a) make a westbound right-turn lane onto "G" Street via a future driveway access and then proceed to make their desired movement at the intersection of "G" Street and Mercy Avenue or b) make a northbound left-turn at Mansionette Drive and Mercy Avenue, proceed through the intersection of Sandpiper Avenue and Mercy Avenue and then proceed to make their desired movement at the intersection of "G"

Street and Mercy Avenue. Furthermore, southbound left-turns from the driveway located immediately to the north would need to be redirected. Southbound left-turning traffic from the driveway located immediately to the north would need to use the driveway access located approximately 450 feet east of the Sandpiper alignment to make their desired movement.

- Option B: All-Way Stop
  - Stripe a westbound left-turn lane;
  - Modify the westbound left-through-right lane to a through-right lane;
  - Stripe a northbound left-turn;
  - Modify the northbound left-through-right lane to a through-right lane; and
  - Implement an all-way stop control.

- "G" Street / Yosemite Avenue
  - Add a second southbound left-turn lane; and
  - Modify the traffic signal to implement overlap phasing of the northbound right-turn with the westbound left-turn phase and prohibit westbound to eastbound U-turns.
- Paulson Road / Yosemite Avenue
  - Add an eastbound through-right lane with a receiving lane east of Paulson Road.

Cumulative Year 2039 plus Project Traffic Conditions

- Under this scenario, the intersections of Sandpiper Avenue and Mercy Avenue, "G" Street and Project Driveway 1, "G" Street and Yosemite Avenue, and Paulson Road and Yosemite Avenue are projected to exceed their LOS threshold during one or both peak periods. To improve the LOS at these intersections, it is recommended that the following improvements be implemented.
  - Sandpiper Avenue / Mercy Avenue
    - For the intersection of Sandpiper Avenue and Mercy Avenue, two (2) options for improvement were considered. Option A consists of limiting access from Sandpiper Avenue and the driveway located immediately to the north to Mercy Avenue but maintaining the two-way stop control, while Option B consists of modifying the lane geometrics and implementing an all-way stop control. As can be seen from Table XI, Option A provides significantly lower delay during the AM peak period when compared to Option B. The recommended improvements for each option are described below.
      - Option A: Two-Way Stop
        - Stripe a westbound left-turn lane;
        - Modify the westbound left-through-right lane to a through-right lane;
        - Modify the northbound left-through-right lane to a right-turn lane; and
        - Remove the southbound left-through lane.
        - To accomplish this, it is recommended that a raised median island be implemented. With the introduction of the raised median island, northbound left-turns would need to be redirected. Northbound left-turning traffic from Sandpiper Avenue would need to either a) make a westbound right-turn lane onto "G" Street via a future driveway access and then proceed to make their desired movement at the intersection of "G" Street and Mercy Avenue or b) make a northbound left-turn at Mansionette Drive and

Mercy Avenue, proceed through the intersection of Sandpiper Avenue and Mercy Avenue and then proceed to make their desired movement at the intersection of "G" Street and Mercy Avenue. Furthermore, southbound left-turns from the driveway located immediately to the north would need to be redirected. Southbound left-turning traffic from the driveway located immediately to the north would need to use the driveway access located approximately 450 feet east of the Sandpiper alignment to make their desired movement.

- Option B: All-Way Stop
  - Stripe a westbound left-turn lane;
  - Modify the westbound left-through-right lane to a through-right lane;
  - Stripe a northbound left-turn;
  - Modify the northbound left-through-right lane to a through-right lane; and
  - Implement an all-way stop control.

- "G" Street / Project Driveway 1
  - Signalize the intersection with protective left-turn phasing in all directions.
- "G" Street / Yosemite Avenue
  - Add a second southbound left-turn lane; and
  - Modify the traffic signal to implement overlap phasing of the northbound right-turn with the westbound left-turn phase and prohibit westbound to eastbound U-turns.
- Paulson Road / Yosemite Avenue
  - Add an eastbound through-right lane with a receiving lane east of Paulson Road.

Queuing Analysis

- It is recommended that the City consider left-turn and right-turn lane storage lengths as indicated in the Queuing Analysis.

Project's Equitable Fair Share

- It is recommended that the Project contribute its equitable fair share as listed in Table XV for the future improvements necessary to maintain an acceptable LOS.

Study Participants

JLB Traffic Engineering, Inc. Personnel:

Jose Luis Benavides, PE, TE	Project Manager
Susana Maciel, EIT	Engineer I/II
Matthew Arndt, EIT	Engineer I/II
Javier Rios	Engineer I/II
Jove Alcazar, EIT	Engineer I/II
Dennis Wynn	Sr. Engineering Technician
Adrian Benavides	Engineering Aide
Jesus Garcia	Engineering Aide

Persons Consulted:

Neil Angelillo	True North Properties
Kim Espinosa	City of Merced
Michael Hren	City of Merced
Steven Rough	County of Merced
Vu Nguyen	Caltrans

References

1. City of Merced, *Merced Vision 2030 General Plan*, adopted January 2, 2012.
2. County of Merced, *2030 General Plan,* adopted December 10, 2013.
3. *Guide for the Preparation of Traffic Impact Studies*, Caltrans, dated December 2002.
4. *Trip Generation,* 10th Edition, Washington D.C., Institute of Transportation Engineers, 2017.
5. *2014 California Manual on Uniform Traffic Control Devices*, Caltrans, November 7, 2014.

Appendix A: Scope of Work

February 21, 2019

Ms. Kim Espinosa
Merced City of Merced
Planning and Zoning Department
678 West 18th Street
Merced, California, 95340

Via Email Only: espinosak@cityofmerced.org

Subject: ***Draft Scope of Work for the Preparation of a Traffic Impact Analysis for the Development of the Northeast Corner of "G" Street and Yosemite Avenue in the City of Merced***

Dear Ms. Espinoza,

JLB Traffic Engineering, Inc. (JLB) hereby submits this Draft Scope of Work for the preparation of a Traffic Impact Analysis (TIA) for the Project described below. The Project proposes to develop the northeast corner of "G" Street and Yosemite Avenue with a mix of commercial, office, hotel and multi-family residential land uses. Per information provided to JLB, the Project will undergo a General Plan Amendment through the City of Merced. The Project site plan and aerial of the Project vicinity are shown in Exhibits A and B respectively.

The purpose of this TIA is to evaluate the potential on- and off-site traffic impacts, identify short-term roadway and circulation needs, determine potential mitigation measures and identify any critical traffic issues that should be addressed in the on-going planning process. To evaluate the on- and off-site traffic impacts of the proposed Project, JLB proposes the following Draft Scope of Work.

Scope of Work

- JLB will obtain recent (less than 18 months old) or schedule and conduct new traffic counts at the study facility(ies) as necessary.
- JLB will perform a site visit to observe existing traffic conditions, especially during the AM and PM peak hours. Existing roadway conditions, including intersection geometrics and traffic controls, will be verified.
- JLB will qualitatively analyze existing and planned transit routes in the vicinity of the Project.
- JLB will qualitatively analyze existing and planned bikeways in the vicinity of the Project.
- JLB will forecast trip distribution based on turn count information, school boundaries and knowledge of the existing and planned circulation network in the vicinity of the Project.
- JLB will conduct a qualitative safe routes to school evaluation from the Project site to the K-12 school(s) which would most likely serve the residential component of the Project on opening day.
- To arrive at the future year forecast volumes, JLB proposes to utilize the base Year 2008 and Cumulative Year 2035 traffic forecasting models from the Merced County Association of Governments (MCAG). Based on these models, JLB will calculate the anticipated annual growth rate

in traffic. Once the annual growth rate in traffic has been calculated, JLB will present the findings to City Staff for its review and approval. Upon approval of the annual growth rate factor, JLB proposes to utilize the annual growth rate to expand the existing traffic volumes by 20 years to arrive at the Cumulative Year 2039 plus Project scenario.

- JLB will evaluate existing and forecasted levels of service (LOS) at the study intersection(s) and/or segment(s). JLB will use HCM 6 or HCM 2000 methodologies (as appropriate) within Synchro to perform this analysis for the AM and PM peak hours. JLB will identify the causes of poor LOS.

Study Scenarios:

1. Existing Traffic Conditions with proposed improvement measures (if any)
2. Existing plus Project Traffic Conditions with proposed mitigation measures (if any)
3. Near Term Plus Project (2025) Traffic Conditions with proposed mitigation measures (if any)
4. Cumulative Year 2039 No Project Traffic Conditions with proposed improvement measures (if any)
5. Cumulative Year 2039 plus Project Traffic Conditions with proposed mitigation measures (if any)

Weekday peak hours to be analyzed:

1. 7 - 9 AM peak hour
2. 4 - 6 PM peak hour

Study Intersections:

1. "G" Street / Mercy Avenue
2. Sandpiper Avenue / Mercy Avenue
3. "G" Street / Driveway One (future signal)
4. "G" Street / Driveway Two (left in, right-in and right-out)
5. "G" Street / Yosemite Avenue
6. Sandpiper Avenue / Yosemite Avenue
7. Mansionette Avenue / Yosemite Avenue
8. Paulson Road / Yosemite Avenue

Queuing analysis is included in the proposed scope of work for the study intersection(s) listed above under all study scenarios. This analysis will be utilized to recommend minimum storage lengths for left- and right-turn lanes at all study intersections.

Study Segments:

1. None

Trip Generation

Trip generation will be prepared for both the Proposed Project and Existing General Plan Land Use designations. JLB will utilize trip generation rates from the 10th Edition of the Trip Generation Manual published by the Institute of Transportation Engineers (ITE). Trip generation rates will be presented in written format and in table format for the City's review and approval. Further JLB proposes to utilize internal capture and pass-by rate reductions to reflect net new traffic to the study facilities. Internal capture and pass-by rate reductions will be prepared pursuant to ITE methodologies.

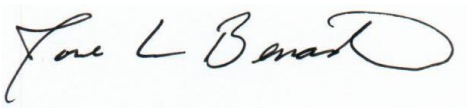
Near Term Projects to be Included

JLB proposes to work with the City of Merced Planning staff to identify Near Term Projects in the vicinity of the proposed Project. The Near Term Projects would then be included under the Near Term plus Project analysis. At this point, JLB is unaware of Near term projects that need to be included, but JLB will include in the Near Term plus Project scenario Near Term Projects provided to us by the City of Merced or other responsible agencies. These would include Near Term Projects the City of Merced, County of Merced or Caltrans has knowledge of and for which it is anticipated that said Project(s) is/are projected to be whole or partially built by the Year 2025, and for which the City of Merced, County of Merced and Caltrans, as appropriate, provides JLB with Near Term Project details. Near Term Project details include Project description, location, proposed land uses with breakdowns and type of residential units and amount of square footages for non-residential uses.

The above scope of work is based on our understanding of this Project and our experience with similar Traffic Impact Analysis Projects.

If you have any questions or require additional information, please contact me by phone at (559) 570-8991 or by e-mail at jbenavides@jlbtraffic.com.

Sincerely,



Jose Luis Benavides, P.E., T.E.
President

Exhibit A – Site Plan

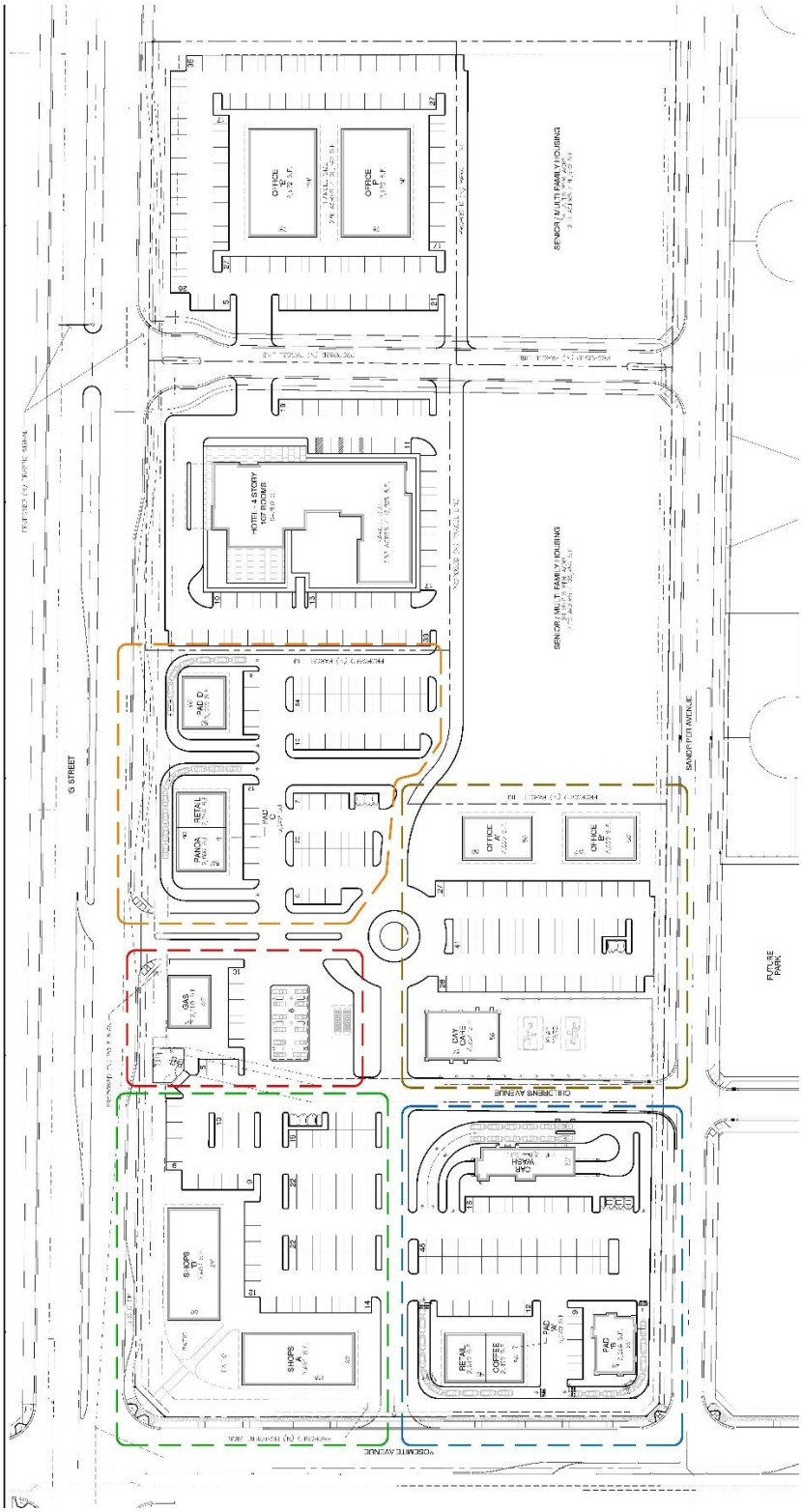
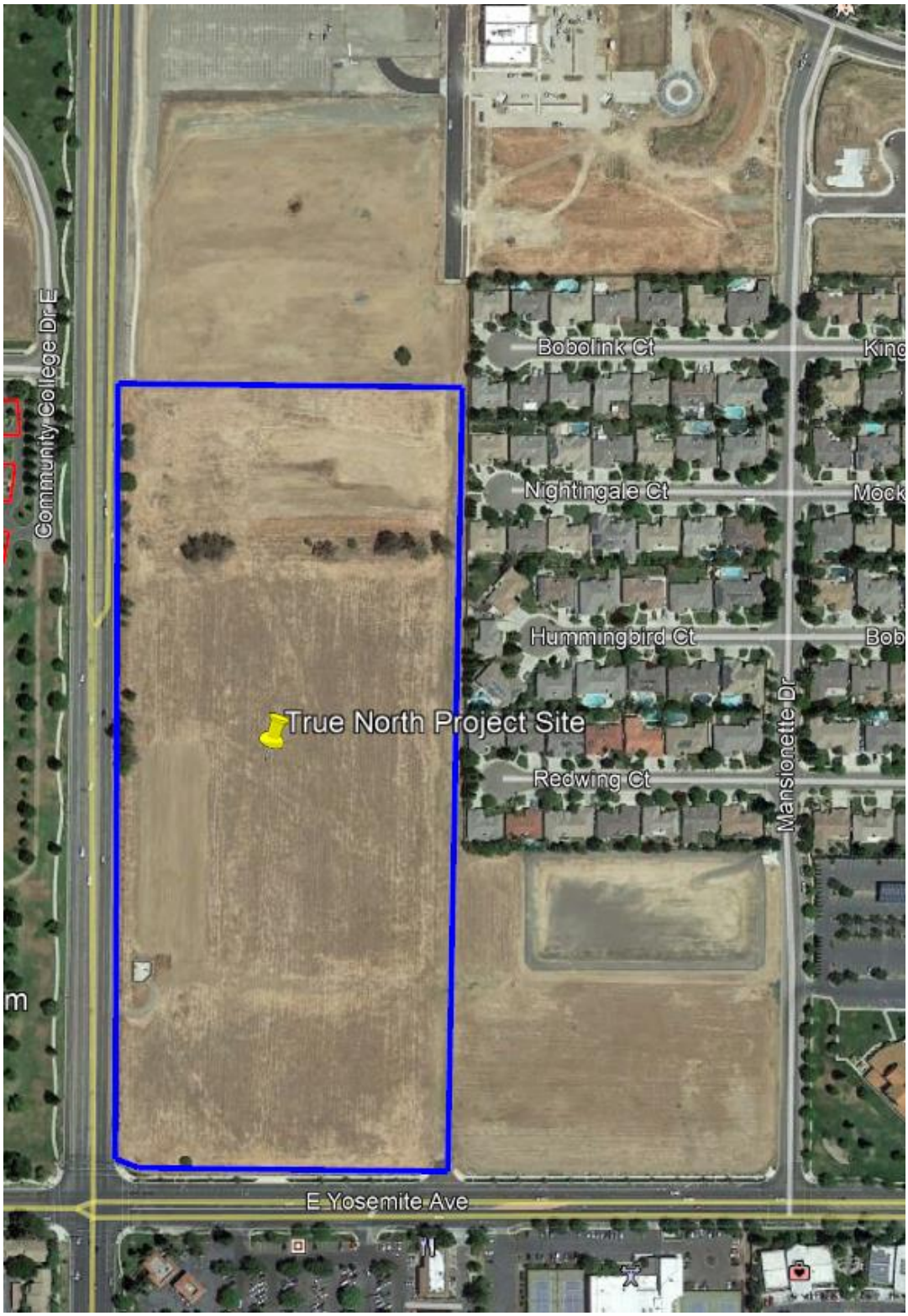


Exhibit B - Aerial



March 26, 2019

Ms. Kim Espinosa
Merced City of Merced
Planning and Zoning Department
678 West 18th Street
Merced, California, 95340

Via Email Only: espinosak@cityofmerced.org

Subject: ***Draft Scope of Work for the Preparation of a Traffic Impact Analysis for the Development of the Northeast Corner of "G" Street and Yosemite Avenue in the City of Merced***

Dear Ms. Espinoza,

JLB Traffic Engineering, Inc. (JLB) hereby submits this Draft Scope of Work for the preparation of a Traffic Impact Analysis (TIA) for the Project described below. The Project proposes to develop the northeast corner of "G" Street and Yosemite Avenue with a mix of commercial, office, hotel and multi-family residential land uses. Per information provided to JLB, the Project will undergo a General Plan Amendment through the City of Merced. The Project site plan and aerial of the Project vicinity are shown in Exhibits A and B respectively.

The purpose of this TIA is to evaluate the potential on- and off-site traffic impacts, identify short-term roadway and circulation needs, determine potential mitigation measures and identify any critical traffic issues that should be addressed in the on-going planning process. To evaluate the on- and off-site traffic impacts of the proposed Project, JLB proposes the following Draft Scope of Work.

Scope of Work

- JLB will obtain recent (less than 18 months old) or schedule and conduct new traffic counts at the study facility(ies) as necessary.
- JLB will perform a site visit to observe existing traffic conditions, especially during the AM and PM peak hours. Existing roadway conditions, including intersection geometrics and traffic controls, will be verified.
- JLB will qualitatively analyze existing and planned transit routes in the vicinity of the Project.
- JLB will qualitatively analyze existing and planned bikeways in the vicinity of the Project.
- JLB will forecast trip distribution based on turn count information, school boundaries and knowledge of the existing and planned circulation network in the vicinity of the Project.
- JLB will conduct a qualitative safe routes to school evaluation from the Project site to the K-12 school(s) which would most likely serve the residential component of the Project on opening day.
- To arrive at the future year forecast volumes, JLB proposes to utilize the base Year 2008 and Cumulative Year 2035 traffic forecasting models from the Merced County Association of Governments (MCAG). Based on these models, JLB will calculate the anticipated annual growth rate

in traffic. Once the annual growth rate in traffic has been calculated, JLB will present the findings to City Staff for its review and approval. Upon approval of the annual growth rate factor, JLB proposes to utilize the annual growth rate to expand the existing traffic volumes by 20 years to arrive at the Cumulative Year 2039 plus Project scenario.

- JLB will evaluate existing and forecasted levels of service (LOS) at the study intersection(s) and/or segment(s). JLB will use HCM 6 or HCM 2000 methodologies (as appropriate) within Synchro to perform this analysis for the AM and PM peak hours. JLB will identify the causes of poor LOS.

Study Scenarios:

1. Existing Traffic Conditions with proposed improvement measures (if any)
2. Existing plus Project Traffic Conditions with proposed mitigation measures (if any)
3. Near Term Plus Project (2025) Traffic Conditions with proposed mitigation measures (if any)
4. Cumulative Year 2039 No Project Traffic Conditions with proposed improvement measures (if any)
5. Cumulative Year 2039 plus Project Traffic Conditions with proposed mitigation measures (if any)

Weekday peak hours to be analyzed:

1. 7 - 9 AM peak hour
2. 4 - 6 PM peak hour

Study Intersections:

1. "G" Street / Mercy Avenue
2. Sandpiper Avenue / Mercy Avenue
3. "G" Street / Driveway One (future signal)
4. "G" Street / Driveway Two (left in, right-in and right-out)
5. "G" Street / Yosemite Avenue
6. Sandpiper Avenue / Yosemite Avenue
7. Mansionette Avenue / Yosemite Avenue
8. Paulson Road / Yosemite Avenue

Queuing analysis is included in the proposed scope of work for the study intersection(s) listed above under all study scenarios. This analysis will be utilized to recommend minimum storage lengths for left- and right-turn lanes at all study intersections.

Study Segments:

1. None

Trip Generation

Table I presents the baseline trip generation for the proposed Project while Table II presents the trip generation of the project site based on the previously approved land uses in 2011. The trip generation has been prepared pursuant to the 10th Edition of the ITE Trip Generation Manual before internal capture and pass-by rate reductions are taken into account. Prior to accounting for internal capture and pass-by rate reductions the, at build-out the Project is estimated to generate a maximum of 13,014 daily trips, 1,031 AM peak hour trips and 997 PM peak hour trips.

Further JLB proposes to utilize internal capture and pass-by rate reductions to reflect net new traffic to the study facilities. Internal capture and pass-by rate reductions will be prepared pursuant to ITE methodologies.

Table I: Project Only Baseline Trip Generation (Before Internal Capture and Pass-by)

Land Use (ITE Code)	Size	Unit	Daily		AM Peak Hour						PM Peak Hour					
			Rate	Total	Trip Rate	In %	Out %	In	Out	Total	Trip Rate	In %	Out %	In	Out	Total
Medical Dental Office Building (720)	43.649	k.s.f.	34.8	1,519	2.78	78	22	94	27	121	3.46	28	72	42	109	151
Hotel (310)	107	Occupied Rooms	8.36	895	0.47	59	41	30	20	50	0.60	51	49	33	31	64
Fast-Food Restaurant without Drive-Through Window (934)	9.066	k.s.f.	470.95	4,270	40.19	51	49	186	178	364	32.67	52	48	154	142	296
Gasoline/Service Station with Convenience Market (945)	12	f.p.	205.36	2,464	12.47	51	49	77	73	150	13.99	51	49	86	82	168
Shopping Center (820)	19.616	k.s.f.	37.75	741	0.94	62	38	11	7	18	3.81	48	52	36	39	75
Coffee/Donut Shop with Drive-Through Window (937)	2.016	k.s.f.	820.38	1,654	88.99	51	49	91	88	179	43.38	50	50	44	43	87
Automated Car Wash (948)	3.866	k.s.f.	170.40	659	14.20	50	50	28	27	55	14.20	50	50	28	27	55
General Off\ice Building (710)	8.000	k.s.f.	9.74	78	1.16	86	14	8	1	9	1.15	16	84	1	8	9
Day Care Center (565)	4.804	k.s.f.	47.62	229	11.00	53	47	28	25	53	11.12	47	53	25	28	53
Apartment (220)	69	d.u.	7.32	505	0.46	23	77	7	25	32	0.56	63	37	25	14	39
Total Project Trips				**13,014**				**560**	**471**	**1,031**				**474**	**523**	**997**

Note: f.p. = Fueling Positions
d.u. = Dwelling Unit
k.s.f. = Thousand Square Feet

At build-out, the 2011 previously approved project, is estimated to generate a maximum of 5,368 daily trips, 343 AM peak hour trips and 528 PM peak hour trips prior to accounting for internal capture and pass-by rate reductions.

Table II: Previously Approved Land Use Baseline Trip Generation (Before Internal Capture and Pass-by)

Land Use (ITE Code)	Size	Unit	Daily		AM Peak Hour						PM Peak Hour					
			Rate	Total	Trip Rate	In %	Out %	In	Out	Total	Trip Rate	In %	Out %	In	Out	Total
Hotel (310)	84	Occupied Rooms	8.36	702	0.47	59	41	23	16	39	0.60	51	49	26	24	50
High Turnover Sit-Down Restaurant (932)	5.883	k.s.f.	112.18	660	9.94	55	45	32	26	58	9.77	62	38	35	22	57
Pharmacy/Drugstore with Drive-Through Window (881)	17.340	k.s.f.	109.16	1,893	3.84	53	47	36	31	67	10.29	50	50	89	89	178
Drive-in Bank (912)	4.536	k.s.f.	100.03	454	9.5	58	42	25	18	43	20.45	50	50	47	46	93
General Off\ice Building (710)	57.560	k.s.f.	9.74	561	1.16	86	14	58	9	67	1.15	16	84	11	55	66
Apartment (220)	150	d.u.	7.32	1,098	0.46	23	77	16	53	69	0.56	63	37	53	31	84
Total Project Trips				**5,368**				**190**	**153**	**343**				**261**	**267**	**528**

Note: d.u. = Dwelling Unit
k.s.f. = Thousand Square Feet

Near Term Projects to be Included

JLB proposes to work with the City of Merced Planning staff to identify Near Term Projects in the vicinity of the proposed Project. The Near Term Projects would then be included under the Near Term plus Project analysis. At this point, JLB is unaware of Near term projects that need to be included, but JLB will include in the Near Term plus Project scenario Near Term Projects provided to us by the City of Merced or other responsible agencies. These would include Near Term Projects the City of Merced, County of Merced or Caltrans has knowledge of and for which it is anticipated that said Project(s) is/are projected to be whole or partially built by the Year 2025, and for which the City of Merced, County of Merced and Caltrans, as appropriate, provides JLB with Near Term Project details. Near Term Project details include Project description, location, proposed land uses with breakdowns and type of residential units and amount of square footages for non-residential uses.

The above scope of work is based on our understanding of this Project and our experience with similar Traffic Impact Analysis Projects.

If you have any questions or require additional information, please contact me by phone at (559) 570-8991 or by e-mail at jbenavides@jlbtraffic.com.

Sincerely,

Jose Luis Benavides, P.E., T.E.
President

Steven Rough, srough@co.merced.ca.us County of Merced
Vu Nguyen, vu.h.nguyen@dot.ca.gov Caltrans District 10
Z:\01 Projects\035 Merced\035-003 Yosemite at G TIA\Draft Scope of Work\L03282019 Draft Scope of Work.docx

Exhibit A – Site Plan

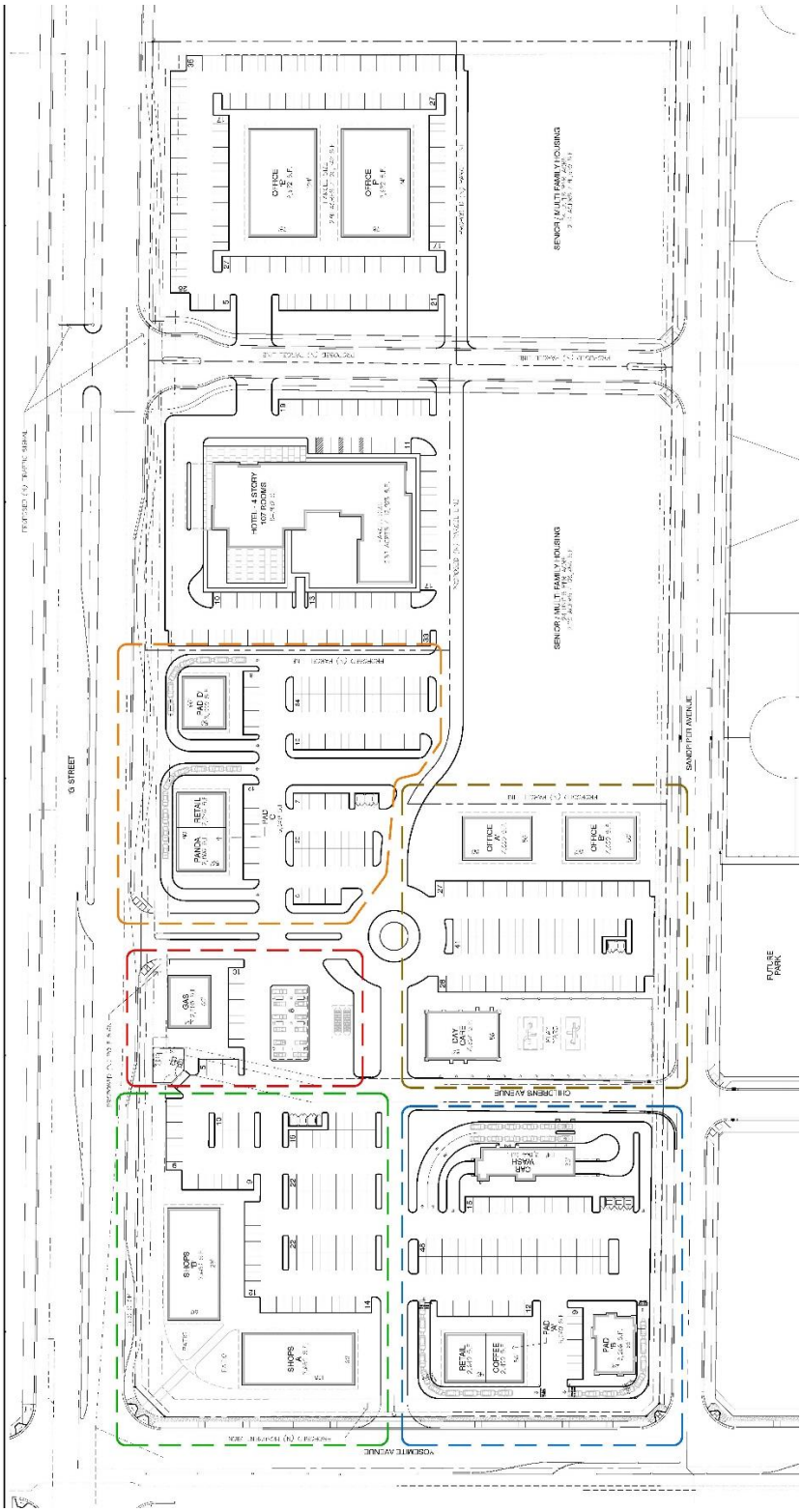
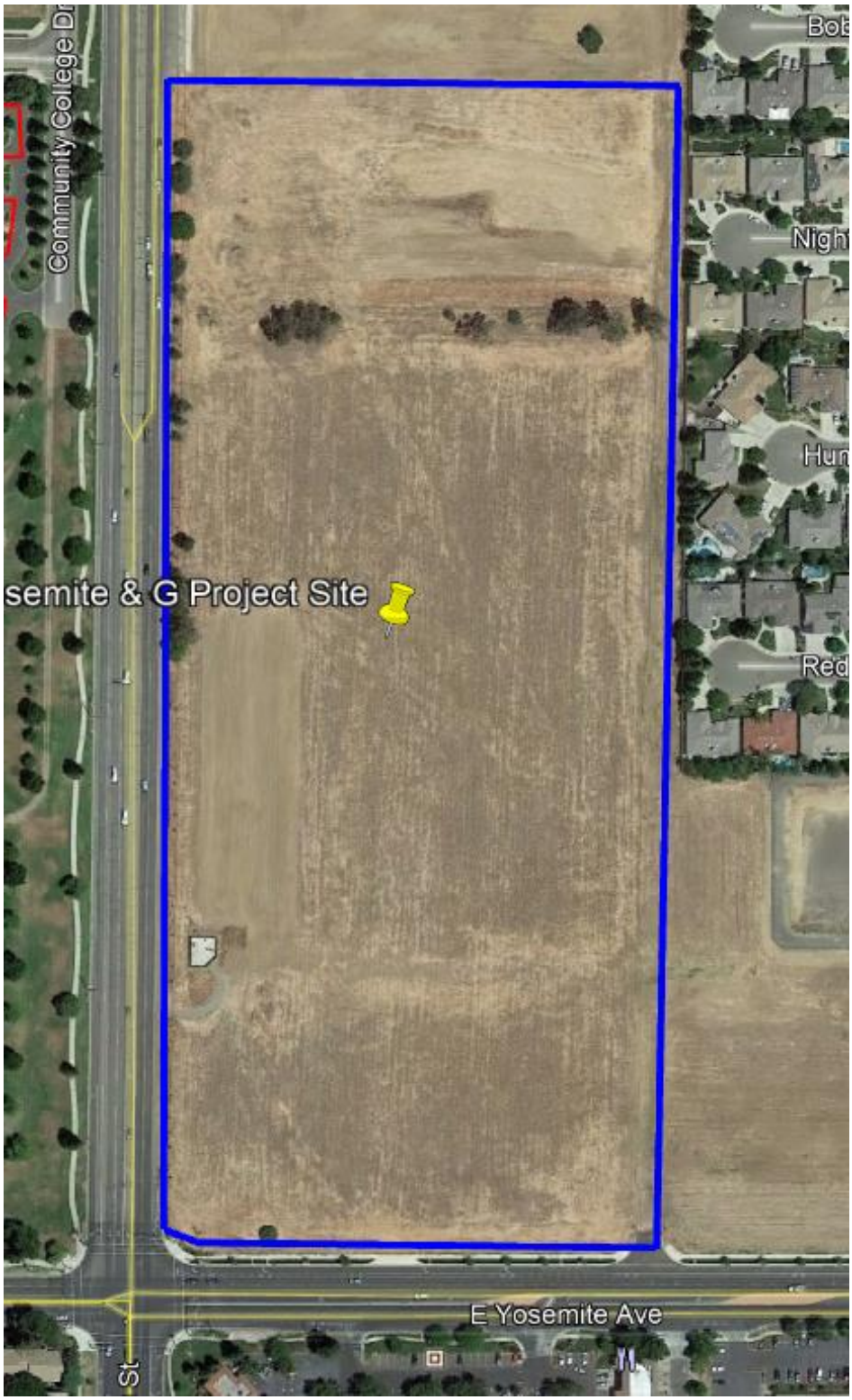


Exhibit B - Aerial



Jose Benavides

From: Espinosa, Kim <ESPINOSAK@cityofmerced.org>
Sent: Wednesday, February 27, 2019 4:57 PM
To: Jose Benavides
Cc: Neil Angelillo; Hren, Michael
Subject: RE: TIA Draft Scope of Work (NEC of G Street and Yosemite)
Attachments: L02212019 Draft Scope of Work.pdf

Jose,
This looks fine to me. Neil, please note that we will also need a Greenhouse Gas analysis and Air Quality Analysis. Jose, can you recommend some firms for those to Neil? Thanks!
--Kim

From: Jose Benavides <jbenavides@jlbtraffic.com>
Sent: Friday, February 22, 2019 2:08 PM
To: Espinosa, Kim <ESPINOSAK@cityofmerced.org>
Cc: Neil Angelillo <neil@truenorthprops.com>
Subject: TIA Draft Scope of Work (NEC of G Street and Yosemite)

Good afternoon Kim,

Attached you will find a proposed draft scope of work for the preparation of the TIA in support of the development project proposed for the NE corner of G Street and Yosemite in the City of Merced. The scope of work has been prepared based on the conference call we had this Wednesday.

Thank you're your help on this project and we look forward to hearing back from you on the attached scope of work.

Sincerely,

Jose Luis Benavides, P.E., T.E.
President

JLB Traffic Engineering, Inc.
Traffic Engineering, Transportation Planning and Parking Solutions
Certified Disadvantaged Business Enterprise (DBE) and Small Business Enterprise (SBE)

1300 E. Shaw Ave., Ste. 103
Fresno, CA 93710
Direct: (559) 317-6249
Main: (559) 570-8991
Cell: (559) 694-6000
Fax: (559) 317-6854
www.JLBtraffic.com

Jose Benavides

From: Sousa, Hilda@DOT <Hilda.Sousa@dot.ca.gov>
Sent: Tuesday, April 2, 2019 2:46 PM
To: Jose Benavides
Cc: Huynh, Sang K@DOT
Subject: Yosemite and G Street TIA Scope of Work

Good Afternoon Jose,
We are currently reviewing the draft scope of work submitted and Exhibit A – Site Plan in the attachment is not clear. Could you please resend a clearer one?

Thank You,

Hilda Sousa
District 10 Planning
(209)942-6184

Appendix B: Traffic Counts

Prepared by National Data & Surveying Services

G St & Mercy Ave

Peak Hour Turning Movement Count

ID: 19-07137-001
City: Merced

Day: Tuesday
Date: 04/16/2019

PEAK HOURS

AM: 07:30 AM - 08:30 AM
NOON: NONE
PM: 04:30 PM - 05:30 PM

COUNT PERIODS

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

SOUTHBOUND (G St)

AM	29	424	146	1	517	AM
NOON	0	0	0	0	0	NOON
PM	19	403	69	1	480	PM

EASTBOUND (Mercy Ave)

AM	NOON	PM	
185	0	156	⇦
0	0	0	↶ 0
5	0	19	↱ 0
40	0	39	→ 0
19	0	74	↴ 0
AM	NOON	PM	

WESTBOUND (Mercy Ave)

PM	NOON	AM	
85	0	139	0 ↰
49	0	54	0 ←
161	0	145	0 ↶
0	0	0	0 ↶
212	0	351	⇨
PM	NOON	AM	

CONTROL

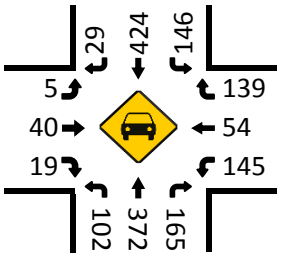
0

TEV	### AM	0 NOON	### PM
PHF	0.72		0.93

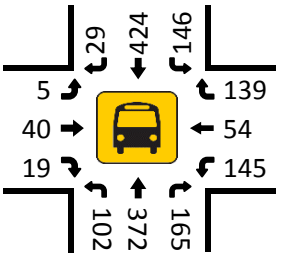
NORTHBOUND (G St)

PM	639	1	88	375	104	PM
NOON	0	0	0	0	0	NOON
AM	588	0	102	372	165	AM

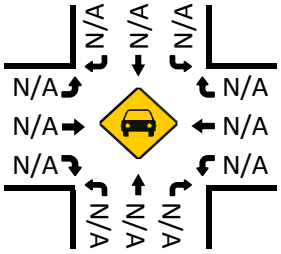
Total Vehicles (AM)



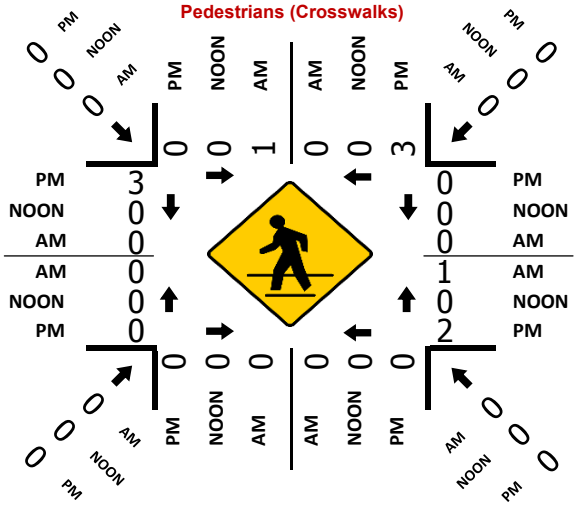
Total Vehicles (AM)



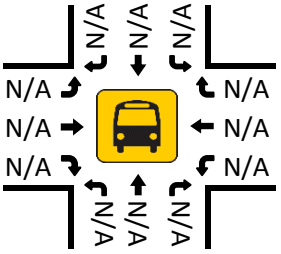
Total Vehicles (NOON)



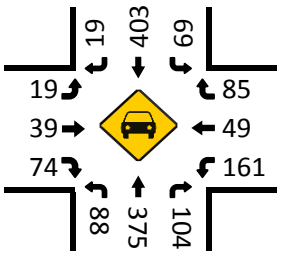
Pedestrians (Crosswalks)



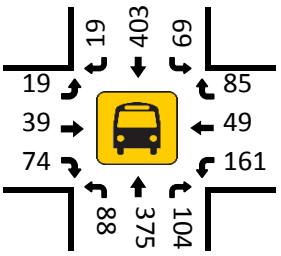
Total Vehicles (NOON)



Total Vehicles (PM)



Total Vehicles (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: G St & Mercy Ave
City: Merced
Control:

Project ID: 19-07137-001
Date: 4/16/2019

Total

NS/EW Streets:	G St				G St				Mercy Ave				Mercy Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	6	57	21	0	14	55	2	0	1	2	1	0	16	2	10	0	187
7:15 AM	19	67	29	0	13	56	2	1	0	1	1	0	20	5	19	0	233
7:30 AM	27	92	26	0	32	100	6	0	1	7	5	0	55	14	50	0	415
7:45 AM	43	135	52	0	55	143	15	0	0	14	3	0	27	23	63	0	573
8:00 AM	18	63	30	0	37	117	5	1	3	10	6	0	30	13	15	0	348
8:15 AM	14	82	57	0	22	64	3	0	1	9	5	0	33	4	11	0	305
8:30 AM	7	81	55	0	14	53	3	0	1	17	5	0	51	15	12	0	314
8:45 AM	6	72	57	0	24	72	2	0	0	11	3	0	63	13	20	0	343
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	140	649	327	0	211	660	38	2	7	71	29	0	295	89	200	0	2718
APPROACH %'s :	12.54%	58.15%	29.30%	0.00%	23.16%	72.45%	4.17%	0.22%	6.54%	66.36%	27.10%	0.00%	50.51%	15.24%	34.25%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	102	372	165	0	146	424	29	1	5	40	19	0	145	54	139	0	1641
PEAK HR FACTOR :	0.593	0.689	0.724	0.000	0.664	0.741	0.483	0.250	0.417	0.714	0.792	0.000	0.659	0.587	0.552	0.000	0.716
	0.695				0.704				0.842				0.710				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	16	83	27	2	23	84	1	0	1	10	21	0	52	14	20	0	354
4:15 PM	7	77	27	0	23	83	2	0	2	12	20	0	30	6	19	0	308
4:30 PM	8	89	22	0	12	119	0	0	5	9	22	0	57	10	22	0	375
4:45 PM	21	80	20	1	20	96	2	1	6	10	23	0	34	12	15	0	341
5:00 PM	17	93	36	0	14	95	9	0	4	8	14	0	39	16	27	0	372
5:15 PM	42	113	26	0	23	93	8	0	4	12	15	0	31	11	21	0	399
5:30 PM	17	83	24	0	21	129	2	0	1	9	14	0	28	9	14	0	351
5:45 PM	35	76	26	1	15	101	6	0	1	11	19	0	24	12	16	0	343
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	163	694	208	4	151	800	30	1	24	81	148	0	295	90	154	0	2843
APPROACH %'s :	15.25%	64.92%	19.46%	0.37%	15.38%	81.47%	3.05%	0.10%	9.49%	32.02%	58.50%	0.00%	54.73%	16.70%	28.57%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	88	375	104	1	69	403	19	1	19	39	74	0	161	49	85	0	1487
PEAK HR FACTOR :	0.524	0.830	0.722	0.250	0.750	0.847	0.528	0.250	0.792	0.813	0.804	0.000	0.706	0.766	0.787	0.000	0.932
	0.785				0.939				0.846				0.829				

National Data & Surveying Services

Intersection Turning Movement Count

Location: G St & Mercy Ave
City: Merced
Project ID: 19-07137-001
Date: 4/16/2019

Pedestrians (Crosswalks)

NS/EW Streets:	G St		G St		Mercy Ave		Mercy Ave		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	1	0	0	0	0	0	0	0	1
7:30 AM	0	0	0	0	1	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	1	0	0	0	0	0	0	0	1
8:30 AM	2	0	0	0	0	0	0	0	2
8:45 AM	1	2	0	0	0	0	0	2	5
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	5	2	0	0	1	0	0	2	10
APPROACH %'s :	71.43%	28.57%			100.00%	0.00%	0.00%	100.00%	
PEAK HR :	**07:30 AM - 08:30 AM**								TOTAL
PEAK HR VOL :	1	0	0	0	1	0	0	0	2
PEAK HR FACTOR :	0.250				0.250				0.500
	0.250				0.250				

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	3	0	0	2	0	0	2	7
5:15 PM	0	0	0	0	0	0	0	1	1
5:30 PM	0	1	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	4	0	0	2	0	0	3	9
APPROACH %'s :	0.00%	100.00%			100.00%	0.00%	0.00%	100.00%	
PEAK HR :	**04:30 PM - 05:30 PM**								TOTAL
PEAK HR VOL :	0	3	0	0	2	0	0	3	8
PEAK HR FACTOR :		0.250			0.250			0.375	0.286
	0.250				0.250		0.375		

Prepared by National Data & Surveying Services

Sandpiper Ave & Mercy Ave

Peak Hour Turning Movement Count

ID: 19-07137-002
City: Merced

Day: Tuesday
Date: 04/16/2019

PEAK HOURS	
AM	07:30 AM - 08:30 AM
NOON	NONE
PM	04:30 PM - 05:30 PM

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

SOUTHBOUND (Sandpiper Ave)

AM	44	9	4	0	146	AM
NOON	0	0	0	0	0	NOON
PM	61	0	11	0	94	PM

EASTBOUND (Mercy Ave)

AM	NOON	PM	
314	0	253	⇦
0	0	0	↶ 0
130	0	80	↱ 0
204	0	127	→ 0
12	0	4	↴ 0
AM	NOON	PM	

WESTBOUND (Mercy Ave)

PM	NOON	AM	
7	0	16	0 ↰
175	0	266	0 ←
2	0	2	0 ↙
0	0	0	0 ↶
142	0	208	⇨
PM	NOON	AM	

NORTHBOUND (Sandpiper Ave)

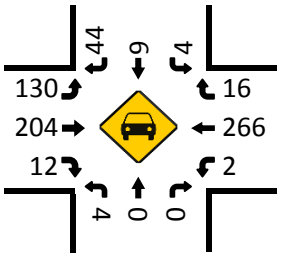
PM	6	0	17	7	4	PM
NOON	0	0	0	0	0	NOON
AM	23	0	4	0	0	AM

CONTROL

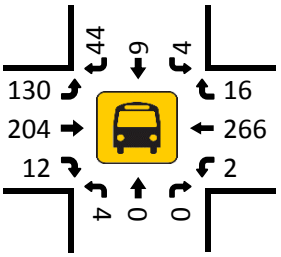
0

TEV	691	0	495
	AM	NOON	PM
PHF	0.75		0.91

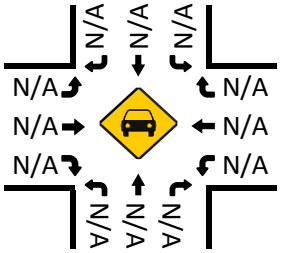
Total Vehicles (AM)



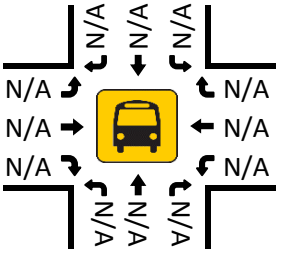
Total Vehicles (AM)



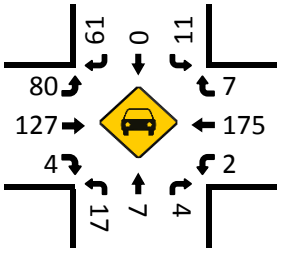
Total Vehicles (NOON)



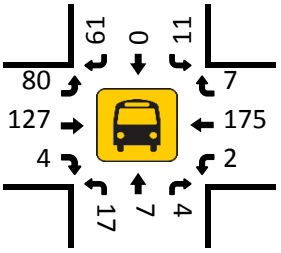
Total Vehicles (NOON)



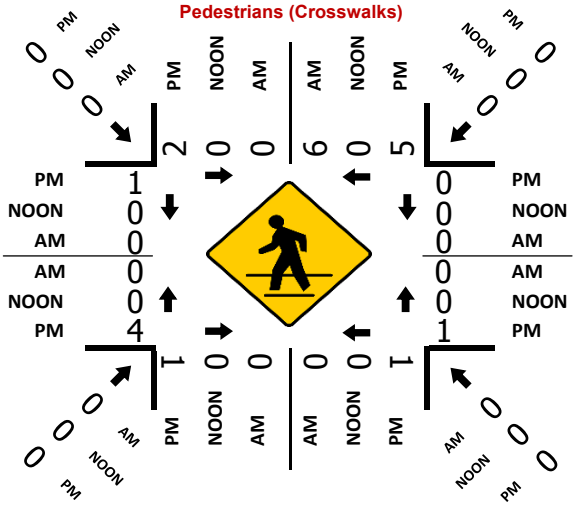
Total Vehicles (PM)



Total Vehicles (PM)



Pedestrians (Crosswalks)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Sandpiper Ave & Mercy Ave
City: Merced
Control:

Project ID: 19-07137-002
Date: 4/16/2019

Total

NS/EW Streets:	Sandpiper Ave				Sandpiper Ave				Mercy Ave				Mercy Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	1	2	8	0	17	15	5	0	0	20	2	0	70
7:15 AM	0	0	0	0	1	3	6	0	31	11	1	0	0	31	2	0	86
7:30 AM	1	0	0	0	0	0	16	0	28	35	2	0	0	91	6	0	179
7:45 AM	0	0	0	0	2	2	16	0	40	71	6	0	0	92	2	0	231
8:00 AM	1	0	0	0	1	2	7	0	25	55	2	0	2	42	3	0	140
8:15 AM	2	0	0	0	1	5	5	0	37	43	2	0	0	41	5	0	141
8:30 AM	1	0	0	0	1	2	12	0	31	51	6	0	0	67	4	0	175
8:45 AM	2	1	0	0	0	0	7	0	37	50	4	0	3	71	4	0	179
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	7	1	0	0	7	16	77	0	246	331	28	0	5	455	28	0	1201
APPROACH %'s :	87.50%	12.50%	0.00%	0.00%	7.00%	16.00%	77.00%	0.00%	40.66%	54.71%	4.63%	0.00%	1.02%	93.24%	5.74%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	4	0	0	0	4	9	44	0	130	204	12	0	2	266	16	0	691
PEAK HR FACTOR :	0.500	0.000	0.000	0.000	0.500	0.450	0.688	0.000	0.813	0.718	0.500	0.000	0.250	0.723	0.667	0.000	0.748
	0.500				0.713				0.739				0.732				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	4	2	1	0	6	0	14	0	21	36	2	0	1	43	5	0	135
4:15 PM	3	2	0	0	5	0	12	0	20	42	1	0	0	32	2	0	119
4:30 PM	5	3	2	0	8	0	17	0	19	22	2	0	0	51	2	0	131
4:45 PM	0	2	0	0	2	0	16	0	20	29	1	0	1	34	2	0	107
5:00 PM	8	1	1	0	1	0	15	0	27	32	0	0	1	48	2	0	136
5:15 PM	4	1	1	0	0	0	13	0	14	44	1	0	0	42	1	0	121
5:30 PM	2	1	0	0	5	0	14	0	17	38	0	0	1	34	1	0	113
5:45 PM	1	0	1	0	3	0	16	0	18	34	0	0	0	31	1	0	105
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	27	12	6	0	30	0	117	0	156	277	7	0	4	315	16	0	967
APPROACH %'s :	60.00%	26.67%	13.33%	0.00%	20.41%	0.00%	79.59%	0.00%	35.45%	62.95%	1.59%	0.00%	1.19%	94.03%	4.78%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	17	7	4	0	11	0	61	0	80	127	4	0	2	175	7	0	495
PEAK HR FACTOR :	0.531	0.583	0.500	0.000	0.344	0.000	0.897	0.000	0.741	0.722	0.500	0.000	0.500	0.858	0.875	0.000	0.910
	0.700				0.720				0.894				0.868				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Sandpiper Ave & Mercy Ave
City: Merced
Project ID: 19-07137-002
Date: 4/16/2019

Pedestrians (Crosswalks)

NS/EW Streets:	Sandpiper Ave		Sandpiper Ave		Mercy Ave		Mercy Ave		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	2	0	0	0	0	0	0	0	2
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	5	0	0	0	0	0	0	5
8:15 AM	0	1	0	0	0	0	0	0	1
8:30 AM	3	2	0	0	0	0	0	0	5
8:45 AM	0	1	0	0	0	0	0	0	1
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	5	9	0	0	0	0	0	0	14
APPROACH %'s :	35.71%	64.29%							
PEAK HR :	**07:30 AM - 08:30 AM**								TOTAL
PEAK HR VOL :	0	6	0	0	0	0	0	0	6
PEAK HR FACTOR :		0.300							0.300
	0.300								

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	1	1	0	0	0	0	0	0	2
4:15 PM	0	2	0	0	1	0	0	0	3
4:30 PM	0	1	0	0	0	0	0	0	1
4:45 PM	1	1	0	0	1	0	0	0	3
5:00 PM	1	1	0	1	0	0	0	0	3
5:15 PM	0	2	1	0	0	0	4	1	8
5:30 PM	0	0	1	0	0	0	0	1	2
5:45 PM	0	0	0	2	0	0	2	0	4
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	3	8	2	3	2	0	6	2	26
APPROACH %'s :	27.27%	72.73%	40.00%	60.00%	100.00%	0.00%	75.00%	25.00%	
PEAK HR :	**04:30 PM - 05:30 PM**								TOTAL
PEAK HR VOL :	2	5	1	1	1	0	4	1	15
PEAK HR FACTOR :	0.500	0.625	0.250	0.250	0.250		0.250	0.250	0.469
	0.875		0.500		0.250		0.250		

Prepared by National Data & Surveying Services

G St & E Yosemite Ave

Peak Hour Turning Movement Count

ID: 19-07137-003
City: Merced

Day: Tuesday
Date: 04/16/2019

PEAK HOURS

AM: 07:30 AM - 08:30 AM
NOON: NONE
PM: 04:30 PM - 05:30 PM

COUNT PERIODS

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

G St — SOUTHBOUND

AM	112	349	132	0	631	AM
NOON	0	0	0	0	0	NOON
PM	151	366	127	0	564	PM

EASTBOUND — E Yosemite Ave

AM	NOON	PM	
800	0	840	⇦
0	0	0	↶ 0
134	0	146	↰ 0
438	0	486	→ 0
122	0	164	↳ 0
AM	NOON	PM	

CONTROL

0

TEV	### AM	0 NOON	### PM
PHF	0.83		0.94

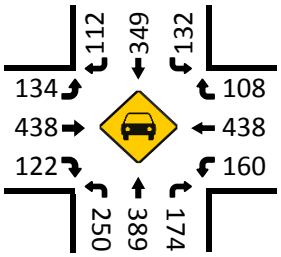
WESTBOUND — E Yosemite Ave

PM	NOON	AM	
59	0	108	0 ↱
392	0	438	0 ←
144	0	160	0 ↶
1	0	1	0 ↶
800	0	745	⇨
PM	NOON	AM	

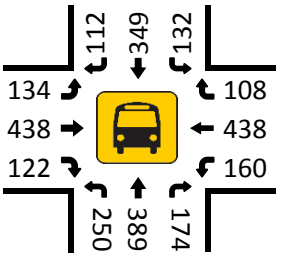
NORTHBOUND — G St

PM	674	0	297	359	186	PM
NOON	0	0	0	0	0	NOON
AM	631	0	250	389	174	AM

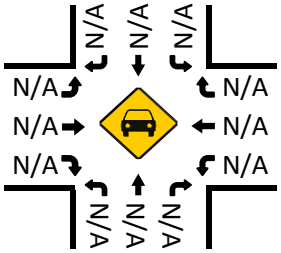
Total Vehicles (AM)



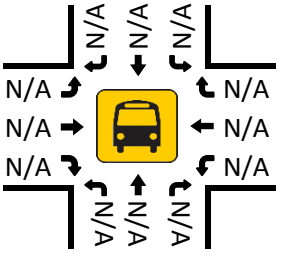
Total Vehicles (AM)



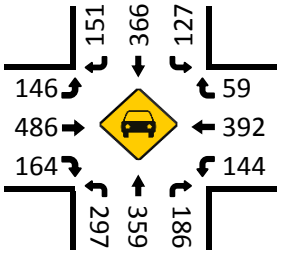
Total Vehicles (NOON)



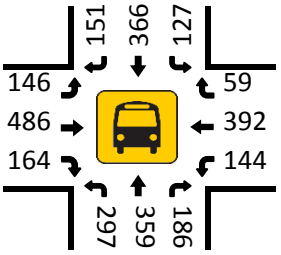
Total Vehicles (NOON)



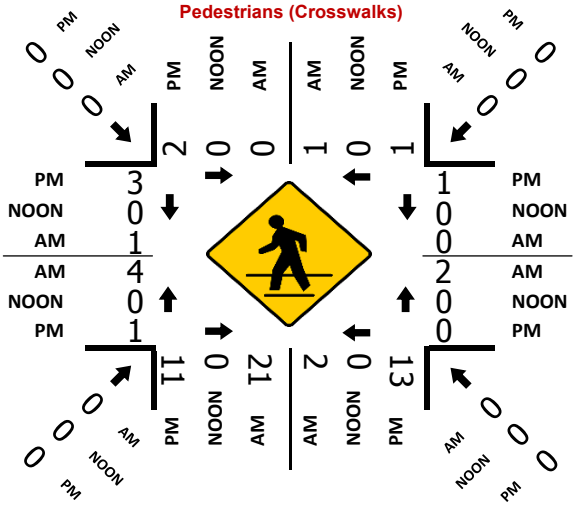
Total Vehicles (PM)



Total Vehicles (PM)



Pedestrians (Crosswalks)



National Data & Surveying Services

Intersection Turning Movement Count

Location: G St & E Yosemite Ave
City: Merced
Control:

Project ID: 19-07137-003
Date: 4/16/2019

Total

NS/EW Streets:	G St				G St				E Yosemite Ave				E Yosemite Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	26	50	18	0	22	36	16	0	16	42	21	0	21	63	12	0	343
7:15 AM	33	79	17	0	14	47	13	0	26	64	22	0	27	72	14	1	429
7:30 AM	61	78	37	0	30	103	34	0	30	54	25	0	39	118	30	0	639
7:45 AM	91	148	45	0	45	89	35	0	41	90	35	0	49	137	43	0	848
8:00 AM	46	78	48	0	39	91	27	0	20	139	32	0	40	104	15	0	679
8:15 AM	52	85	44	0	18	66	16	0	43	155	30	0	32	79	20	1	641
8:30 AM	30	93	35	0	15	78	22	0	49	97	29	0	38	98	22	0	606
8:45 AM	38	78	48	0	21	91	23	0	34	117	27	0	41	76	6	1	601
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	377	689	292	0	204	601	186	0	259	758	221	0	287	747	162	3	4786
APPROACH %'s :	27.76%	50.74%	21.50%	0.00%	20.59%	60.65%	18.77%	0.00%	20.92%	61.23%	17.85%	0.00%	23.94%	62.30%	13.51%	0.25%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	250	389	174	0	132	349	112	0	134	438	122	0	160	438	108	1	2807
PEAK HR FACTOR :	0.687	0.657	0.906	0.000	0.733	0.847	0.800	0.000	0.779	0.706	0.871	0.000	0.816	0.799	0.628	0.250	0.828
	0.716				0.877				0.761				0.772				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	62	75	37	0	35	92	37	0	33	132	45	0	42	81	12	0	683
4:15 PM	50	82	38	0	27	77	37	0	26	130	52	0	41	87	10	1	658
4:30 PM	68	82	48	0	25	120	39	0	32	103	48	0	48	73	9	0	695
4:45 PM	77	68	46	0	36	90	36	0	26	126	48	0	31	102	15	0	701
5:00 PM	71	103	40	0	33	85	27	0	37	131	41	0	32	95	18	0	713
5:15 PM	81	106	52	0	33	71	49	0	51	126	27	0	33	122	17	1	769
5:30 PM	81	96	34	0	39	89	33	0	21	109	29	0	31	94	18	0	674
5:45 PM	64	92	49	0	24	79	38	1	22	100	26	0	27	98	22	1	643
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	554	704	344	0	252	703	296	1	248	957	316	0	285	752	121	3	5536
APPROACH %'s :	34.58%	43.95%	21.47%	0.00%	20.13%	56.15%	23.64%	0.08%	16.31%	62.92%	20.78%	0.00%	24.55%	64.77%	10.42%	0.26%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	297	359	186	0	127	366	151	0	146	486	164	0	144	392	59	1	2878
PEAK HR FACTOR :	0.917	0.847	0.894	0.000	0.882	0.763	0.770	0.000	0.716	0.927	0.854	0.000	0.750	0.803	0.819	0.250	0.936
	0.881				0.875				0.952				0.861				

National Data & Surveying Services

Intersection Turning Movement Count

Location: G St & E Yosemite Ave
City: Merced
Project ID: 19-07137-003
Date: 4/16/2019

Pedestrians (Crosswalks)

NS/EW Streets:	G St		G St		E Yosemite Ave		E Yosemite Ave		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	0	1	5	0	1	0	0	0	7
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	3	1	0	0	1	0	5
7:45 AM	0	0	9	0	0	0	0	0	9
8:00 AM	0	1	5	1	1	0	2	1	11
8:15 AM	0	0	4	0	1	0	1	0	6
8:30 AM	1	1	7	2	0	0	1	1	13
8:45 AM	0	0	6	1	0	0	0	4	11
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	1	3	39	5	3	0	5	6	62
APPROACH %'s :	25.00%	75.00%	88.64%	11.36%	100.00%	0.00%	45.45%	54.55%	
PEAK HR :	07:30 AM - 08:30 AM								TOTAL
PEAK HR VOL :	0	1	21	2	2	0	4	1	31
PEAK HR FACTOR :		0.250	0.583	0.500	0.500		0.500	0.250	0.705
	0.250		0.639		0.500		0.417		

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	2	2	1	2	0	0	10	17
4:15 PM	0	2	1	3	0	0	0	1	7
4:30 PM	0	0	1	0	0	0	0	2	3
4:45 PM	1	0	0	1	0	1	0	0	3
5:00 PM	1	1	5	6	0	0	0	1	14
5:15 PM	0	0	5	6	0	0	1	0	12
5:30 PM	0	0	1	2	0	0	0	0	3
5:45 PM	0	0	1	2	0	0	0	3	6
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	2	5	16	21	2	1	1	17	65
APPROACH %'s :	28.57%	71.43%	43.24%	56.76%	66.67%	33.33%	5.56%	94.44%	
PEAK HR :	04:30 PM - 05:30 PM								TOTAL
PEAK HR VOL :	2	1	11	13	0	1	1	3	32
PEAK HR FACTOR :	0.500	0.250	0.550	0.542		0.250	0.250	0.375	0.571
	0.375		0.545		0.250		0.500		

JLB Traffic Engineering, Inc.

1300 E. Shaw Ave., Ste. 103
Fresno, CA 93710
(559) 570-8991
Traffic Engineering, Transportation Planning & Parking Solutions
www.JLBtraffic.com

File Name : Sandpiper at Yosemite
Site Code : 00000000
Start Date : 4/3/2019
Page No : 1

Groups Printed- Unshifted - Bank 1

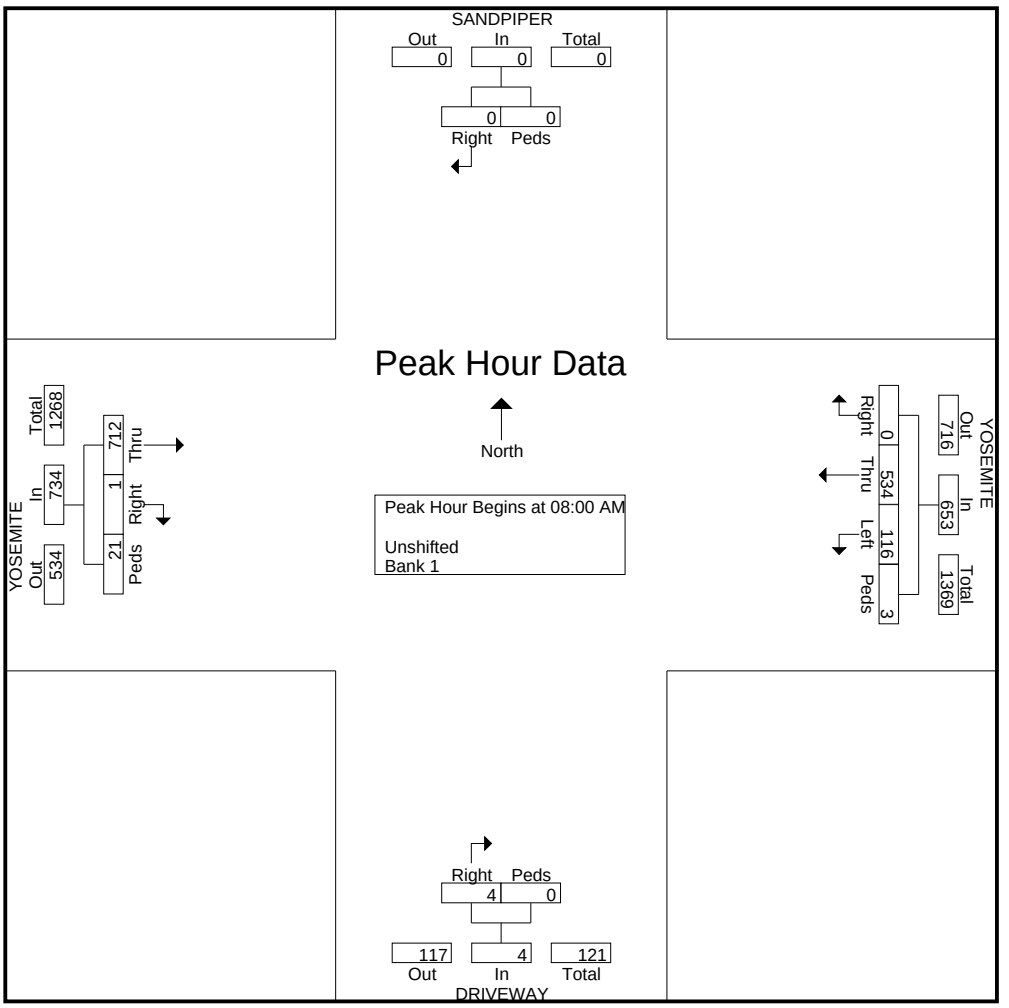
	SANDPIPER Southbound		YOSEMITE Westbound				DRIVEWAY Northbound		YOSEMITE Eastbound			
Start Time	Right	Peds	Left	Thru	Right	Peds	Right	Peds	Thru	Right	Peds	Int. Total
07:00 AM	0	0	17	102	0	0	0	0	75	2	0	196
07:15 AM	0	0	16	108	0	0	0	0	79	6	1	210
07:30 AM	0	0	19	161	0	0	0	0	120	0	3	303
07:45 AM	0	0	22	165	0	1	0	0	160	3	10	361
Total	0	0	74	536	0	1	0	0	434	11	14	1070
08:00 AM	0	0	20	112	0	1	1	0	174	0	6	314
08:15 AM	0	0	26	130	0	0	3	0	199	1	5	364
08:30 AM	0	0	33	142	0	2	0	0	166	0	5	348
08:45 AM	0	0	37	150	0	0	0	0	173	0	5	365
Total	0	0	116	534	0	3	4	0	712	1	21	1391
******												
04:00 PM	0	0	29	133	0	2	2	0	186	0	3	355
04:15 PM	0	0	21	127	0	0	4	0	203	1	1	357
04:30 PM	0	0	36	143	0	0	3	0	188	0	2	372
04:45 PM	0	0	38	146	0	2	2	1	185	0	1	375
Total	0	0	124	549	0	4	11	1	762	1	7	1459
05:00 PM	0	0	36	165	0	0	6	0	209	4	4	424
05:15 PM	0	0	37	163	0	1	2	0	218	0	4	425
05:30 PM	0	0	57	120	0	2	2	0	221	0	1	403
05:45 PM	0	0	48	130	0	4	5	0	207	0	2	396
Total	0	0	178	578	0	7	15	0	855	4	11	1648
Grand Total	0	0	492	2197	0	15	30	1	2763	17	53	5568
Apprch %	0	0	18.2	81.2	0	0.6	96.8	3.2	97.5	0.6	1.9	
Total %	0	0	8.8	39.5	0	0.3	0.5	0	49.6	0.3	1	
Unshifted	0	0	419	2197	0	15	30	0	2763	17	53	5494
% Unshifted	0	0	85.2	100	0	100	100	0	100	100	100	98.7
Bank 1	0	0	73	0	0	0	0	1	0	0	0	74
% Bank 1	0	0	14.8	0	0	0	0	100	0	0	0	1.3

JLB Traffic Engineering, Inc.

1300 E. Shaw Ave., Ste. 103
Fresno, CA 93710
(559) 570-8991
Traffic Engineering, Transportation Planning & Parking Solutions
www.JLBtraffic.com

File Name : Sandpiper at Yosemite
Site Code : 00000000
Start Date : 4/3/2019
Page No : 2

	SANDPIPER Southbound			YOSEMITE Westbound					DRIVEWAY Northbound			YOSEMITE Eastbound				
Start Time	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Right	Peds	App. Total	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 08:00 AM to 08:45 AM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 08:00 AM																
08:00 AM	0	0	0	20	112	0	1	133	1	0	1	174	0	**6**	180	314
08:15 AM	0	0	0	26	130	0	0	156	**3**	0	**3**	**199**	**1**	5	**205**	364
08:30 AM	0	0	0	33	142	0	**2**	177	0	0	0	166	0	5	171	348
08:45 AM	0	0	0	**37**	**150**	0	0	**187**	0	0	0	173	0	5	178	**365**
Total Volume	0	0	0	116	534	0	3	653	4	0	4	712	1	21	734	1391
% App. Total	0	0		17.8	81.8	0	0.5		100	0		97	0.1	2.9		
PHF	.000	.000	.000	.784	.890	.000	.375	.873	.333	.000	.333	.894	.250	.875	.895	.953



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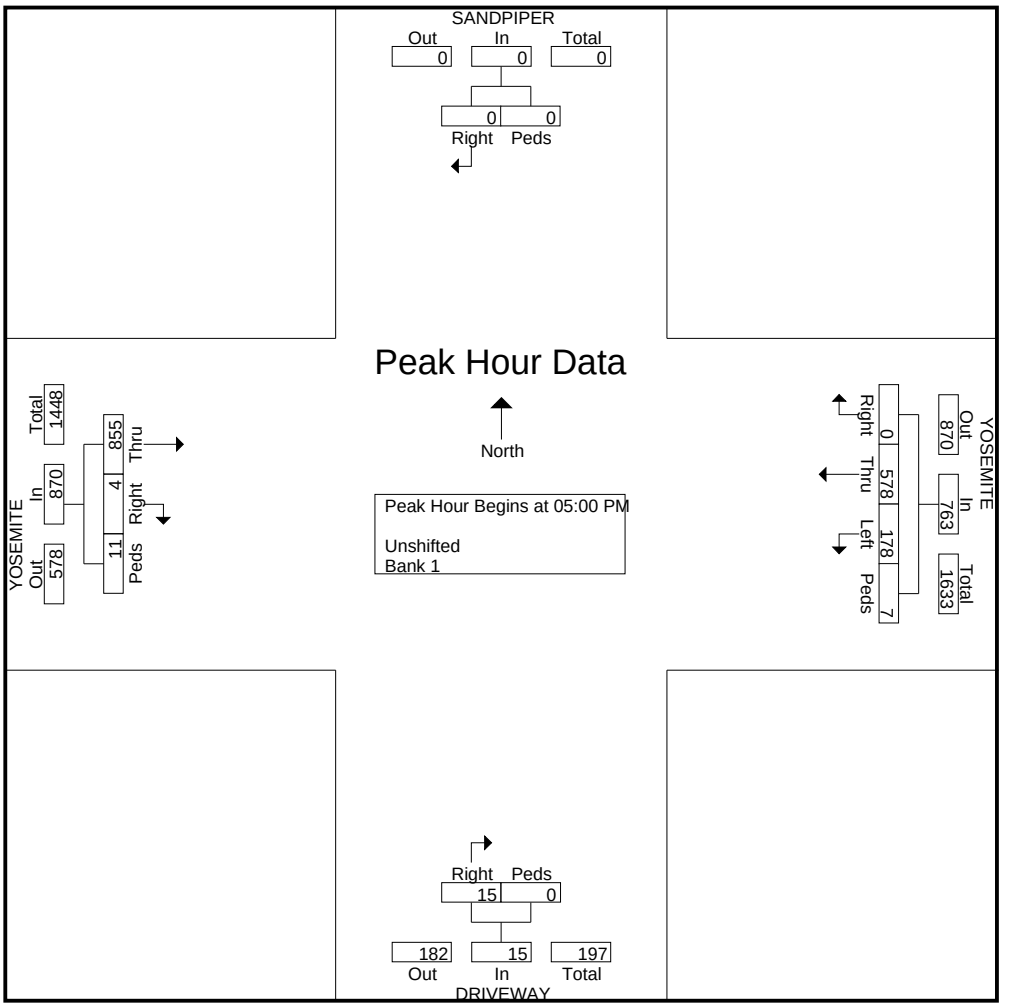
File Name : Sandpiper at Yosemite
Site Code : 00000000
Start Date : 4/3/2019
Page No : 3

	SANDPIPER Southbound			YOSEMITE Westbound					DRIVEWAY Northbound			YOSEMITE Eastbound				
Start Time	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Right	Peds	App. Total	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 05:00 PM																
05:00 PM	0	0	0	36	**165**	0	0	**201**	**6**	0	**6**	209	**4**	**4**	217	424
05:15 PM	0	0	0	37	163	0	1	201	2	0	2	218	0	4	**222**	**425**
05:30 PM	0	0	0	**57**	120	0	2	179	2	0	2	**221**	0	1	222	403
05:45 PM	0	0	0	48	130	0	**4**	182	5	0	5	207	0	2	209	396
Total Volume	0	0	0	178	578	0	7	763	15	0	15	855	4	11	870	1648
% App. Total	0	0		23.3	75.8	0	0.9		100	0		98.3	0.5	1.3		
PHF	.000	.000	.000	.781	.876	.000	.438	.949	.625	.000	.625	.967	.250	.688	.980	.969



Prepared by National Data & Surveying Services

Mansionette Dr & E Yosemite Ave

Peak Hour Turning Movement Count

ID: 19-07137-004
City: Merced

Day: Tuesday
Date: 04/16/2019

PEAK HOURS

AM: 07:45 AM - 08:45 AM
NOON: NONE
PM: 04:45 PM - 05:45 PM

COUNT PERIODS

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

SOUTHBOUND — Mansionette Dr

AM	60	0	54	0	117	AM
NOON	0	0	0	0	0	NOON
PM	26	0	22	0	100	PM

EASTBOUND — E Yosemite Ave

AM	NOON	PM	
705	0	682	⇦
21	0	39	↶ 0
68	0	76	↱ 0
641	0	753	→ 0
0	0	0	↴ 0
AM	NOON	PM	

WESTBOUND — E Yosemite Ave

PM	NOON	AM	
24	0	49	0 ↰
617	0	624	0 ←
0	0	0	0 ↶
0	0	0	0 ↴
775	0	695	⇨
PM	NOON	AM	

NORTHBOUND — Mansionette Dr

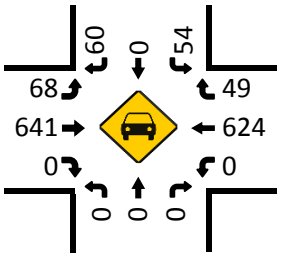
PM	0	0	0	0	0	PM
NOON	0	0	0	0	0	NOON
AM	0	0	0	0	0	AM

CONTROL

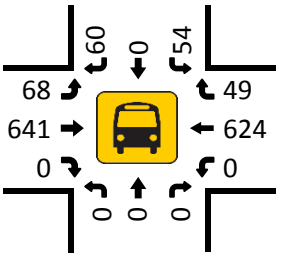
0

	AM	NOON	PM
TEV	###	0	###
PHF	0.93		0.91

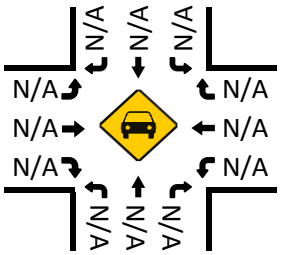
Total Vehicles (AM)



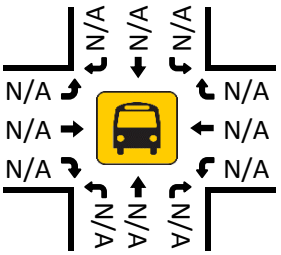
Total Vehicles (AM)



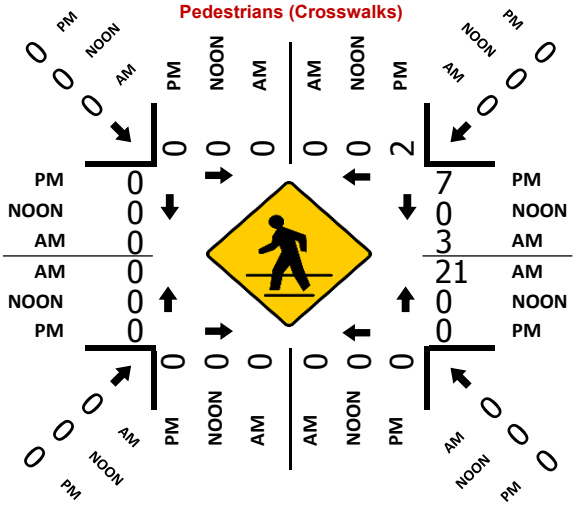
Total Vehicles (NOON)



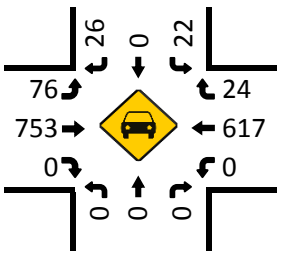
Total Vehicles (NOON)



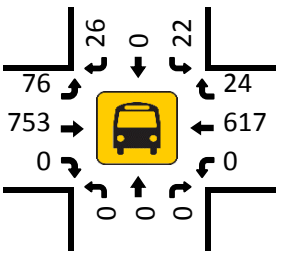
Pedestrians (Crosswalks)



Total Vehicles (PM)



Total Vehicles (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Mansionette Dr & E Yosemite Ave
City: Merced
Control:

Project ID: 19-07137-004
Date: 4/16/2019

Total

NS/EW Streets:	Mansionette Dr				Mansionette Dr				E Yosemite Ave				E Yosemite Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	5	0	13	0	8	80	0	2	0	74	6	0	188
7:15 AM	0	0	0	0	5	0	14	0	9	80	0	2	0	110	9	0	229
7:30 AM	0	0	0	0	8	0	16	0	10	116	0	3	0	170	17	0	340
7:45 AM	0	0	0	0	7	0	17	0	9	143	0	6	0	212	16	0	410
8:00 AM	0	0	0	0	13	0	11	0	12	191	0	7	0	133	11	0	378
8:15 AM	0	0	0	0	13	0	9	0	18	158	0	6	0	132	14	0	350
8:30 AM	0	0	0	0	21	0	23	0	29	149	0	2	0	147	8	0	379
8:45 AM	0	0	0	0	25	0	22	0	19	132	0	5	0	117	14	0	334
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	97	0	125	0	114	1049	0	33	0	1095	95	0	2608
APPROACH %'s :					43.69%	0.00%	56.31%	0.00%	9.53%	87.71%	0.00%	2.76%	0.00%	92.02%	7.98%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	0	0	0	0	54	0	60	0	68	641	0	21	0	624	49	0	1517
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.643	0.000	0.652	0.000	0.586	0.839	0.000	0.750	0.000	0.736	0.766	0.000	0.925
							0.648				0.869				0.738		

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	4	0	11	0	12	183	0	15	0	131	4	0	360
4:15 PM	0	0	0	0	6	0	10	0	15	197	0	9	0	174	8	0	419
4:30 PM	0	0	0	0	8	0	6	0	12	171	0	12	0	141	7	0	357
4:45 PM	0	0	0	0	4	0	7	0	14	187	0	15	0	138	4	0	369
5:00 PM	0	0	0	0	8	0	6	0	25	197	0	6	0	153	8	0	403
5:15 PM	0	0	0	0	7	0	4	0	18	200	0	12	0	179	6	0	426
5:30 PM	0	0	0	0	3	0	9	0	19	169	0	6	0	147	6	0	359
5:45 PM	0	0	0	0	5	0	12	0	21	156	0	10	0	141	10	0	355
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	45	0	65	0	136	1460	0	85	0	1204	53	0	3048
APPROACH %'s :					40.91%	0.00%	59.09%	0.00%	8.09%	86.85%	0.00%	5.06%	0.00%	95.78%	4.22%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	0	0	0	22	0	26	0	76	753	0	39	0	617	24	0	1557
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.688	0.000	0.722	0.000	0.760	0.941	0.000	0.650	0.000	0.862	0.750	0.000	0.914
							0.857				0.943				0.866		

National Data & Surveying Services

Intersection Turning Movement Count

Location: Mansionette Dr & E Yosemite Ave
City: Merced
Project ID: 19-07137-004
Date: 4/16/2019

Pedestrians (Crosswalks)

NS/EW Streets:	Mansionette Dr		Mansionette Dr		E Yosemite Ave		E Yosemite Ave		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	1	1	0	0	2
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	2	2	0	0	4
8:00 AM	0	0	0	0	3	1	0	0	4
8:15 AM	0	0	0	0	8	0	0	0	8
8:30 AM	0	0	0	0	8	0	0	0	8
8:45 AM	0	0	0	0	4	0	0	0	4
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	26	4	0	0	30
APPROACH %'s :					86.67%	13.33%			
PEAK HR :	**07:45 AM - 08:45 AM**								TOTAL
PEAK HR VOL :	0	0	0	0	21	3	0	0	24
PEAK HR FACTOR :					0.656	0.375			0.750
					0.750				

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	1	0	0	2	3	0	0	6
4:15 PM	2	0	0	0	2	4	0	0	8
4:30 PM	0	0	0	0	0	0	0	0	0
4:45 PM	0	2	0	0	0	4	0	0	6
5:00 PM	0	0	0	0	0	2	0	0	2
5:15 PM	0	0	0	0	0	1	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0
5:45 PM	0	1	0	0	1	1	0	0	3
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	2	4	0	0	5	15	0	0	26
APPROACH %'s :	33.33%	66.67%			25.00%	75.00%			
PEAK HR :	**04:45 PM - 05:45 PM**								TOTAL
PEAK HR VOL :	0	2	0	0	0	7	0	0	9
PEAK HR FACTOR :		0.250				0.438			0.375
	0.250				0.438				

Prepared by National Data & Surveying Services

Paulson Rd & E Yosemite Ave

Peak Hour Turning Movement Count

ID: 19-07137-005
City: Merced

Day: Tuesday
Date: 04/16/2019

PEAK HOURS

AM: 07:45 AM - 08:45 AM
NOON: NONE
PM: 04:45 PM - 05:45 PM

COUNT PERIODS

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

SOUTHBOUND (Paulson Rd)

AM	82	42	92	0	240	AM
NOON	0	0	0	0	0	NOON
PM	119	13	96	0	216	PM

EASTBOUND (E Yosemite Ave)

AM	NOON	PM	
681	0	615	⇦
0	0	0	↶ 0
41	0	107	↰ 0
536	0	599	→ 0
37	0	24	↱ 0
AM	NOON	PM	

WESTBOUND (E Yosemite Ave)

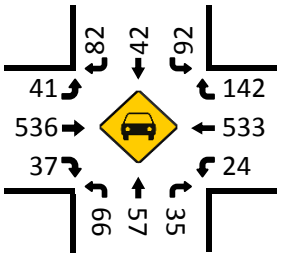
PM	NOON	AM	
96	0	142	↱ 0
488	0	533	← 0
7	0	24	↰ 0
0	0	0	↶ 0
705	0	663	⇨
PM	NOON	AM	

NORTHBOUND (Paulson Rd)

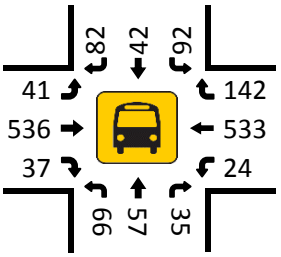
PM	44	0	8	13	10	PM
NOON	0	0	0	0	0	NOON
AM	103	0	66	57	35	AM

CONTROL			
0			
TEV	### AM	0 NOON	### PM
PHF	0.97		0.90

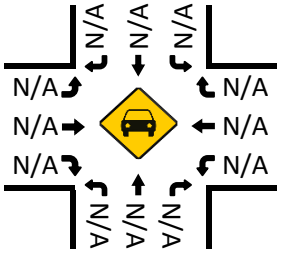
Total Vehicles (AM)



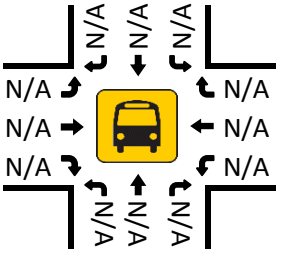
Total Vehicles (AM)



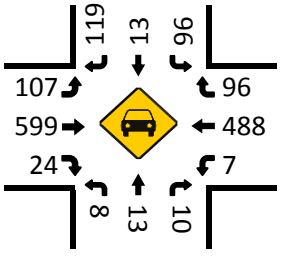
Total Vehicles (NOON)



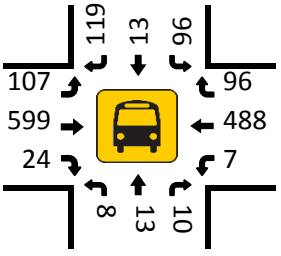
Total Vehicles (NOON)



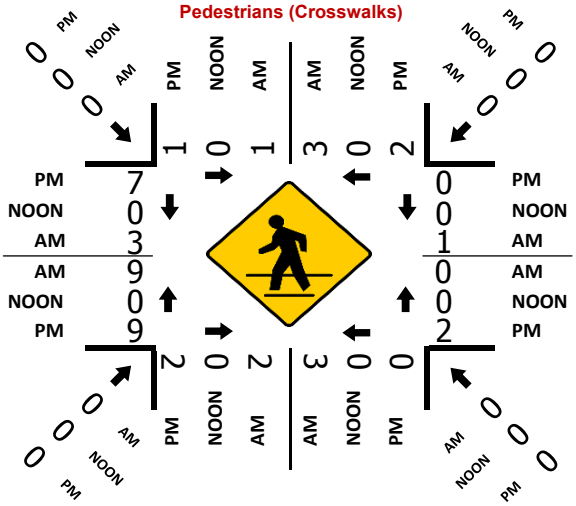
Total Vehicles (PM)



Total Vehicles (PM)



Pedestrians (Crosswalks)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Paulson Rd & E Yosemite Ave
City: Merced
Control:

Project ID: 19-07137-005
Date: 4/16/2019

Total

NS/EW Streets:	Paulson Rd				Paulson Rd				E Yosemite Ave				E Yosemite Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	5	2	0	0	7	2	19	0	5	82	2	0	0	49	5	0	178
7:15 AM	3	0	0	0	16	1	19	0	4	66	0	0	1	102	11	0	223
7:30 AM	6	2	0	0	27	2	32	0	3	101	5	0	3	148	31	0	360
7:45 AM	7	4	1	0	21	5	28	0	10	121	3	0	2	194	40	0	436
8:00 AM	10	11	12	0	22	13	16	0	9	160	10	0	5	122	32	0	422
8:15 AM	15	19	10	0	28	14	16	0	7	126	16	0	11	114	35	0	411
8:30 AM	34	23	12	0	21	10	22	0	15	129	8	0	6	103	35	0	418
8:45 AM	4	11	5	0	15	1	20	0	13	135	4	0	1	97	45	0	351
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	84	72	40	0	157	48	172	0	66	920	48	0	29	929	234	0	2799
APPROACH %'s :	42.86%	36.73%	20.41%	0.00%	41.64%	12.73%	45.62%	0.00%	6.38%	88.97%	4.64%	0.00%	2.43%	77.94%	19.63%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	66	57	35	0	92	42	82	0	41	536	37	0	24	533	142	0	1687
PEAK HR FACTOR :	0.485	0.620	0.729	0.000	0.821	0.750	0.732	0.000	0.683	0.838	0.578	0.000	0.545	0.687	0.888	0.000	0.967
	0.572				0.931				0.858				0.740				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	4	1	2	0	29	6	25	0	26	144	7	0	3	116	11	0	374
4:15 PM	5	9	5	0	18	3	26	0	19	143	7	0	4	96	13	0	348
4:30 PM	2	3	2	0	20	3	34	0	36	138	1	0	0	100	16	0	355
4:45 PM	2	2	4	0	25	0	29	0	30	137	5	0	2	110	26	0	372
5:00 PM	3	6	2	0	26	5	24	0	28	153	9	0	2	110	14	0	382
5:15 PM	2	3	2	0	30	4	39	0	23	157	7	0	1	140	30	0	438
5:30 PM	1	2	2	0	15	4	27	0	26	152	3	0	2	128	26	0	388
5:45 PM	1	3	0	0	19	2	30	0	32	119	6	0	3	114	25	0	354
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	20	29	19	0	182	27	234	0	220	1143	45	0	17	914	161	0	3011
APPROACH %'s :	29.41%	42.65%	27.94%	0.00%	41.08%	6.09%	52.82%	0.00%	15.63%	81.18%	3.20%	0.00%	1.56%	83.70%	14.74%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	8	13	10	0	96	13	119	0	107	599	24	0	7	488	96	0	1580
PEAK HR FACTOR :	0.667	0.542	0.625	0.000	0.800	0.650	0.763	0.000	0.892	0.954	0.667	0.000	0.875	0.871	0.800	0.000	0.902
	0.705				0.781				0.961				0.864				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Paulson Rd & E Yosemite Ave
City: Merced
Project ID: 19-07137-005
Date: 4/16/2019

Pedestrians (Crosswalks)

NS/EW Streets:	Paulson Rd		Paulson Rd		E Yosemite Ave		E Yosemite Ave		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	1	1	0	0	1	1	1	0	5
7:30 AM	0	0	0	0	0	0	1	0	1
7:45 AM	0	0	1	0	0	0	1	2	4
8:00 AM	0	0	0	0	0	0	3	1	4
8:15 AM	0	0	0	0	0	1	3	0	4
8:30 AM	1	3	1	3	0	0	2	0	10
8:45 AM	0	1	0	0	1	0	2	0	4
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	2	5	2	3	2	2	13	3	32
APPROACH %'s :	28.57%	71.43%	40.00%	60.00%	50.00%	50.00%	81.25%	18.75%	
PEAK HR :	07:45 AM - 08:45 AM								TOTAL
PEAK HR VOL :	1	3	2	3	0	1	9	3	22
PEAK HR FACTOR :	0.250	0.250	0.500	0.250		0.250	0.750	0.375	0.550
	0.250		0.313		0.250		0.750		

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	1	0	4	0	0	0	0	1	6
4:15 PM	0	1	2	0	0	0	0	1	4
4:30 PM	0	2	1	0	2	0	1	2	8
4:45 PM	0	0	0	0	0	0	3	1	4
5:00 PM	1	0	2	0	0	0	2	3	8
5:15 PM	0	0	0	0	0	0	2	2	4
5:30 PM	0	2	0	0	2	0	2	1	7
5:45 PM	0	2	0	1	0	0	2	6	11
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	2	7	9	1	4	0	12	17	52
APPROACH %'s :	22.22%	77.78%	90.00%	10.00%	100.00%	0.00%	41.38%	58.62%	
PEAK HR :	04:45 PM - 05:45 PM								TOTAL
PEAK HR VOL :	1	2	2	0	2	0	9	7	23
PEAK HR FACTOR :	0.250	0.250	0.250		0.250		0.750	0.583	0.719
	0.375		0.250		0.250		0.800		

Appendix C: Methodology

Levels of Service Methodology

The description and procedures for calculating capacity and level of service (LOS) are found in the Transportation Research Board, Highway Capacity Manual (HCM). The HCM 2010 represents the research on capacity and quality of service for transportation facilities.

Quality of service requires quantitative measures to characterize operational conditions within a traffic stream. Level of service is a quality measure describing operational conditions within a traffic stream, generally in terms of such service measures as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience.

Six levels of service are defined for each type of facility that has analysis procedures available. Letters designate each level of service (LOS), from A to F, with LOS A representing the best operating conditions and LOS F the worst. Each LOS represents a range of operating conditions and the driver's perception of these conditions. Safety is not included in the measures that establish a LOS.

Urban Streets (Automobile Mode)

The term "urban streets" refers to urban arterials and collectors, including those in downtown areas. Arterial streets are roads that primarily serve longer through trips. However, providing access to abutting commercial and residential land uses is also an important function of arterials. Collector streets provide both land access and traffic circulation within residential, commercial and industrial areas. Their access function is more important than that of arterials, and unlike arterials their operation is not always dominated by traffic signals. Downtown streets are signalized facilities that often resemble arterials. They not only move through traffic but also provide access to local businesses for passenger cars, transit buses, and trucks. Pedestrian conflicts and lane obstructions created by stopping or standing taxicabs, buses, trucks and parking vehicles that cause turbulence in the traffic flow are typical of downtown streets.

Flow Characteristics

The speed of vehicles on urban streets is influenced by three main factors, street environment, interaction among vehicles and traffic control.

The street environment includes the geometric characteristics of the facility, the character of roadside activity, and adjacent land uses. Thus, the environment reflects the number and width of lanes, type of median, driveway/access point density, spacing between signalized intersections, existence of parking, level of pedestrian and bicyclist activity and speed limit.

The interaction among vehicles is determined by traffic density, the proportion of trucks and buses, and turning movements. This interaction affects the operation of vehicles at intersections and, to a lesser extent, between signals.

Traffic controls (including signals and signs) forces a portion of all vehicles to slow or stop. The delays and speed changes caused by traffic control devices reduce vehicle speeds; however, such controls are needed to establish right-of-way.

Levels of Service (automobile Mode)

The average travel speed for through vehicles along an urban street is the determinant of the operating level of service (LOS). The travel speed along a segment, section or entire length of an urban street is dependent on the running speed between signalized intersections and the amount of control delay incurred at signalized intersections.

LOS A describes primarily free-flow operation. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Control delay at signalized intersections is minimal. Travel speeds exceed 85 of the base free flow speed (FFS).

LOS B describes reasonably unimpeded operation. The ability to maneuver within the traffic stream is only slightly restricted and control delay at the boundary intersections is not significant. The travel speed is between 67 and 85 percent of the base FFS.

LOS C describes stable operations. The ability to maneuver and change lanes in midblock location may be more restricted than at LOS B. Longer queues at the boundary intersections may contribute to lower travel speeds. The travel speed is between 50 and 67 percent of the base FFS.

LOS D indicates a less stable condition in which small increases in flow may cause substantial increases in delay and decreases in travel speed. This operation may be due to adverse signal progression, high volumes, inappropriate signal timing, at the boundary intersections. The travel speed is between 40 and 50 percent of the base FFS.

LOS E is characterized unstable operation and significant delay. Such operations may be due to some combination of adverse progression, high volume, and inappropriate signal timing at the boundary intersections. The travel speed is between 30 and 40 percent of the base FFS.

LOS F is characterized by street flow at extremely low speed. Congestion is likely occurring at the boundary intersections, as indicated by high delay and extensive queuing. The travel speed is 30 percent or less of the base FFS.

Table A-1: Urban Street Levels of Service (Automobile Mode)

Travel Speed as a Percentage of Base Free-Flow Speed (%)	LOS by Critical Volume-to-Capacity Ratio[a]	
	≤1.0	>1.0
>85	A	F
>67 to 85	B	F
>50 to 67	C	F
>40 to 50	D	F
>30 to 40	E	F
≤30	F	F

a = The Critical volume-to-capacity ratio is based on consideration of the through movement-to-capacity ratio at each boundary intersection in the subject direction of travel. The critical volume-to-capacity ratio is the largest ratio of those considered.
Source: Highway Capacity Manual 2010, Exhibit 16-4. Urban Street LOS Criteria (Automobile Mode)

Intersection Levels of Service

One of the more important elements limiting, and often interrupting the flow of traffic on a highway is the intersection. Flow on an interrupted facility is usually dominated by points of fixed operation such as traffic signals, stop and yield signs.

Signalized Intersections – Performance Measures

For signalized intersections the performance measures include automobile volume-to-capacity ratio, automobile delay, queue storage length, ratio of pedestrian delay, pedestrian circulation area, pedestrian perception score, bicycle delay, and bicycle perception score. LOS is also considered a performance measure. For the automobile mode average control delay per vehicle per approach is determined for the peak hour. A weighted average of control delay per vehicle is then determined for the intersection. A LOS designation is given to the weighted average control delay to better describe the level of operation. A description of LOS for signalized intersections is found in Table A-2.

Table A-2: Signalized Intersection Level of Service Description (Automobile Mode)

Level of Service	Description	Average Control Delay (seconds per vehicle)
A	Operations with a control delay of 10 seconds/vehicle or less and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when volume-to-capacity ratio is and either progression is exceptionally favorable or the cycle length is very short. If it's due to favorable progression, most vehicles arrive during the green indication and travel through the intersection without stopping.	≤10
B	Operations with control delay between 10.1 to 20.0 seconds/vehicle and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is low and either progression is highly favorable or the cycle length is short. More vehicles stop than with LOS A.	>10.0 to 20.0
C	Operations with average control delays between 20.1 to 35.0 seconds/vehicle and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio no greater than 1.0. This level is typically assigned when progression is favorable or the cycle length is moderate. Individual cycle failures (i.e., one or more queued vehicles are not able to depart as a result of insufficient capacity during the cycle) may begin to appear at this level. The number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.	>20 to 35
D	Operations with control delay between 35.1 to 55.0 seconds/vehicle and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high and either progression is ineffective or the cycle length is long. Many vehicles stop, and i ndividual cycle failures are noticeable.	>35 to 55
E	Operations with control delay between 55.1 to 80.0 seconds/vehicle and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high, progression is unfavorable, and the cycle length is long. Individual cycle failures are frequent.	>55 to 80
F	Operations with unacceptable control delay exceeding 80.0 seconds/vehicle and a volume-to-capacity ratio greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is very high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue.	>80

Source: Highway Capacity Manual 2010

Unsignalized Intersections

The HCM 2010 procedures use control delay as a measure of effectiveness to determine level of service. Delay is a measure of driver discomfort, frustration, fuel consumption, and increased travel time. The delay experienced by a motorist is made up of a number of factors that relate to control, traffic and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during base conditions, i. e., in the absence of traffic control, geometric delay, any incidents, and any other vehicles. Control delay is the increased time of travel for a vehicle approaching and passing through an unsignalized intersection, compared with a free-flow vehicle if it were not required to slow or stop at the intersection.

All-Way Stop Controlled Intersections

All-way stop controlled intersections is a form of traffic controls in which all approaches to an intersection are required to stop. Similar to signalized intersections, at all-way stop controlled intersections the average control delay per vehicle per approach is determined for the peak hour. A weighted average of control delay per vehicle is then determined for the intersection as a whole. In other words the delay measured for all-way stop controlled intersections is a measure of the average delay for all vehicles passing through the intersection during the peak hour. A LOS designation is given to the weighted average control delay to better describe the level of operation.

Two-Way Stop Controlled Intersections

Two-way stop controlled (TWSC) intersections in which stop signs are used to assign the right-of-way, are the most prevalent type of intersection in the United States. At TWSC intersections the stop-controlled approaches are referred as the minor street approaches and can be either public streets or private driveways. The approaches that are not controlled by stop signs are referred to as the major street approaches.

The capacity of movements subject to delay are determined using the "critical gap" method of capacity analysis. Expected average control delay based on movement volume and movement capacity is calculated. A LOS for TWSC intersection is determined by the computed or measured control delay for each minor movement. LOS is not defined for the intersection as a whole for three main reasons: (a) major-street through vehicles are assumed to experience zero delay; (b) the disproportionate number of major-street through vehicles at the typical TWSC intersection skews the weighted average of all movements, resulting in a very low overall average delay from all vehicles; and (c) the resulting low delay can mask important LOS deficiencies for minor movements. Table A-3 provides a description of LOS at unsignalized intersections.

Table A-3: Unsignalized Intersection Level of Service Description (Automobile Mode)

Control Delay (seconds per vehicle)	LOS by Volume-to-Capacity Ratio	
	v/c ≤ 1.0	**v/c > 1.0**
≤10	A	F
>10 to 15	B	F
>15 to 25	C	F
>25 to 35	D	F
>35 to 50	E	F
>50	F	F

Source: HCM 2010 Exhibit 19-1.

Appendix D: Existing Traffic Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	5	40	19	145	54	139	102	372	165	1	146	424
Future Volume (vph)	5	40	19	145	54	139	102	372	165	1	146	424
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	4.0		4.2	4.0		4.2	6.0	6.0		4.2	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00		1.00	0.95
Frpb, ped/bikes	1.00	1.00		1.00	0.99		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	1.00		1.00	1.00
Frt	1.00	0.95		1.00	0.89		1.00	1.00	0.85		1.00	1.00
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1752	1757		1752	1631		1752	3505	1534		1752	3505
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1752	1757		1752	1631		1752	3505	1534		1752	3505
Peak-hour factor, PHF	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
Adj. Flow (vph)	7	56	26	201	75	193	142	517	229	1	203	589
RTOR Reduction (vph)	0	18	0	0	98	0	0	0	176	0	0	0
Lane Group Flow (vph)	7	64	0	201	170	0	142	517	53	0	204	589
Confl. Peds. (#/hr)						1			1			
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	Prot	NA
Protected Phases	7	4		3	8		5	2		1	1	6
Permitted Phases									2			
Actuated Green, G (s)	0.7	11.0		14.2	24.5		7.5	17.4	17.4		14.0	23.9
Effective Green, g (s)	0.7	11.0		14.2	24.5		7.5	17.4	17.4		14.0	23.9
Actuated g/C Ratio	0.01	0.15		0.19	0.33		0.10	0.23	0.23		0.19	0.32
Clearance Time (s)	4.2	4.0		4.2	4.0		4.2	6.0	6.0		4.2	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	16	257		331	532		175	813	355		327	1116
v/s Ratio Prot	0.00	0.04		c0.11	c0.10		c0.08	c0.15			c0.12	0.17
v/s Ratio Perm									0.03			
v/c Ratio	0.44	0.25		0.61	0.32		0.81	0.64	0.15		0.62	0.53
Uniform Delay, d1	37.0	28.3		27.8	19.0		33.1	25.9	22.9		28.1	20.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	18.0	0.5		3.1	0.4		24.0	1.6	0.2		3.7	0.5
Delay (s)	54.9	28.9		31.0	19.3		57.1	27.6	23.1		31.8	21.4
Level of Service	D	C		C	B		E	C	C		C	C
Approach Delay (s)		30.9			24.3			31.1				23.7
Approach LOS		C			C			C				C

Intersection Summary			
HCM 2000 Control Delay	27.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	18.4
Intersection Capacity Utilization	45.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	29
Future Volume (vph)	29
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frpb, ped/bikes	1.00
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1568
Flt Permitted	1.00
Satd. Flow (perm)	1568
Peak-hour factor, PHF	0.72
Adj. Flow (vph)	40
RTOR Reduction (vph)	27
Lane Group Flow (vph)	13
Confl. Peds. (#/hr)	
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	23.9
Effective Green, g (s)	23.9
Actuated g/C Ratio	0.32
Clearance Time (s)	6.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	499
v/s Ratio Prot	
v/s Ratio Perm	0.01
v/c Ratio	0.03
Uniform Delay, d1	17.6
Progression Factor	1.00
Incremental Delay, d2	0.0
Delay (s)	17.6
Level of Service	B
Approach Delay (s)	
Approach LOS	

Intersection Summary

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	130	204	12	2	266	16	4	0	0	4	9	44
Future Vol, veh/h	130	204	12	2	266	16	4	0	0	4	9	44
Conflicting Peds, #/hr	0	0	0	0	0	6	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	-	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	173	272	16	3	355	21	5	0	0	5	12	59

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	382	0	0	288	0	0	1033	1014	280	1004	1012	372
Stage 1	-	-	-	-	-	-	626	626	-	378	378	-
Stage 2	-	-	-	-	-	-	407	388	-	626	634	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1171	-	-	1268	-	-	210	238	756	220	238	672
Stage 1	-	-	-	-	-	-	470	475	-	642	613	-
Stage 2	-	-	-	-	-	-	619	607	-	470	471	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1164	-	-	1268	-	-	162	201	756	193	201	668
Mov Cap-2 Maneuver	-	-	-	-	-	-	162	201	-	193	201	-
Stage 1	-	-	-	-	-	-	400	404	-	544	607	-
Stage 2	-	-	-	-	-	-	552	602	-	400	401	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3.2	0.1	28	14.1
HCM LOS			D	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	162	1164	-	-	1268	-	-	198	668
HCM Lane V/C Ratio	0.033	0.149	-	-	0.002	-	-	0.088	0.088
HCM Control Delay (s)	28	8.6	-	-	7.8	0	-	24.9	10.9
HCM Lane LOS	D	A	-	-	A	A	-	C	B
HCM 95th %tile Q(veh)	0.1	0.5	-	-	0	-	-	0.3	0.3

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	134	438	122	1	160	438	108	250	389	174	132	349
Future Volume (vph)	134	438	122	1	160	438	108	250	389	174	132	349
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	5.3			4.2	5.3	5.3	4.2	5.3	5.3	4.2	6.0
Lane Util. Factor	1.00	0.95			1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	0.99			1.00	1.00	0.99	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	1.00
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)	1752	3368			1752	3505	1548	1752	3505	1546	1752	3505
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)	1752	3368			1752	3505	1548	1752	3505	1546	1752	3505
Peak-hour factor, PHF	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Adj. Flow (vph)	161	528	147	1	193	528	130	301	469	210	159	420
RTOR Reduction (vph)	0	24	0	0	0	0	92	0	0	115	0	0
Lane Group Flow (vph)	161	651	0	0	194	528	38	301	469	95	159	420
Confl. Peds. (#/hr)			23				1			2		
Turn Type	Prot	NA		Prot	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	7	4		3	3	8		5	2		1	6
Permitted Phases							8			2		
Actuated Green, G (s)	10.2	23.7			13.0	26.5	26.5	18.3	23.8	23.8	12.3	17.1
Effective Green, g (s)	10.2	23.7			13.0	26.5	26.5	18.3	23.8	23.8	12.3	17.1
Actuated g/C Ratio	0.11	0.26			0.14	0.29	0.29	0.20	0.26	0.26	0.13	0.19
Clearance Time (s)	4.2	5.3			4.2	5.3	5.3	4.2	5.3	5.3	4.2	6.0
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)	194	869			248	1011	446	349	908	400	234	652
v/s Ratio Prot	0.09	c0.19			c0.11	c0.15		c0.17	0.13		0.09	c0.12
v/s Ratio Perm							0.02			0.06		
v/c Ratio	0.83	0.75			0.78	0.52	0.08	0.86	0.52	0.24	0.68	0.64
Uniform Delay, d1	40.0	31.3			38.0	27.3	23.8	35.5	29.1	26.8	37.9	34.5
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	24.4	3.6			14.8	0.5	0.1	19.2	0.5	0.3	7.6	2.2
Delay (s)	64.4	34.9			52.8	27.8	23.9	54.7	29.6	27.1	45.5	36.7
Level of Service	E	C			D	C	C	D	C	C	D	D
Approach Delay (s)		40.6				32.9			36.8			37.6
Approach LOS		D				C			D			D

Intersection Summary			
HCM 2000 Control Delay	36.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	91.8	Sum of lost time (s)	19.7
Intersection Capacity Utilization	73.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	112
Future Volume (vph)	112
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frpb, ped/bikes	0.98
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1541
Flt Permitted	1.00
Satd. Flow (perm)	1541
Peak-hour factor, PHF	0.83
Adj. Flow (vph)	135
RTOR Reduction (vph)	110
Lane Group Flow (vph)	25
Confl. Peds. (#/hr)	5
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	17.1
Effective Green, g (s)	17.1
Actuated g/C Ratio	0.19
Clearance Time (s)	6.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	287
v/s Ratio Prot	
v/s Ratio Perm	0.02
v/c Ratio	0.09
Uniform Delay, d1	30.9
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	31.0
Level of Service	C
Approach Delay (s)	
Approach LOS	

Intersection Summary

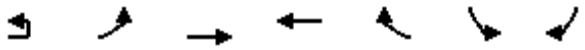
Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱		↑↑	↱			↱			↱
Traffic Vol, veh/h	0	712	1	0	650	0	0	0	4	0	0	0
Future Vol, veh/h	0	712	1	0	650	0	0	0	4	0	0	0
Conflicting Peds, #/hr	0	0	21	21	0	3	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	60	-	-	0	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	749	1	0	684	0	0	0	4	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	396	-	-	345
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.96	-	-	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.33	-	-	3.33
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	600	0	0	648
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	588	-	-	646
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

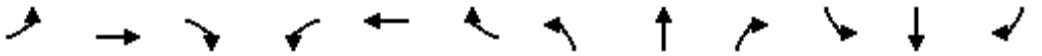
Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	11.2	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	588	-	-	-	-	-
HCM Lane V/C Ratio	0.007	-	-	-	-	-
HCM Control Delay (s)	11.2	-	-	-	-	0
HCM Lane LOS	B	-	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-	-



Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	21	68	641	624	49	54	60
Future Volume (vph)	21	68	641	624	49	54	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2	5.3	5.3	5.3	4.2	4.2
Lane Util. Factor		1.00	0.95	0.95	1.00	1.00	1.00
Frpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected		0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)		1752	3505	3505	1568	1752	1568
Flt Permitted		0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)		1752	3505	3505	1568	1752	1568
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	23	73	689	671	53	58	65
RTOR Reduction (vph)	0	0	0	0	18	0	57
Lane Group Flow (vph)	0	96	689	671	35	58	8
Confl. Peds. (#/hr)						24	
Turn Type	Prot	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	7	7	4	8		6	
Permitted Phases					8		6
Actuated Green, G (s)		8.9	69.7	56.6	56.6	10.8	10.8
Effective Green, g (s)		8.9	69.7	56.6	56.6	10.8	10.8
Actuated g/C Ratio		0.10	0.77	0.63	0.63	0.12	0.12
Clearance Time (s)		4.2	5.3	5.3	5.3	4.2	4.2
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		173	2714	2204	986	210	188
v/s Ratio Prot		c0.05	0.20	c0.19		c0.03	
v/s Ratio Perm					0.02		0.00
v/c Ratio		0.55	0.25	0.30	0.04	0.28	0.04
Uniform Delay, d1		38.7	2.8	7.7	6.3	36.0	35.0
Progression Factor		1.00	1.00	0.26	0.03	1.00	1.00
Incremental Delay, d2		3.8	0.2	0.3	0.1	0.7	0.1
Delay (s)		42.5	3.1	2.4	0.3	36.8	35.1
Level of Service		D	A	A	A	D	D
Approach Delay (s)			7.9	2.2		35.9	
Approach LOS			A	A		D	

Intersection Summary			
HCM 2000 Control Delay	7.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.7
Intersection Capacity Utilization	37.8%	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 (veh/h)	41	536	37	24	533	142	66	57	35	92	42	82
Future Volume (veh/h)	41	536	37	24	533	142	66	57	35	92	42	82
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		0.99	1.00		1.00	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	42	553	38	25	549	146	68	59	36	95	43	85
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	704	583	490	516	732	323	87	140	85	116	75	149
Arrive On Green	0.40	0.31	0.31	0.29	0.21	0.21	0.05	0.13	0.13	0.07	0.14	0.14
Sat Flow, veh/h	1767	1856	1560	1767	3526	1557	1767	1077	657	1767	547	1080
Grp Volume(v), veh/h	42	553	38	25	549	146	68	0	95	95	0	128
Grp Sat Flow(s),veh/h/ln	1767	1856	1560	1767	1763	1557	1767	0	1734	1767	0	1627
Q Serve(g_s), s	1.3	26.2	1.5	0.9	13.2	5.8	3.4	0.0	4.5	4.8	0.0	6.6
Cycle Q Clear(g_c), s	1.3	26.2	1.5	0.9	13.2	5.8	3.4	0.0	4.5	4.8	0.0	6.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.38	1.00		0.66
Lane Grp Cap(c), veh/h	704	583	490	516	732	323	87	0	225	116	0	225
V/C Ratio(X)	0.06	0.95	0.08	0.05	0.75	0.45	0.78	0.00	0.42	0.82	0.00	0.57
Avail Cap(c_a), veh/h	704	586	492	516	1058	467	122	0	636	116	0	575
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.7	30.1	21.7	22.9	33.5	19.2	42.3	0.0	36.1	41.5	0.0	36.3
Incr Delay (d2), s/veh	0.0	26.5	0.3	0.0	6.9	4.5	18.9	0.0	1.3	35.4	0.0	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	15.0	0.6	0.4	6.0	3.0	2.0	0.0	2.0	3.1	0.0	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.7	56.7	22.0	22.9	40.4	23.7	61.2	0.0	37.3	76.9	0.0	38.6
LnGrp LOS	B	E	C	C	D	C	E	A	D	E	A	D
Approach Vol, veh/h		633			720			163			223	
Approach Delay, s/veh		51.9			36.4			47.3			54.9	
Approach LOS		D			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.1	15.9	30.5	33.6	8.6	17.3	40.1	24.0
Change Period (Y+Rc), s	* 4.2	* 4.2	4.2	* 5.3	4.2	* 4.9	4.2	* 5.3
Max Green Setting (Gmax), s	* 5.9	* 33	5.0	* 28	6.2	* 32	6.4	* 27
Max Q Clear Time (g_c+I1), s	6.8	6.5	2.9	28.2	5.4	8.6	3.3	15.2
Green Ext Time (p_c), s	0.0	0.5	0.0	0.1	0.0	0.6	0.0	3.0

Intersection Summary	
HCM 6th Ctrl Delay	45.5
HCM 6th LOS	D

Notes

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	19	39	74	161	49	85	1	88	375	104	1	69
Future Volume (vph)	19	39	74	161	49	85	1	88	375	104	1	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	4.0		4.2	4.0			4.2	6.0	6.0		4.2
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00	0.95	1.00		1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99			1.00	1.00	0.98		1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00	1.00		1.00
Frt	1.00	0.90		1.00	0.91			1.00	1.00	0.85		1.00
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00	1.00		0.95
Satd. Flow (prot)	1752	1663		1752	1656			1752	3505	1532		1752
Flt Permitted	0.95	1.00		0.95	1.00			0.95	1.00	1.00		0.95
Satd. Flow (perm)	1752	1663		1752	1656			1752	3505	1532		1752
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	20	42	80	173	53	91	1	95	403	112	1	74
RTOR Reduction (vph)	0	67	0	0	61	0	0	0	0	76	0	0
Lane Group Flow (vph)	20	55	0	173	83	0	0	96	403	36	0	75
Confl. Peds. (#/hr)						3				2		
Turn Type	Prot	NA		Prot	NA		Prot	Prot	NA	Perm	Prot	Prot
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases										2		
Actuated Green, G (s)	0.6	10.8		12.2	22.4			7.6	21.5	21.5		4.9
Effective Green, g (s)	0.6	10.8		12.2	22.4			7.6	21.5	21.5		4.9
Actuated g/C Ratio	0.01	0.16		0.18	0.33			0.11	0.32	0.32		0.07
Clearance Time (s)	4.2	4.0		4.2	4.0			4.2	6.0	6.0		4.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	15	264		315	547			196	1111	485		126
v/s Ratio Prot	0.01	c0.03		c0.10	0.05			c0.05	c0.11			0.04
v/s Ratio Perm										0.02		
v/c Ratio	1.33	0.21		0.55	0.15			0.49	0.36	0.07		0.60
Uniform Delay, d1	33.6	24.8		25.3	16.0			28.3	17.9	16.2		30.5
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00		1.00
Incremental Delay, d2	353.6	0.4		2.0	0.1			1.9	0.2	0.1		7.4
Delay (s)	387.2	25.2		27.3	16.1			30.2	18.1	16.2		37.8
Level of Service	F	C		C	B			C	B	B		D
Approach Delay (s)		76.2			22.2				19.6			
Approach LOS		E			C				B			

Intersection Summary			
HCM 2000 Control Delay	26.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	67.8	Sum of lost time (s)	18.4
Intersection Capacity Utilization	46.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	403	19
Future Volume (vph)	403	19
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	6.0	6.0
Lane Util. Factor	0.95	1.00
Frpb, ped/bikes	1.00	0.99
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	3505	1546
Flt Permitted	1.00	1.00
Satd. Flow (perm)	3505	1546
Peak-hour factor, PHF	0.93	0.93
Adj. Flow (vph)	433	20
RTOR Reduction (vph)	0	14
Lane Group Flow (vph)	433	6
Confl. Peds. (#/hr)		3
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Actuated Green, G (s)	18.8	18.8
Effective Green, g (s)	18.8	18.8
Actuated g/C Ratio	0.28	0.28
Clearance Time (s)	6.0	6.0
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	971	428
v/s Ratio Prot	c0.12	
v/s Ratio Perm		0.00
v/c Ratio	0.45	0.01
Uniform Delay, d1	20.2	17.8
Progression Factor	1.00	1.00
Incremental Delay, d2	0.3	0.0
Delay (s)	20.5	17.8
Level of Service	C	B
Approach Delay (s)	22.9	
Approach LOS	C	

Intersection Summary

Intersection	
Int Delay, s/veh	3.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	80	127	4	2	175	7	17	7	4	11	0	61
Future Vol, veh/h	80	127	4	2	175	7	17	7	4	11	0	61
Conflicting Peds, #/hr	0	0	2	0	0	7	0	0	1	0	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	-	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	88	140	4	2	192	8	19	8	4	12	0	67

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	207	0	0	146	0	0	559	531	145	532	529	208
Stage 1	-	-	-	-	-	-	320	320	-	207	207	-
Stage 2	-	-	-	-	-	-	239	211	-	325	322	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1358	-	-	1430	-	-	438	453	900	457	454	830
Stage 1	-	-	-	-	-	-	690	651	-	793	729	-
Stage 2	-	-	-	-	-	-	762	726	-	685	649	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1349	-	-	1427	-	-	379	419	897	422	420	821
Mov Cap-2 Maneuver	-	-	-	-	-	-	379	419	-	422	420	-
Stage 1	-	-	-	-	-	-	644	607	-	737	722	-
Stage 2	-	-	-	-	-	-	695	719	-	629	606	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3	0.1	14.2	10.4
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	424	1349	-	-	1427	-	-	422	821
HCM Lane V/C Ratio	0.073	0.065	-	-	0.002	-	-	0.029	0.082
HCM Control Delay (s)	14.2	7.9	-	-	7.5	0	-	13.8	9.8
HCM Lane LOS	B	A	-	-	A	A	-	B	A
HCM 95th %tile Q(veh)	0.2	0.2	-	-	0	-	-	0.1	0.3

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	146	486	164	1	144	392	59	297	359	186	127	366
Future Volume (vph)	146	486	164	1	144	392	59	297	359	186	127	366
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	5.3			4.2	5.3	5.3	4.2	5.3	5.3	4.2	6.0
Lane Util. Factor	1.00	0.95			1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	0.99			1.00	1.00	0.99	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	1.00
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)	1752	3346			1752	3505	1546	1752	3505	1548	1752	3505
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)	1752	3346			1752	3505	1546	1752	3505	1548	1752	3505
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	155	517	174	1	153	417	63	316	382	198	135	389
RTOR Reduction (vph)	0	32	0	0	0	0	45	0	0	133	0	0
Lane Group Flow (vph)	155	659	0	0	154	417	18	316	382	65	135	389
Confl. Peds. (#/hr)			24				3			1		
Turn Type	Prot	NA		Prot	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	7	4		3	3	8		5	2		1	6
Permitted Phases							8			2		
Actuated Green, G (s)	8.9	23.5			10.9	25.5	25.5	18.1	24.1	24.1	10.9	16.2
Effective Green, g (s)	8.9	23.5			10.9	25.5	25.5	18.1	24.1	24.1	10.9	16.2
Actuated g/C Ratio	0.10	0.27			0.12	0.29	0.29	0.20	0.27	0.27	0.12	0.18
Clearance Time (s)	4.2	5.3			4.2	5.3	5.3	4.2	5.3	5.3	4.2	6.0
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)	176	889			216	1011	445	358	955	422	216	642
v/s Ratio Prot	c0.09	c0.20			0.09	0.12		c0.18	0.11		0.08	c0.11
v/s Ratio Perm							0.01			0.04		
v/c Ratio	0.88	0.74			0.71	0.41	0.04	0.88	0.40	0.15	0.62	0.61
Uniform Delay, d1	39.2	29.7			37.2	25.4	22.6	34.1	26.2	24.4	36.8	33.2
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	36.4	3.4			10.6	0.3	0.0	21.7	0.3	0.2	5.5	1.6
Delay (s)	75.6	33.0			47.8	25.7	22.7	55.8	26.5	24.6	42.3	34.8
Level of Service	E	C			D	C	C	E	C	C	D	C
Approach Delay (s)		40.8				30.8			36.4			35.2
Approach LOS		D				C			D			D

Intersection Summary			
HCM 2000 Control Delay	36.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	88.4	Sum of lost time (s)	19.7
Intersection Capacity Utilization	76.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	151
Future Volume (vph)	151
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frpb, ped/bikes	0.98
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1543
Flt Permitted	1.00
Satd. Flow (perm)	1543
Peak-hour factor, PHF	0.94
Adj. Flow (vph)	161
RTOR Reduction (vph)	131
Lane Group Flow (vph)	30
Confl. Peds. (#/hr)	4
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	16.2
Effective Green, g (s)	16.2
Actuated g/C Ratio	0.18
Clearance Time (s)	6.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	282
v/s Ratio Prot	
v/s Ratio Perm	0.02
v/c Ratio	0.10
Uniform Delay, d1	30.1
Progression Factor	1.00
Incremental Delay, d2	0.2
Delay (s)	30.2
Level of Service	C
Approach Delay (s)	
Approach LOS	

Intersection Summary

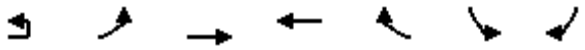
Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱		↑↑	↱			↱			↱
Traffic Vol, veh/h	0	855	4	0	756	0	0	0	15	0	0	0
Future Vol, veh/h	0	855	4	0	756	0	0	0	15	0	0	0
Conflicting Peds, #/hr	0	0	11	0	0	7	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	60	-	-	0	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	881	4	0	779	0	0	0	15	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	452	-	-	397
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.96	-	-	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.33	-	-	3.33
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	552	0	0	600
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	546	-	-	596
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

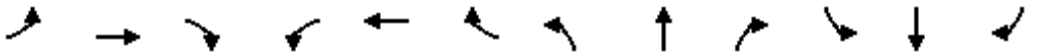
Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	11.8	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	546	-	-	-	-	-
HCM Lane V/C Ratio	0.028	-	-	-	-	-
HCM Control Delay (s)	11.8	-	-	-	-	0
HCM Lane LOS	B	-	-	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	-	-



Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	39	76	753	617	24	22	26
Future Volume (vph)	39	76	753	617	24	22	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2	5.3	5.3	5.3	4.2	4.2
Lane Util. Factor		1.00	0.95	0.95	1.00	1.00	1.00
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	1.00	1.00	0.85	1.00	0.85
Flt Protected		0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)		1752	3505	3505	1531	1752	1568
Flt Permitted		0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)		1752	3505	3505	1531	1752	1568
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	43	84	827	678	26	24	29
RTOR Reduction (vph)	0	0	0	0	9	0	26
Lane Group Flow (vph)	0	127	827	678	17	24	3
Confl. Peds. (#/hr)					2	7	
Turn Type	Prot	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	7	7	4	8		6	
Permitted Phases					8		6
Actuated Green, G (s)		11.3	67.9	52.4	52.4	8.6	8.6
Effective Green, g (s)		11.3	67.9	52.4	52.4	8.6	8.6
Actuated g/C Ratio		0.13	0.79	0.61	0.61	0.10	0.10
Clearance Time (s)		4.2	5.3	5.3	5.3	4.2	4.2
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		230	2767	2135	932	175	156
v/s Ratio Prot		c0.07	0.24	c0.19		c0.01	
v/s Ratio Perm					0.01		0.00
v/c Ratio		0.55	0.30	0.32	0.02	0.14	0.02
Uniform Delay, d1		35.0	2.5	8.1	6.6	35.3	34.9
Progression Factor		1.00	1.00	0.28	0.07	1.00	1.00
Incremental Delay, d2		2.9	0.3	0.4	0.0	0.4	0.0
Delay (s)		37.8	2.8	2.7	0.5	35.7	34.9
Level of Service		D	A	A	A	D	C
Approach Delay (s)			7.4	2.6		35.3	
Approach LOS			A	A		D	

Intersection Summary			
HCM 2000 Control Delay	6.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	86.0	Sum of lost time (s)	13.7
Intersection Capacity Utilization	42.0%	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 (veh/h)	107	599	24	7	488	96	8	13	10	96	13	119
Future Volume (veh/h)	107	599	24	7	488	96	8	13	10	96	13	119
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.99	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	119	666	27	8	542	107	9	14	11	107	14	132
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	689	1106	936	18	718	318	20	117	92	103	25	233
Arrive On Green	0.39	0.60	0.60	0.01	0.20	0.20	0.01	0.12	0.12	0.06	0.17	0.17
Sat Flow, veh/h	1767	1856	1570	1767	3526	1561	1767	959	754	1767	149	1404
Grp Volume(v), veh/h	119	666	27	8	542	107	9	0	25	107	0	146
Grp Sat Flow(s),veh/h/ln	1767	1856	1570	1767	1763	1561	1767	0	1713	1767	0	1553
Q Serve(g_s), s	3.8	19.4	0.6	0.4	12.4	5.0	0.4	0.0	1.1	5.0	0.0	7.4
Cycle Q Clear(g_c), s	3.8	19.4	0.6	0.4	12.4	5.0	0.4	0.0	1.1	5.0	0.0	7.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.44	1.00		0.90
Lane Grp Cap(c), veh/h	689	1106	936	18	718	318	20	0	208	103	0	258
V/C Ratio(X)	0.17	0.60	0.03	0.45	0.75	0.34	0.45	0.00	0.12	1.04	0.00	0.57
Avail Cap(c_a), veh/h	689	1106	936	103	1037	459	103	0	657	103	0	580
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.2	10.9	7.1	42.3	32.2	29.3	42.3	0.0	33.7	40.5	0.0	33.0
Incr Delay (d2), s/veh	0.1	2.4	0.1	16.5	7.2	2.8	15.2	0.0	0.3	100.4	0.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	7.1	0.2	0.2	5.7	2.0	0.3	0.0	0.5	5.0	0.0	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.3	13.4	7.2	58.9	39.5	32.1	57.5	0.0	33.9	140.9	0.0	34.9
LnGrp LOS	B	B	A	E	D	C	E	A	C	F	A	C
Approach Vol, veh/h		812			657			34			253	
Approach Delay, s/veh		13.7			38.5			40.2			79.8	
Approach LOS		B			D			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.9	14.5	5.1	56.6	5.2	19.2	38.8	22.8
Change Period (Y+Rc), s	4.9	* 4	* 4.2	5.3	* 4.2	4.9	5.3	* 5.3
Max Green Setting (Gmax), s	5.0	* 33	* 5	25.3	* 5	32.1	5.0	* 25
Max Q Clear Time (g_c+I1), s	7.0	3.1	2.4	21.4	2.4	9.4	5.8	14.4
Green Ext Time (p_c), s	0.0	0.1	0.0	1.5	0.0	0.8	0.0	2.7

Intersection Summary	
HCM 6th Ctrl Delay	33.0
HCM 6th LOS	C

Notes

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

Intersection: 1: "G" Street & Mercy Avenue

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	T	R	UL	T	T	R
Maximum Queue (ft)	28	140	135	91	160	202	141	72	142	107	150	51
Average Queue (ft)	2	39	62	47	70	96	35	33	55	44	50	16
95th Queue (ft)	13	89	110	80	129	176	108	66	98	88	106	43
Link Distance (ft)	268	268		602		1116	1116			440	440	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)			260		250			250	260			250
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 2: Sandpiper Avenue & Mercy Avenue

Movement	EB	WB	NB	SB	SB
Directions Served	L	LTR	LTR	LT	R
Maximum Queue (ft)	50	29	30	31	67
Average Queue (ft)	23	1	2	8	24
95th Queue (ft)	46	10	14	30	48
Link Distance (ft)		654		198	198
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	200				
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 5: "G" Street & Yosemite Avenue

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	T	TR	UL	T	T	R	L	T	T	R	L
Maximum Queue (ft)	184	324	307	246	218	170	77	184	287	200	185	170
Average Queue (ft)	97	143	104	119	100	93	23	148	141	105	56	80
95th Queue (ft)	171	223	197	188	176	157	48	210	251	159	118	147
Link Distance (ft)		2524	2524		441	441	441		4875	4875		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	200			370				75			75	250
Storage Blk Time (%)	0	2						47	16	28	0	
Queuing Penalty (veh)	0	2						92	40	49	1	

Intersection: 5: "G" Street & Yosemite Avenue

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	166	147	112
Average Queue (ft)	71	79	34
95th Queue (ft)	129	132	69
Link Distance (ft)	1207	1207	1207
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: Sandpiper Avenue & Yosemite Avenue

Movement	NB
Directions Served	R
Maximum Queue (ft)	22
Average Queue (ft)	1
95th Queue (ft)	7
Link Distance (ft)	228
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 7: Yosemite Avenue & Mansionette Drive

Movement	EB	EB	EB	WB	WB	WB	SB	SB
Directions Served	UL	T	T	T	T	R	L	R
Maximum Queue (ft)	118	296	50	101	96	50	98	77
Average Queue (ft)	50	52	2	37	31	8	42	27
95th Queue (ft)	94	147	17	91	75	32	82	57
Link Distance (ft)		589	589	303	303		1902	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	375					105		150
Storage Blk Time (%)					0			
Queuing Penalty (veh)					0			

Intersection: 8: Paulson Road & Yosemite Avenue

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	T	R	L	TR	L	TR
Maximum Queue (ft)	100	426	200	100	158	200	120	99	167	146	132
Average Queue (ft)	42	141	13	25	73	77	47	43	45	66	56
95th Queue (ft)	81	285	75	62	133	156	113	83	109	118	110
Link Distance (ft)		865			1498	1498			1233		2033
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	50		110	50			70	50		115	
Storage Blk Time (%)	11	26		4	19	7	0	21	7	3	2
Queuing Penalty (veh)	65	20		11	5	10	1	19	5	3	2

Zone Summary

Zone wide Queuing Penalty: 327

Intersection: 1: "G" Street & Mercy Avenue

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	L	TR	UL	T	T	R	UL	T	T	R
Maximum Queue (ft)	51	116	197	86	132	230	132	78	96	86	113	25
Average Queue (ft)	16	50	80	44	62	88	25	35	37	49	53	6
95th Queue (ft)	42	89	147	77	105	170	85	71	80	85	98	23
Link Distance (ft)	268	268		602		1116	1116			440	440	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)			260		250			250	260			250
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 2: Sandpiper Avenue & Mercy Avenue

Movement	EB	WB	NB	SB	SB
Directions Served	L	LTR	LTR	LT	R
Maximum Queue (ft)	49	29	69	31	55
Average Queue (ft)	11	2	24	9	33
95th Queue (ft)	34	14	53	32	51
Link Distance (ft)		654		198	198
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	200				
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 5: "G" Street & Yosemite Avenue

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	T	TR	UL	T	T	R	L	T	T	R	L
Maximum Queue (ft)	244	283	235	215	155	151	62	185	475	322	181	219
Average Queue (ft)	126	165	116	114	69	80	17	165	221	120	54	94
95th Queue (ft)	211	263	200	181	122	125	44	215	453	250	111	167
Link Distance (ft)		2524	2524		441	441	441		4875	4875		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	200			370				75			75	250
Storage Blk Time (%)	4	4						62	15	19	2	
Queuing Penalty (veh)	10	6						111	46	35	3	

Intersection: 5: "G" Street & Yosemite Avenue

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	163	197	64
Average Queue (ft)	95	99	29
95th Queue (ft)	149	160	56
Link Distance (ft)	1207	1207	1207
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: Sandpiper Avenue & Yosemite Avenue

Movement	WB	NB
Directions Served	T	R
Maximum Queue (ft)	8	22
Average Queue (ft)	0	5
95th Queue (ft)	3	21
Link Distance (ft)	589	228
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: Yosemite Avenue & Mansionette Drive

Movement	EB	EB	WB	WB	WB	SB	SB
Directions Served	UL	T	T	T	R	L	R
Maximum Queue (ft)	96	317	118	114	31	73	71
Average Queue (ft)	53	41	48	30	5	22	21
95th Queue (ft)	87	154	104	73	22	54	51
Link Distance (ft)		589	303	303		1902	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	375				105		150
Storage Blk Time (%)				0			
Queuing Penalty (veh)				0			

Intersection: 8: Paulson Road & Yosemite Avenue

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	T	R	L	TR	L	TR
Maximum Queue (ft)	100	420	210	98	156	139	114	24	64	135	111
Average Queue (ft)	82	152	28	14	77	50	22	4	18	62	38
95th Queue (ft)	113	333	127	51	132	117	65	18	46	112	85
Link Distance (ft)		865			1498	1498			1233		2033
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	50		110	50			70	50		115	
Storage Blk Time (%)	53	13		1	17	2	0		2	3	0
Queuing Penalty (veh)	328	17		3	1	2	0		0	4	0

Zone Summary

Zone wide Queuing Penalty: 566

Appendix E: Existing plus Project Traffic Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	5	41	54	145	54	139	127	387	165	1	148	450
Future Volume (vph)	5	41	54	145	54	139	127	387	165	1	148	450
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	4.0		4.2	4.0		4.2	6.0	6.0		4.2	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00		1.00	0.95
Frpb, ped/bikes	1.00	1.00		1.00	0.99		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	1.00		1.00	1.00
Frt	1.00	0.91		1.00	0.89		1.00	1.00	0.85		1.00	1.00
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1752	1687		1752	1631		1752	3505	1534		1752	3505
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1752	1687		1752	1631		1752	3505	1534		1752	3505
Peak-hour factor, PHF	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
Adj. Flow (vph)	7	57	75	201	75	193	176	538	229	1	206	625
RTOR Reduction (vph)	0	48	0	0	94	0	0	0	177	0	0	0
Lane Group Flow (vph)	7	84	0	201	174	0	176	538	52	0	207	625
Confl. Peds. (#/hr)						1			1			
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	Prot	NA
Protected Phases	7	4		3	8		5	2		1	1	6
Permitted Phases									2			
Actuated Green, G (s)	0.7	14.6		14.3	28.2		7.2	18.0	18.0		14.1	24.9
Effective Green, g (s)	0.7	14.6		14.3	28.2		7.2	18.0	18.0		14.1	24.9
Actuated g/C Ratio	0.01	0.18		0.18	0.36		0.09	0.23	0.23		0.18	0.31
Clearance Time (s)	4.2	4.0		4.2	4.0		4.2	6.0	6.0		4.2	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	15	310		315	579		158	794	347		311	1099
v/s Ratio Prot	0.00	0.05		c0.11	c0.11		c0.10	c0.15			c0.12	0.18
v/s Ratio Perm									0.03			
v/c Ratio	0.47	0.27		0.64	0.30		1.11	0.68	0.15		0.67	0.57
Uniform Delay, d1	39.2	27.8		30.2	18.5		36.1	28.0	24.6		30.5	22.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	21.2	0.5		4.2	0.3		105.4	2.3	0.2		5.3	0.7
Delay (s)	60.4	28.3		34.4	18.8		141.5	30.4	24.8		35.7	23.4
Level of Service	E	C		C	B		F	C	C		D	C
Approach Delay (s)		29.9			25.5			49.8				26.2
Approach LOS		C			C			D				C

Intersection Summary			
HCM 2000 Control Delay	35.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	79.4	Sum of lost time (s)	18.4
Intersection Capacity Utilization	46.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	29
Future Volume (vph)	29
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frpb, ped/bikes	1.00
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1568
Flt Permitted	1.00
Satd. Flow (perm)	1568
Peak-hour factor, PHF	0.72
Adj. Flow (vph)	40
RTOR Reduction (vph)	27
Lane Group Flow (vph)	13
Confl. Peds. (#/hr)	
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	24.9
Effective Green, g (s)	24.9
Actuated g/C Ratio	0.31
Clearance Time (s)	6.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	491
v/s Ratio Prot	
v/s Ratio Perm	0.01
v/c Ratio	0.03
Uniform Delay, d1	18.9
Progression Factor	1.00
Incremental Delay, d2	0.0
Delay (s)	18.9
Level of Service	B
Approach Delay (s)	
Approach LOS	

Intersection Summary

Intersection	
Int Delay, s/veh	5.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	130	204	15	29	266	16	4	12	16	4	44	44
Future Vol, veh/h	130	204	15	29	266	16	4	12	16	4	44	44
Conflicting Peds, #/hr	0	0	0	0	0	6	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	-	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	173	272	20	39	355	21	5	16	21	5	59	59

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	382	0	0	292	0	0	1131	1088	282	1097	1088	372
Stage 1	-	-	-	-	-	-	628	628	-	450	450	-
Stage 2	-	-	-	-	-	-	503	460	-	647	638	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1171	-	-	1264	-	-	180	215	755	190	215	672
Stage 1	-	-	-	-	-	-	469	474	-	587	570	-
Stage 2	-	-	-	-	-	-	549	564	-	458	469	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1164	-	-	1264	-	-	105	175	755	147	175	668
Mov Cap-2 Maneuver	-	-	-	-	-	-	105	175	-	147	175	-
Stage 1	-	-	-	-	-	-	399	403	-	497	544	-
Stage 2	-	-	-	-	-	-	429	539	-	364	399	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3.2	0.7	22.3	24.9
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	250	1164	-	-	1264	-	-	172	668
HCM Lane V/C Ratio	0.171	0.149	-	-	0.031	-	-	0.372	0.088
HCM Control Delay (s)	22.3	8.6	-	-	7.9	0	-	37.8	10.9
HCM Lane LOS	C	A	-	-	A	A	-	E	B
HCM 95th %tile Q(veh)	0.6	0.5	-	-	0.1	-	-	1.6	0.3

Intersection	
Int Delay, s/veh	3.8

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Vol, veh/h	91	13	8	659	76	23	628
Future Vol, veh/h	91	13	8	659	76	23	628
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free
RT Channelized	-	None	-	-	None	-	None
Storage Length	0	-	150	-	250	250	-
Veh in Median Storage, #	0	-	-	0	-	-	0
Grade, %	0	-	-	0	-	-	0
Peak Hour Factor	78	78	78	78	78	78	78
Heavy Vehicles, %	3	3	3	3	3	3	3
Mvmt Flow	117	17	10	845	97	29	805

Major/Minor	Minor1		Major1			Major2	
Conflicting Flow All	1245	423	588	0	0	942	0
Stage 1	865	-	-	-	-	-	-
Stage 2	380	-	-	-	-	-	-
Critical Hdwy	6.31	6.96	5.66	-	-	4.16	-
Critical Hdwy Stg 1	5.86	-	-	-	-	-	-
Critical Hdwy Stg 2	6.06	-	-	-	-	-	-
Follow-up Hdwy	3.68	3.33	2.33	-	-	2.23	-
Pot Cap-1 Maneuver	195	577	737	-	-	717	-
Stage 1	361	-	-	-	-	-	-
Stage 2	623	-	-	-	-	-	-
Platoon blocked, %				-	-		-
Mov Cap-1 Maneuver	185	577	737	-	-	717	-
Mov Cap-2 Maneuver	185	-	-	-	-	-	-
Stage 1	342	-	-	-	-	-	-
Stage 2	623	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	51.9	0.1	0.4
HCM LOS	F		

Minor Lane/Major Mvmt	NBU	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	737	-	-	202	717	-
HCM Lane V/C Ratio	0.014	-	-	0.66	0.041	-
HCM Control Delay (s)	10	-	-	51.9	10.2	-
HCM Lane LOS	A	-	-	F	B	-
HCM 95th %tile Q(veh)	0	-	-	4	0.1	-

Intersection	
Int Delay, s/veh	0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	44	702	191	57	674
Future Vol, veh/h	0	44	702	191	57	674
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	250	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	56	900	245	73	864

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	450	0	0	1145	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.96	-	-	4.16	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	-	-	2.23	-
Pot Cap-1 Maneuver	0	554	-	-	600	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	554	-	-	600	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.2	0	0.9
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	554	600	-
HCM Lane V/C Ratio	-	-	0.102	0.122	-
HCM Control Delay (s)	-	-	12.2	11.8	-
HCM Lane LOS	-	-	B	B	-
HCM 95th %tile Q(veh)	-	-	0.3	0.4	-

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	235	422	114	52	222	498	160	240	494	166	161	364
Future Volume (vph)	235	422	114	52	222	498	160	240	494	166	161	364
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	5.3			4.2	5.3	5.3	4.2	5.3	5.3	4.2	6.0
Lane Util. Factor	1.00	0.95			1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	0.99			1.00	1.00	0.99	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	1.00
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)	1752	3369			1752	3505	1548	1752	3505	1546	1752	3505
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)	1752	3369			1752	3505	1548	1752	3505	1546	1752	3505
Peak-hour factor, PHF	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Adj. Flow (vph)	283	508	137	63	267	600	193	289	595	200	194	439
RTOR Reduction (vph)	0	21	0	0	0	0	141	0	0	80	0	0
Lane Group Flow (vph)	283	624	0	0	330	600	52	289	595	120	194	439
Confl. Peds. (#/hr)			23				1			2		
Turn Type	Prot	NA		Prot	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	7	4		3	3	8		5	2		1	6
Permitted Phases							8			2		
Actuated Green, G (s)	19.0	25.1			22.0	28.1	28.1	19.0	24.5	24.5	14.3	19.1
Effective Green, g (s)	19.0	25.1			22.0	28.1	28.1	19.0	24.5	24.5	14.3	19.1
Actuated g/C Ratio	0.18	0.24			0.21	0.27	0.27	0.18	0.23	0.23	0.14	0.18
Clearance Time (s)	4.2	5.3			4.2	5.3	5.3	4.2	5.3	5.3	4.2	6.0
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)	317	806			367	938	414	317	818	361	238	638
v/s Ratio Prot	0.16	c0.19			c0.19	c0.17		c0.16	c0.17		0.11	0.13
v/s Ratio Perm							0.03			0.08		
v/c Ratio	0.89	0.77			0.90	0.64	0.12	0.91	0.73	0.33	0.82	0.69
Uniform Delay, d1	42.0	37.2			40.4	33.9	29.1	42.1	37.1	33.4	44.0	40.1
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	25.5	4.7			23.7	1.4	0.1	29.0	3.2	0.5	18.9	3.1
Delay (s)	67.4	41.9			64.1	35.4	29.2	71.1	40.4	34.0	62.9	43.2
Level of Service	E	D			E	D	C	E	D	C	E	D
Approach Delay (s)		49.7				42.7			47.4			46.5
Approach LOS		D				D			D			D

Intersection Summary			
HCM 2000 Control Delay	46.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	104.9	Sum of lost time (s)	19.7
Intersection Capacity Utilization	78.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	138
Future Volume (vph)	138
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frpb, ped/bikes	0.98
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1540
Flt Permitted	1.00
Satd. Flow (perm)	1540
Peak-hour factor, PHF	0.83
Adj. Flow (vph)	166
RTOR Reduction (vph)	136
Lane Group Flow (vph)	30
Confl. Peds. (#/hr)	5
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	19.1
Effective Green, g (s)	19.1
Actuated g/C Ratio	0.18
Clearance Time (s)	6.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	280
v/s Ratio Prot	
v/s Ratio Perm	0.02
v/c Ratio	0.11
Uniform Delay, d1	35.8
Progression Factor	1.00
Incremental Delay, d2	0.2
Delay (s)	36.0
Level of Service	D
Approach Delay (s)	
Approach LOS	

Intersection Summary

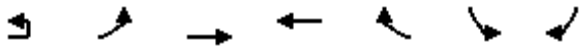
Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱		↑↑	↱			↱			↱
Traffic Vol, veh/h	0	769	1	0	726	33	0	0	4	0	0	0
Future Vol, veh/h	0	769	1	0	726	33	0	0	4	0	0	0
Conflicting Peds, #/hr	0	0	21	0	0	3	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	60	-	-	0	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	809	1	0	764	35	0	0	4	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	426	-	-	385
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.96	-	-	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.33	-	-	3.33
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	574	0	0	610
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	563	-	-	608
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

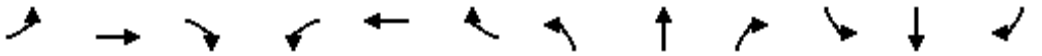
Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	11.4	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	563	-	-	-	-	-
HCM Lane V/C Ratio	0.007	-	-	-	-	-
HCM Control Delay (s)	11.4	-	-	-	-	0
HCM Lane LOS	B	-	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-	-



Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	21	83	683	706	49	54	84
Future Volume (vph)	21	83	683	706	49	54	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2	5.3	5.3	5.3	4.2	4.2
Lane Util. Factor		1.00	0.95	0.95	1.00	1.00	1.00
Frpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected		0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)		1752	3505	3505	1568	1752	1568
Flt Permitted		0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)		1752	3505	3505	1568	1752	1568
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	23	89	734	759	53	58	90
RTOR Reduction (vph)	0	0	0	0	17	0	79
Lane Group Flow (vph)	0	112	734	759	36	58	11
Confl. Peds. (#/hr)						24	
Turn Type	Prot	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	7	7	4	8		6	
Permitted Phases					8		6
Actuated Green, G (s)		9.4	69.7	56.1	56.1	10.8	10.8
Effective Green, g (s)		9.4	69.7	56.1	56.1	10.8	10.8
Actuated g/C Ratio		0.10	0.77	0.62	0.62	0.12	0.12
Clearance Time (s)		4.2	5.3	5.3	5.3	4.2	4.2
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		182	2714	2184	977	210	188
v/s Ratio Prot		c0.06	0.21	c0.22		c0.03	
v/s Ratio Perm					0.02		0.01
v/c Ratio		0.62	0.27	0.35	0.04	0.28	0.06
Uniform Delay, d1		38.6	2.9	8.1	6.5	36.0	35.1
Progression Factor		1.00	1.00	0.31	0.04	1.00	1.00
Incremental Delay, d2		6.1	0.2	0.4	0.1	0.7	0.1
Delay (s)		44.6	3.1	3.0	0.3	36.8	35.2
Level of Service		D	A	A	A	D	D
Approach Delay (s)			8.6	2.8		35.8	
Approach LOS			A	A		D	

Intersection Summary			
HCM 2000 Control Delay	8.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.7
Intersection Capacity Utilization	41.9%	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 (veh/h)	46	549	45	24	567	142	75	57	35	92	42	92
Future Volume (veh/h)	46	549	45	24	567	142	75	57	35	92	42	92
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		0.99	1.00		1.00	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	47	566	46	25	585	146	77	59	36	95	43	95
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	667	588	494	490	764	337	99	154	94	114	73	160
Arrive On Green	0.38	0.32	0.32	0.28	0.22	0.22	0.06	0.14	0.14	0.06	0.14	0.14
Sat Flow, veh/h	1767	1856	1560	1767	3526	1558	1767	1077	657	1767	505	1116
Grp Volume(v), veh/h	47	566	46	25	585	146	77	0	95	95	0	138
Grp Sat Flow(s),veh/h/ln	1767	1856	1560	1767	1763	1558	1767	0	1735	1767	0	1621
Q Serve(g_s), s	1.5	27.0	1.9	0.9	14.0	5.7	3.9	0.0	4.5	4.8	0.0	7.2
Cycle Q Clear(g_c), s	1.5	27.0	1.9	0.9	14.0	5.7	3.9	0.0	4.5	4.8	0.0	7.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.38	1.00		0.69
Lane Grp Cap(c), veh/h	667	588	494	490	764	337	99	0	248	114	0	233
V/C Ratio(X)	0.07	0.96	0.09	0.05	0.77	0.43	0.78	0.00	0.38	0.83	0.00	0.59
Avail Cap(c_a), veh/h	667	588	494	490	1050	464	132	0	636	114	0	562
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.9	30.2	21.7	23.8	33.1	18.7	41.9	0.0	35.0	41.6	0.0	36.1
Incr Delay (d2), s/veh	0.0	29.1	0.4	0.0	7.2	4.0	19.0	0.0	1.0	38.7	0.0	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	15.8	0.7	0.4	6.4	2.9	2.2	0.0	2.0	3.2	0.0	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.0	59.3	22.0	23.9	40.3	22.7	61.0	0.0	36.0	80.4	0.0	38.5
LnGrp LOS	B	E	C	C	D	C	E	A	D	F	A	D
Approach Vol, veh/h		659			756			172			233	
Approach Delay, s/veh		53.8			36.4			47.2			55.5	
Approach LOS		D			D			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.0	17.1	29.1	33.8	9.2	17.8	38.2	24.8
Change Period (Y+Rc), s	* 4.2	* 4.2	4.2	* 5.3	4.2	* 4.9	4.2	* 5.3
Max Green Setting (Gmax), s	* 5.8	* 33	5.0	* 29	6.7	* 31	6.7	* 27
Max Q Clear Time (g_c+I1), s	6.8	6.5	2.9	29.0	5.9	9.2	3.5	16.0
Green Ext Time (p_c), s	0.0	0.5	0.0	0.0	0.0	0.7	0.0	3.0

Intersection Summary	
HCM 6th Ctrl Delay	46.2
HCM 6th LOS	D

Notes

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	19	40	96	161	49	85	1	110	397	104	1	71
Future Volume (vph)	19	40	96	161	49	85	1	110	397	104	1	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	4.0		4.2	4.0			4.2	6.0	6.0		4.2
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00	0.95	1.00		1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99			1.00	1.00	0.98		1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00	1.00		1.00
Frt	1.00	0.89		1.00	0.91			1.00	1.00	0.85		1.00
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00	1.00		0.95
Satd. Flow (prot)	1752	1649		1752	1656			1752	3505	1532		1752
Flt Permitted	0.95	1.00		0.95	1.00			0.95	1.00	1.00		0.95
Satd. Flow (perm)	1752	1649		1752	1656			1752	3505	1532		1752
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	20	43	103	173	53	91	1	118	427	112	1	76
RTOR Reduction (vph)	0	83	0	0	58	0	0	0	0	82	0	0
Lane Group Flow (vph)	20	63	0	173	86	0	0	119	427	30	0	77
Confl. Peds. (#/hr)						3				2		
Turn Type	Prot	NA		Prot	NA		Prot	Prot	NA	Perm	Prot	Prot
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases										2		
Actuated Green, G (s)	0.6	13.8		12.1	25.3			8.1	18.7	18.7		6.8
Effective Green, g (s)	0.6	13.8		12.1	25.3			8.1	18.7	18.7		6.8
Actuated g/C Ratio	0.01	0.20		0.17	0.36			0.12	0.27	0.27		0.10
Clearance Time (s)	4.2	4.0		4.2	4.0			4.2	6.0	6.0		4.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	15	326		303	600			203	939	410		170
v/s Ratio Prot	0.01	c0.04		c0.10	0.05			c0.07	0.12			0.04
v/s Ratio Perm										0.02		
v/c Ratio	1.33	0.19		0.57	0.14			0.59	0.45	0.07		0.45
Uniform Delay, d1	34.6	23.4		26.5	15.0			29.3	21.3	19.1		29.7
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00		1.00
Incremental Delay, d2	353.6	0.3		2.6	0.1			4.3	0.4	0.1		1.9
Delay (s)	388.2	23.7		29.1	15.1			33.5	21.7	19.2		31.7
Level of Service	F	C		C	B			C	C	B		C
Approach Delay (s)		67.6			22.7				23.4			
Approach LOS		E			C				C			

Intersection Summary			
HCM 2000 Control Delay	27.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	69.8	Sum of lost time (s)	18.4
Intersection Capacity Utilization	51.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	421	19
Future Volume (vph)	421	19
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	6.0	6.0
Lane Util. Factor	0.95	1.00
Frpb, ped/bikes	1.00	0.99
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	3505	1546
Flt Permitted	1.00	1.00
Satd. Flow (perm)	3505	1546
Peak-hour factor, PHF	0.93	0.93
Adj. Flow (vph)	453	20
RTOR Reduction (vph)	0	15
Lane Group Flow (vph)	453	5
Confl. Peds. (#/hr)		3
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Actuated Green, G (s)	17.4	17.4
Effective Green, g (s)	17.4	17.4
Actuated g/C Ratio	0.25	0.25
Clearance Time (s)	6.0	6.0
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	873	385
v/s Ratio Prot	c0.13	
v/s Ratio Perm		0.00
v/c Ratio	0.52	0.01
Uniform Delay, d1	22.6	19.7
Progression Factor	1.00	1.00
Incremental Delay, d2	0.5	0.0
Delay (s)	23.1	19.7
Level of Service	C	B
Approach Delay (s)	24.2	
Approach LOS	C	

Intersection Summary

Intersection	
Int Delay, s/veh	5.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	80	127	7	19	175	7	17	46	31	11	17	61
Future Vol, veh/h	80	127	7	19	175	7	17	46	31	11	17	61
Conflicting Peds, #/hr	0	0	2	0	0	7	0	0	1	0	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	-	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	88	140	8	21	192	8	19	51	34	12	19	67

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	207	0	0	150	0	0	608	571	147	609	571	208
Stage 1	-	-	-	-	-	-	322	322	-	245	245	-
Stage 2	-	-	-	-	-	-	286	249	-	364	326	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1358	-	-	1425	-	-	406	429	897	406	429	830
Stage 1	-	-	-	-	-	-	688	649	-	756	702	-
Stage 2	-	-	-	-	-	-	719	699	-	653	647	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1349	-	-	1422	-	-	335	391	894	328	391	821
Mov Cap-2 Maneuver	-	-	-	-	-	-	335	391	-	328	391	-
Stage 1	-	-	-	-	-	-	642	606	-	702	685	-
Stage 2	-	-	-	-	-	-	628	682	-	538	604	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.9	0.7	15	11.7
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	463	1349	-	-	1422	-	-	364	821
HCM Lane V/C Ratio	0.223	0.065	-	-	0.015	-	-	0.085	0.082
HCM Control Delay (s)	15	7.9	-	-	7.6	0	-	15.8	9.8
HCM Lane LOS	C	A	-	-	A	A	-	C	A
HCM 95th %tile Q(veh)	0.8	0.2	-	-	0	-	-	0.3	0.3

Intersection	
Int Delay, s/veh	3.6

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Vol, veh/h	136	23	4	585	39	15	667
Future Vol, veh/h	136	23	4	585	39	15	667
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free
RT Channelized	-	None	-	-	None	-	None
Storage Length	0	-	150	-	250	250	-
Veh in Median Storage, #	0	-	-	0	-	-	0
Grade, %	0	-	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3
Mvmt Flow	148	25	4	636	42	16	725

Major/Minor	Minor1		Major1			Major2	
Conflicting Flow All	966	318	529	0	0	678	0
Stage 1	644	-	-	-	-	-	-
Stage 2	322	-	-	-	-	-	-
Critical Hdwy	6.31	6.96	5.66	-	-	4.16	-
Critical Hdwy Stg 1	5.86	-	-	-	-	-	-
Critical Hdwy Stg 2	6.06	-	-	-	-	-	-
Follow-up Hdwy	3.68	3.33	2.33	-	-	2.23	-
Pot Cap-1 Maneuver	283	675	794	-	-	903	-
Stage 1	468	-	-	-	-	-	-
Stage 2	668	-	-	-	-	-	-
Platoon blocked, %				-	-		-
Mov Cap-1 Maneuver	276	675	794	-	-	903	-
Mov Cap-2 Maneuver	276	-	-	-	-	-	-
Stage 1	457	-	-	-	-	-	-
Stage 2	668	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	31.7	0.1	0.2
HCM LOS	D		

Minor Lane/Major Mvmt	NBU	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	794	-	-	302	903	-
HCM Lane V/C Ratio	0.005	-	-	0.572	0.018	-
HCM Control Delay (s)	9.6	-	-	31.7	9.1	-
HCM Lane LOS	A	-	-	D	A	-
HCM 95th %tile Q(veh)	0	-	-	3.3	0.1	-

Intersection	
Int Delay, s/veh	0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	34	596	132	38	771
Future Vol, veh/h	0	34	596	132	38	771
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	250	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	37	648	143	41	838

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	324	0	0	791	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.96	-	-	4.16	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	-	-	2.23	-
Pot Cap-1 Maneuver	0	669	-	-	819	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	669	-	-	819	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.7	0	0.5
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	669	819	-
HCM Lane V/C Ratio	-	-	0.055	0.05	-
HCM Control Delay (s)	-	-	10.7	9.6	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.2	0.2	-

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	211	478	157	42	195	436	92	289	423	180	167	408
Future Volume (vph)	211	478	157	42	195	436	92	289	423	180	167	408
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	5.3			4.2	5.3	5.3	4.2	5.3	5.3	4.2	6.0
Lane Util. Factor	1.00	0.95			1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	0.99			1.00	1.00	0.99	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	1.00
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)	1752	3349			1752	3505	1546	1752	3505	1548	1752	3505
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)	1752	3349			1752	3505	1546	1752	3505	1548	1752	3505
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	224	509	167	45	207	464	98	307	450	191	178	434
RTOR Reduction (vph)	0	32	0	0	0	0	71	0	0	109	0	0
Lane Group Flow (vph)	224	644	0	0	252	464	27	307	450	82	178	434
Confl. Peds. (#/hr)			24				3			1		
Turn Type	Prot	NA		Prot	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	7	4		3	3	8		5	2		1	6
Permitted Phases							8			2		
Actuated Green, G (s)	12.0	23.4			13.0	24.4	24.4	15.1	23.9	23.9	9.0	17.1
Effective Green, g (s)	12.0	23.4			13.0	24.4	24.4	15.1	23.9	23.9	9.0	17.1
Actuated g/C Ratio	0.14	0.27			0.15	0.28	0.28	0.17	0.27	0.27	0.10	0.19
Clearance Time (s)	4.2	5.3			4.2	5.3	5.3	4.2	5.3	5.3	4.2	6.0
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)	238	887			257	968	427	299	948	418	178	678
v/s Ratio Prot	0.13	c0.19			c0.14	0.13		c0.18	0.13		0.10	c0.12
v/s Ratio Perm							0.02			0.05		
v/c Ratio	0.94	0.73			0.98	0.48	0.06	1.03	0.47	0.20	1.00	0.64
Uniform Delay, d1	37.8	29.5			37.5	26.7	23.5	36.6	26.9	24.8	39.6	32.8
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	42.2	3.0			50.5	0.4	0.1	59.1	0.4	0.2	67.5	2.1
Delay (s)	80.0	32.5			88.0	27.0	23.6	95.7	27.3	25.0	107.1	34.8
Level of Service	E	C			F	C	C	F	C	C	F	C
Approach Delay (s)		44.3				45.5			49.0			49.4
Approach LOS		D				D			D			D

Intersection Summary			
HCM 2000 Control Delay	47.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	88.3	Sum of lost time (s)	19.7
Intersection Capacity Utilization	81.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	189
Future Volume (vph)	189
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frpb, ped/bikes	0.98
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1543
Flt Permitted	1.00
Satd. Flow (perm)	1543
Peak-hour factor, PHF	0.94
Adj. Flow (vph)	201
RTOR Reduction (vph)	162
Lane Group Flow (vph)	39
Confl. Peds. (#/hr)	4
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	17.1
Effective Green, g (s)	17.1
Actuated g/C Ratio	0.19
Clearance Time (s)	6.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	298
v/s Ratio Prot	
v/s Ratio Perm	0.03
v/c Ratio	0.13
Uniform Delay, d1	29.5
Progression Factor	1.00
Incremental Delay, d2	0.2
Delay (s)	29.7
Level of Service	C
Approach Delay (s)	
Approach LOS	

Intersection Summary

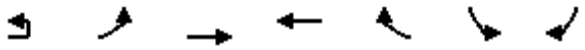
Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱		↑↑	↱			↱			↱
Traffic Vol, veh/h	0	924	4	0	805	19	0	0	15	0	0	15
Future Vol, veh/h	0	924	4	0	805	19	0	0	15	0	0	15
Conflicting Peds, #/hr	0	0	11	0	0	7	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	60	-	-	0	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	953	4	0	830	20	0	0	15	0	0	15

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	488	-	-	422
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.96	-	-	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.33	-	-	3.33
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	523	0	0	577
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	518	-	-	573
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

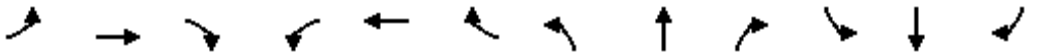
Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	12.2	11.5
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	518	-	-	-	-	573
HCM Lane V/C Ratio	0.03	-	-	-	-	0.027
HCM Control Delay (s)	12.2	-	-	-	-	11.5
HCM Lane LOS	B	-	-	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	-	0.1



Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	39	86	812	669	24	22	40
Future Volume (vph)	39	86	812	669	24	22	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2	5.3	5.3	5.3	4.2	4.2
Lane Util. Factor		1.00	0.95	0.95	1.00	1.00	1.00
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	1.00	1.00	0.85	1.00	0.85
Flt Protected		0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)		1752	3505	3505	1531	1752	1568
Flt Permitted		0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)		1752	3505	3505	1531	1752	1568
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	43	95	892	735	26	24	44
RTOR Reduction (vph)	0	0	0	0	9	0	40
Lane Group Flow (vph)	0	138	892	735	17	24	4
Confl. Peds. (#/hr)					2	7	
Turn Type	Prot	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	7	7	4	8		6	
Permitted Phases					8		6
Actuated Green, G (s)		11.4	67.9	52.3	52.3	8.6	8.6
Effective Green, g (s)		11.4	67.9	52.3	52.3	8.6	8.6
Actuated g/C Ratio		0.13	0.79	0.61	0.61	0.10	0.10
Clearance Time (s)		4.2	5.3	5.3	5.3	4.2	4.2
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		232	2767	2131	931	175	156
v/s Ratio Prot		c0.08	0.25	c0.21		c0.01	
v/s Ratio Perm					0.01		0.00
v/c Ratio		0.59	0.32	0.34	0.02	0.14	0.03
Uniform Delay, d1		35.1	2.6	8.4	6.7	35.3	34.9
Progression Factor		1.00	1.00	0.28	0.08	1.00	1.00
Incremental Delay, d2		4.1	0.3	0.4	0.0	0.4	0.1
Delay (s)		39.2	2.9	2.8	0.6	35.7	35.0
Level of Service		D	A	A	A	D	D
Approach Delay (s)			7.7	2.7		35.2	
Approach LOS			A	A		D	

Intersection Summary			
HCM 2000 Control Delay	6.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	86.0	Sum of lost time (s)	13.7
Intersection Capacity Utilization	42.5%	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 (veh/h)	114	625	31	7	513	96	13	13	10	96	13	124
Future Volume (veh/h)	114	625	31	7	513	96	13	13	10	96	13	124
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.99	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	127	694	34	8	570	107	14	14	11	107	14	138
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	664	1094	926	18	744	330	29	117	92	114	24	236
Arrive On Green	0.38	0.59	0.59	0.01	0.21	0.21	0.02	0.12	0.12	0.06	0.17	0.17
Sat Flow, veh/h	1767	1856	1570	1767	3526	1561	1767	959	754	1767	143	1410
Grp Volume(v), veh/h	127	694	34	8	570	107	14	0	25	107	0	152
Grp Sat Flow(s),veh/h/ln	1767	1856	1570	1767	1763	1561	1767	0	1713	1767	0	1553
Q Serve(g_s), s	4.2	21.1	0.8	0.4	13.1	5.0	0.7	0.0	1.1	5.2	0.0	7.8
Cycle Q Clear(g_c), s	4.2	21.1	0.8	0.4	13.1	5.0	0.7	0.0	1.1	5.2	0.0	7.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.44	1.00		0.91
Lane Grp Cap(c), veh/h	664	1094	926	18	744	330	29	0	209	114	0	260
V/C Ratio(X)	0.19	0.63	0.04	0.45	0.77	0.32	0.48	0.00	0.12	0.94	0.00	0.59
Avail Cap(c_a), veh/h	664	1094	926	103	1037	459	103	0	657	114	0	580
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.0	11.6	7.4	42.3	31.9	28.7	41.9	0.0	33.7	40.1	0.0	33.0
Incr Delay (d2), s/veh	0.1	2.8	0.1	16.5	7.4	2.6	11.7	0.0	0.3	65.5	0.0	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	7.8	0.2	0.2	6.0	2.0	0.4	0.0	0.5	4.2	0.0	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.2	14.4	7.5	58.9	39.3	31.3	53.6	0.0	33.9	105.6	0.0	35.1
LnGrp LOS	B	B	A	E	D	C	D	A	C	F	A	D
Approach Vol, veh/h		855			685			39			259	
Approach Delay, s/veh		14.7			38.3			41.0			64.2	
Approach LOS		B			D			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.4	14.5	5.1	56.0	5.6	19.3	37.6	23.5
Change Period (Y+Rc), s	4.9	* 4	* 4.2	5.3	* 4.2	4.9	5.3	* 5.3
Max Green Setting (Gmax), s	5.0	* 33	* 5	25.3	* 5	32.1	5.0	* 25
Max Q Clear Time (g_c+I1), s	7.2	3.1	2.4	23.1	2.7	9.8	6.2	15.1
Green Ext Time (p_c), s	0.0	0.1	0.0	1.0	0.0	0.8	0.0	2.8

Intersection Summary	
HCM 6th Ctrl Delay	31.0
HCM 6th LOS	C

Notes

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

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	91	13	8	659	76	23	628
Future Volume (vph)	91	13	8	659	76	23	628
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2		4.2	6.0	6.0	4.2	6.0
Lane Util. Factor	1.00		1.00	0.95	1.00	1.00	0.91
Frt	0.98		1.00	1.00	0.85	1.00	1.00
Flt Protected	0.96		0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1737		1752	3505	1568	1752	5036
Flt Permitted	0.96		0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1737		1752	3505	1568	1752	5036
Peak-hour factor, PHF	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Adj. Flow (vph)	117	17	10	845	97	29	805
RTOR Reduction (vph)	10	0	0	0	48	0	0
Lane Group Flow (vph)	124	0	10	845	49	29	805
Turn Type	Prot		Prot	NA	Perm	Prot	NA
Protected Phases	8		5	2		1	6
Permitted Phases					2		
Actuated Green, G (s)	10.9		0.6	26.7	26.7	0.6	26.7
Effective Green, g (s)	10.9		0.6	26.7	26.7	0.6	26.7
Actuated g/C Ratio	0.21		0.01	0.51	0.51	0.01	0.51
Clearance Time (s)	4.2		4.2	6.0	6.0	4.2	6.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	359		19	1779	795	19	2556
v/s Ratio Prot	c0.07		0.01	c0.24		c0.02	0.16
v/s Ratio Perm					0.03		
v/c Ratio	0.35		0.53	0.47	0.06	1.53	0.31
Uniform Delay, d1	17.8		25.9	8.4	6.6	26.0	7.6
Progression Factor	1.00		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6		23.9	0.2	0.0	399.7	0.1
Delay (s)	18.4		49.7	8.6	6.6	425.7	7.7
Level of Service	B		D	A	A	F	A
Approach Delay (s)	18.4			8.8			22.2
Approach LOS	B			A			C

Intersection Summary			
HCM 2000 Control Delay	15.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	52.6	Sum of lost time (s)	14.4
Intersection Capacity Utilization	33.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	136	23	4	585	39	15	667
Future Volume (vph)	136	23	4	585	39	15	667
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2		4.2	6.0	6.0	4.2	6.0
Lane Util. Factor	1.00		1.00	0.95	1.00	1.00	0.91
Frt	0.98		1.00	1.00	0.85	1.00	1.00
Flt Protected	0.96		0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1734		1752	3505	1568	1752	5036
Flt Permitted	0.96		0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1734		1752	3505	1568	1752	5036
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	148	25	4	636	42	16	725
RTOR Reduction (vph)	7	0	0	0	14	0	0
Lane Group Flow (vph)	166	0	4	636	28	16	725
Turn Type	Prot		Prot	NA	Perm	Prot	NA
Protected Phases	8		5	2		1	6
Permitted Phases					2		
Actuated Green, G (s)	20.5		1.3	81.2	81.2	3.9	83.8
Effective Green, g (s)	20.5		1.3	81.2	81.2	3.9	83.8
Actuated g/C Ratio	0.17		0.01	0.68	0.68	0.03	0.70
Clearance Time (s)	4.2		4.2	6.0	6.0	4.2	6.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	296		18	2371	1061	56	3516
v/s Ratio Prot	c0.10		0.00	c0.18		c0.01	0.14
v/s Ratio Perm					0.02		
v/c Ratio	0.56		0.22	0.27	0.03	0.29	0.21
Uniform Delay, d1	45.6		58.8	7.7	6.4	56.7	6.4
Progression Factor	1.00		1.35	0.28	0.08	1.12	0.61
Incremental Delay, d2	2.4		5.6	0.3	0.0	2.7	0.1
Delay (s)	48.1		85.0	2.4	0.5	66.2	4.0
Level of Service	D		F	A	A	E	A
Approach Delay (s)	48.1			2.8			5.4
Approach LOS	D			A			A

Intersection Summary			
HCM 2000 Control Delay	8.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.4
Intersection Capacity Utilization	33.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection: 1: "G" Street & Mercy Avenue

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	T	R	UL	T	T	R
Maximum Queue (ft)	27	97	154	109	115	270	170	116	166	124	101	49
Average Queue (ft)	1	46	78	49	61	137	41	51	68	58	52	10
95th Queue (ft)	9	90	131	81	101	230	109	98	133	104	94	33
Link Distance (ft)	268	268		602		1172	1172			440	440	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)			260		250			250	260			250
Storage Blk Time (%)						0						
Queuing Penalty (veh)						0						

Intersection: 2: Sandpiper Avenue & Mercy Avenue

Movement	EB	WB	NB	SB	SB
Directions Served	L	LTR	LTR	LT	R
Maximum Queue (ft)	86	72	52	52	54
Average Queue (ft)	23	5	15	25	26
95th Queue (ft)	57	31	42	46	48
Link Distance (ft)		654	2325	198	198
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	200				
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 3: "G" Street & Project Driveway 1

Movement	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LR	U	T	T	R	L	T	T	T
Maximum Queue (ft)	84	31	322	182	52	44	116	159	74
Average Queue (ft)	38	7	55	40	10	12	28	30	14
95th Queue (ft)	70	26	168	116	34	37	81	93	48
Link Distance (ft)	595		566	566			1172	1172	1172
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)		150			250	250			
Storage Blk Time (%)			1						
Queuing Penalty (veh)			0						

Intersection: 4: "G" Street & Project Driveway 2

Movement	WB	NB	SB
Directions Served	R	R	L
Maximum Queue (ft)	70	22	70
Average Queue (ft)	17	1	20
95th Queue (ft)	40	11	48
Link Distance (ft)	581		
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		250	150
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: "G" Street & Yosemite Avenue

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	T	TR	UL	T	T	R	L	T	T	R	L
Maximum Queue (ft)	299	278	257	376	255	176	83	184	497	406	185	243
Average Queue (ft)	177	165	129	229	128	107	37	154	231	209	101	128
95th Queue (ft)	280	233	203	358	211	171	68	212	417	330	222	197
Link Distance (ft)		2524	2524		441	441	441		4875	4875		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	200			370				75			75	250
Storage Blk Time (%)	6	2		0				57	37	44	1	0
Queuing Penalty (veh)	12	4		1				141	88	74	2	0

Intersection: 5: "G" Street & Yosemite Avenue

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	175	173	86
Average Queue (ft)	104	110	32
95th Queue (ft)	166	172	64
Link Distance (ft)	536	536	536
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: Sandpiper Avenue & Yosemite Avenue

Movement	NB
Directions Served	R
Maximum Queue (ft)	22
Average Queue (ft)	4
95th Queue (ft)	17
Link Distance (ft)	228
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 7: Yosemite Avenue & Mansionette Drive

Movement	EB	EB	WB	WB	WB	SB	SB
Directions Served	UL	T	T	T	R	L	R
Maximum Queue (ft)	140	405	144	110	52	116	89
Average Queue (ft)	69	63	44	39	9	42	38
95th Queue (ft)	113	195	103	85	33	83	68
Link Distance (ft)		589	303	303		1902	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	375				105		150
Storage Blk Time (%)		0		0			
Queuing Penalty (veh)		0		0			

Intersection: 8: Paulson Road & Yosemite Avenue

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	T	R	L	TR	L	TR
Maximum Queue (ft)	100	508	30	100	185	222	120	99	130	197	139
Average Queue (ft)	41	176	8	33	108	102	55	56	55	72	68
95th Queue (ft)	94	361	29	80	188	190	121	99	112	139	133
Link Distance (ft)		865			1498	1498			1233		2033
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	50		110	50			70	50		115	
Storage Blk Time (%)	4	28		5	24	12	0	24	8	6	2
Queuing Penalty (veh)	25	26		15	6	18	0	22	6	8	2

Zone Summary

Zone wide Queuing Penalty: 450

Intersection: 1: "G" Street & Mercy Avenue

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	L	TR	UL	T	T	R	UL	T	T	R
Maximum Queue (ft)	72	242	234	174	174	309	294	76	105	148	156	70
Average Queue (ft)	25	80	110	63	77	121	63	26	46	79	83	10
95th Queue (ft)	61	162	188	133	156	239	176	65	100	139	146	38
Link Distance (ft)	268	268		602		1172	1172			440	440	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)			260		250			250	260			250
Storage Blk Time (%)						1	0					
Queuing Penalty (veh)						1	0					

Intersection: 2: Sandpiper Avenue & Mercy Avenue

Movement	EB	WB	NB	SB	SB
Directions Served	L	LTR	LTR	LT	R
Maximum Queue (ft)	46	51	72	52	55
Average Queue (ft)	12	4	36	21	30
95th Queue (ft)	35	22	58	47	53
Link Distance (ft)		654	2325	198	198
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	200				
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 3: "G" Street & Project Driveway 1

Movement	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LR	U	T	T	R	L	T	T	T
Maximum Queue (ft)	174	30	233	159	28	52	120	131	74
Average Queue (ft)	85	6	43	14	6	14	34	40	20
95th Queue (ft)	146	24	116	64	22	41	90	92	57
Link Distance (ft)	595		579	579			1172	1172	1172
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)		150			250	250			
Storage Blk Time (%)			1						
Queuing Penalty (veh)			0						

Intersection: 4: "G" Street & Project Driveway 2

Movement	WB	NB	SB
Directions Served	R	R	L
Maximum Queue (ft)	59	23	29
Average Queue (ft)	21	2	9
95th Queue (ft)	46	13	29
Link Distance (ft)	583		
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		250	150
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: "G" Street & Yosemite Avenue

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	T	TR	UL	T	T	R	L	T	T	R	L
Maximum Queue (ft)	299	379	224	366	217	216	61	185	320	380	185	235
Average Queue (ft)	164	190	145	186	122	123	21	161	181	179	86	111
95th Queue (ft)	278	293	223	326	201	195	47	205	287	291	192	188
Link Distance (ft)		2524	2524		441	441	441		4875	4875		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	200			370				75			75	250
Storage Blk Time (%)	6	5		0				57	37	47	1	0
Queuing Penalty (veh)	14	11		0				121	107	85	3	0

Intersection: 5: "G" Street & Yosemite Avenue

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	219	241	104
Average Queue (ft)	110	124	41
95th Queue (ft)	191	205	79
Link Distance (ft)	524	524	524
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: Sandpiper Avenue & Yosemite Avenue

Movement	NB	SB
Directions Served	R	R
Maximum Queue (ft)	22	50
Average Queue (ft)	9	12
95th Queue (ft)	27	38
Link Distance (ft)	228	2325
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: Yosemite Avenue & Mansionette Drive

Movement	EB	EB	WB	WB	WB	SB	SB
Directions Served	UL	T	T	T	R	L	R
Maximum Queue (ft)	181	206	137	142	44	52	64
Average Queue (ft)	66	38	53	47	3	13	23
95th Queue (ft)	128	122	118	112	21	38	52
Link Distance (ft)		589	303	303		1902	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	375				105		150
Storage Blk Time (%)				1			
Queuing Penalty (veh)				0			

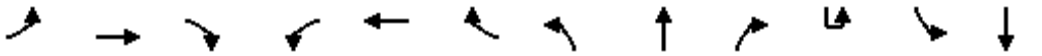
Intersection: 8: Paulson Road & Yosemite Avenue

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	T	R	L	TR	L	TR
Maximum Queue (ft)	100	749	210	65	255	199	120	46	62	130	133
Average Queue (ft)	70	230	17	12	91	67	25	10	16	63	43
95th Queue (ft)	111	550	103	41	166	143	63	35	42	119	92
Link Distance (ft)		865			1498	1498			1233		2033
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	50		110	50			70	50		115	
Storage Blk Time (%)	41	16		2	19	8	0	6	1	6	0
Queuing Penalty (veh)	271	23		4	1	7	0	1	0	8	0

Zone Summary

Zone wide Queuing Penalty: 657

Appendix F: Near Term plus Project Traffic Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	5	57	54	156	66	157	127	414	240	1	181	520
Future Volume (vph)	5	57	54	156	66	157	127	414	240	1	181	520
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	4.0		4.2	4.0		4.2	6.0	6.0		4.2	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00		1.00	0.95
Frpb, ped/bikes	1.00	1.00		1.00	0.99		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	1.00		1.00	1.00
Frt	1.00	0.93		1.00	0.89		1.00	1.00	0.85		1.00	1.00
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1752	1711		1752	1635		1752	3505	1534		1752	3505
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1752	1711		1752	1635		1752	3505	1534		1752	3505
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)	6	65	61	177	75	178	144	470	273	1	206	591
RTOR Reduction (vph)	0	36	0	0	89	0	0	0	212	0	0	0
Lane Group Flow (vph)	6	90	0	177	164	0	144	470	61	0	207	591
Confl. Peds. (#/hr)						1			1			
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	Prot	NA
Protected Phases	7	4		3	8		5	2		1	1	6
Permitted Phases									2			
Actuated Green, G (s)	0.7	12.0		13.2	24.5		7.5	16.8	16.8		14.2	23.5
Effective Green, g (s)	0.7	12.0		13.2	24.5		7.5	16.8	16.8		14.2	23.5
Actuated g/C Ratio	0.01	0.16		0.18	0.33		0.10	0.23	0.23		0.19	0.32
Clearance Time (s)	4.2	4.0		4.2	4.0		4.2	6.0	6.0		4.2	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	16	275		310	536		176	789	345		333	1104
v/s Ratio Prot	0.00	0.05		c0.10	c0.10		c0.08	0.13			c0.12	c0.17
v/s Ratio Perm									0.04			
v/c Ratio	0.38	0.33		0.57	0.31		0.82	0.60	0.18		0.62	0.54
Uniform Delay, d1	36.7	27.7		28.1	18.7		32.9	25.9	23.3		27.7	21.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	14.1	0.7		2.5	0.3		24.6	1.2	0.2		3.6	0.5
Delay (s)	50.9	28.4		30.6	19.0		57.5	27.1	23.6		31.3	21.6
Level of Service	D	C		C	B		E	C	C		C	C
Approach Delay (s)		29.4			23.8			30.9				23.8
Approach LOS		C			C			C				C

Intersection Summary			
HCM 2000 Control Delay	26.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	74.6	Sum of lost time (s)	18.4
Intersection Capacity Utilization	49.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	29
Future Volume (vph)	29
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frpb, ped/bikes	1.00
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1568
Flt Permitted	1.00
Satd. Flow (perm)	1568
Peak-hour factor, PHF	0.88
Adj. Flow (vph)	33
RTOR Reduction (vph)	23
Lane Group Flow (vph)	10
Confl. Peds. (#/hr)	
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	23.5
Effective Green, g (s)	23.5
Actuated g/C Ratio	0.32
Clearance Time (s)	6.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	493
v/s Ratio Prot	
v/s Ratio Perm	0.01
v/c Ratio	0.02
Uniform Delay, d1	17.6
Progression Factor	1.00
Incremental Delay, d2	0.0
Delay (s)	17.6
Level of Service	B
Approach Delay (s)	
Approach LOS	

Intersection Summary

Intersection	
Int Delay, s/veh	7.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	142	215	116	69	284	21	23	13	27	6	47	48
Future Vol, veh/h	142	215	116	69	284	21	23	13	27	6	47	48
Conflicting Peds, #/hr	0	0	0	0	0	6	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	-	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	161	244	132	78	323	24	26	15	31	7	53	55

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	353	0	0	376	0	0	1177	1141	310	1152	1195	341
Stage 1	-	-	-	-	-	-	632	632	-	497	497	-
Stage 2	-	-	-	-	-	-	545	509	-	655	698	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1200	-	-	1177	-	-	167	200	728	174	186	699
Stage 1	-	-	-	-	-	-	467	472	-	553	543	-
Stage 2	-	-	-	-	-	-	521	536	-	453	441	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1193	-	-	1177	-	-	94	158	728	130	147	695
Mov Cap-2 Maneuver	-	-	-	-	-	-	94	158	-	130	147	-
Stage 1	-	-	-	-	-	-	404	408	-	476	495	-
Stage 2	-	-	-	-	-	-	393	489	-	362	381	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.5	1.5	39.8	29.4
HCM LOS			E	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	173	1193	-	-	1177	-	-	145	695
HCM Lane V/C Ratio	0.414	0.135	-	-	0.067	-	-	0.415	0.078
HCM Control Delay (s)	39.8	8.5	-	-	8.3	0	-	46.4	10.6
HCM Lane LOS	E	A	-	-	A	A	-	E	B
HCM 95th %tile Q(veh)	1.8	0.5	-	-	0.2	-	-	1.8	0.3

Intersection	
Int Delay, s/veh	3

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Vol, veh/h	91	13	8	761	76	23	709
Future Vol, veh/h	91	13	8	761	76	23	709
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free
RT Channelized	-	None	-	-	None	-	None
Storage Length	0	-	150	-	250	250	-
Veh in Median Storage, #	0	-	-	0	-	-	0
Grade, %	0	-	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88	88
Heavy Vehicles, %	3	3	3	3	3	3	3
Mvmt Flow	103	15	9	865	86	26	806

Major/Minor	Minor1		Major1			Major2	
Conflicting Flow All	1257	433	588	0	0	951	0
Stage 1	883	-	-	-	-	-	-
Stage 2	374	-	-	-	-	-	-
Critical Hdwy	6.31	6.96	5.66	-	-	4.16	-
Critical Hdwy Stg 1	5.86	-	-	-	-	-	-
Critical Hdwy Stg 2	6.06	-	-	-	-	-	-
Follow-up Hdwy	3.68	3.33	2.33	-	-	2.23	-
Pot Cap-1 Maneuver	192	568	737	-	-	712	-
Stage 1	353	-	-	-	-	-	-
Stage 2	627	-	-	-	-	-	-
Platoon blocked, %				-	-		-
Mov Cap-1 Maneuver	183	568	737	-	-	712	-
Mov Cap-2 Maneuver	183	-	-	-	-	-	-
Stage 1	336	-	-	-	-	-	-
Stage 2	627	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	46.1	0.1	0.3
HCM LOS	E		

Minor Lane/Major Mvmt	NBU	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	737	-	-	200	712	-
HCM Lane V/C Ratio	0.012	-	-	0.591	0.037	-
HCM Control Delay (s)	9.9	-	-	46.1	10.2	-
HCM Lane LOS	A	-	-	E	B	-
HCM 95th %tile Q(veh)	0	-	-	3.3	0.1	-

Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	44	804	191	57	755
Future Vol, veh/h	0	44	804	191	57	755
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	250	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	50	914	217	65	858

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	457	0	0	1131	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.96	-	-	4.16	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	-	-	2.23	-
Pot Cap-1 Maneuver	0	548	-	-	608	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	548	-	-	608	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.2	0	0.8
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	548	608	-
HCM Lane V/C Ratio	-	-	0.091	0.107	-
HCM Control Delay (s)	-	-	12.2	11.6	-
HCM Lane LOS	-	-	B	B	-
HCM 95th %tile Q(veh)	-	-	0.3	0.4	-

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	282	460	156	52	269	541	162	254	547	191	169	419
Future Volume (vph)	282	460	156	52	269	541	162	254	547	191	169	419
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	5.3			4.2	5.3	5.3	4.2	5.3	5.3	4.2	6.0
Lane Util. Factor	1.00	0.95			1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	0.99			1.00	1.00	0.99	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	1.00
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)	1752	3343			1752	3505	1548	1752	3505	1546	1752	3505
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)	1752	3343			1752	3505	1548	1752	3505	1546	1752	3505
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)	320	523	177	59	306	615	184	289	622	217	192	476
RTOR Reduction (vph)	0	29	0	0	0	0	134	0	0	82	0	0
Lane Group Flow (vph)	320	671	0	0	365	615	50	289	622	135	192	476
Confl. Peds. (#/hr)			23				1			2		
Turn Type	Prot	NA		Prot	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	7	4		3	3	8		5	2		1	6
Permitted Phases							8			2		
Actuated Green, G (s)	20.0	27.1			22.0	29.1	29.1	18.0	25.5	25.5	13.6	20.4
Effective Green, g (s)	20.0	27.1			22.0	29.1	29.1	18.0	25.5	25.5	13.6	20.4
Actuated g/C Ratio	0.19	0.25			0.21	0.27	0.27	0.17	0.24	0.24	0.13	0.19
Clearance Time (s)	4.2	5.3			4.2	5.3	5.3	4.2	5.3	5.3	4.2	6.0
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)	326	845			359	951	420	294	833	367	222	666
v/s Ratio Prot	0.18	c0.20			c0.21	0.18		c0.16	c0.18		0.11	0.14
v/s Ratio Perm							0.03			0.09		
v/c Ratio	0.98	0.79			1.02	0.65	0.12	0.98	0.75	0.37	0.86	0.71
Uniform Delay, d1	43.4	37.4			42.6	34.5	29.4	44.4	37.9	34.1	45.9	40.7
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	44.6	5.2			51.8	1.5	0.1	47.5	3.7	0.6	27.7	3.6
Delay (s)	88.0	42.6			94.4	36.0	29.5	92.0	41.5	34.8	73.6	44.3
Level of Service	F	D			F	D	C	F	D	C	E	D
Approach Delay (s)		56.9				53.3			53.2			49.2
Approach LOS		E				D			D			D

Intersection Summary			
HCM 2000 Control Delay	53.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	107.2	Sum of lost time (s)	19.7
Intersection Capacity Utilization	84.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	156
Future Volume (vph)	156
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frpb, ped/bikes	0.98
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1540
Flt Permitted	1.00
Satd. Flow (perm)	1540
Peak-hour factor, PHF	0.88
Adj. Flow (vph)	177
RTOR Reduction (vph)	143
Lane Group Flow (vph)	34
Confl. Peds. (#/hr)	5
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	20.4
Effective Green, g (s)	20.4
Actuated g/C Ratio	0.19
Clearance Time (s)	6.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	293
v/s Ratio Prot	
v/s Ratio Perm	0.02
v/c Ratio	0.11
Uniform Delay, d1	35.9
Progression Factor	1.00
Incremental Delay, d2	0.2
Delay (s)	36.1
Level of Service	D
Approach Delay (s)	
Approach LOS	

Intersection Summary

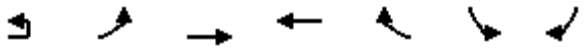
Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱		↑↑	↱			↱			↱
Traffic Vol, veh/h	0	840	1	0	808	33	0	0	4	0	0	0
Future Vol, veh/h	0	840	1	0	808	33	0	0	4	0	0	0
Conflicting Peds, #/hr	0	0	21	0	0	3	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	60	-	-	0	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	884	1	0	851	35	0	0	4	0	0	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	463	-	-	429
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.96	-	-	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.33	-	-	3.33
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	543	0	0	571
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	532	-	-	569
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

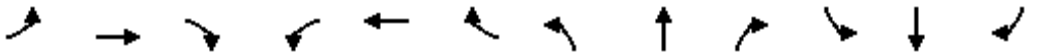
Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	11.8	11.4
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	532	-	-	-	-	569
HCM Lane V/C Ratio	0.008	-	-	-	-	0.018
HCM Control Delay (s)	11.8	-	-	-	-	11.4
HCM Lane LOS	B	-	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	-	0.1



Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	21	85	752	783	55	60	89
Future Volume (vph)	21	85	752	783	55	60	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2	5.3	5.3	5.3	4.2	4.2
Lane Util. Factor		1.00	0.95	0.95	1.00	1.00	1.00
Frpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected		0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)		1752	3505	3505	1568	1752	1568
Flt Permitted		0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)		1752	3505	3505	1568	1752	1568
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	23	91	809	842	59	65	96
RTOR Reduction (vph)	0	0	0	0	15	0	85
Lane Group Flow (vph)	0	114	809	842	44	65	11
Confl. Peds. (#/hr)						24	
Turn Type	Prot	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	7	7	4	8		6	
Permitted Phases					8		6
Actuated Green, G (s)		11.7	79.2	63.3	63.3	11.3	11.3
Effective Green, g (s)		11.7	79.2	63.3	63.3	11.3	11.3
Actuated g/C Ratio		0.12	0.79	0.63	0.63	0.11	0.11
Clearance Time (s)		4.2	5.3	5.3	5.3	4.2	4.2
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		204	2775	2218	992	197	177
v/s Ratio Prot		c0.07	0.23	c0.24		c0.04	
v/s Ratio Perm					0.03		0.01
v/c Ratio		0.56	0.29	0.38	0.04	0.33	0.06
Uniform Delay, d1		41.7	2.8	8.9	6.9	40.9	39.6
Progression Factor		1.00	1.00	0.69	0.72	1.00	1.00
Incremental Delay, d2		3.3	0.3	0.5	0.1	1.0	0.1
Delay (s)		45.0	3.1	6.6	5.1	41.8	39.8
Level of Service		D	A	A	A	D	D
Approach Delay (s)			8.3	6.5		40.6	
Approach LOS			A	A		D	

Intersection Summary			
HCM 2000 Control Delay	10.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.7
Intersection Capacity Utilization	44.4%	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 (veh/h)	46	624	45	24	647	190	78	60	35	108	44	92
Future Volume (veh/h)	46	624	45	24	647	190	78	60	35	108	44	92
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		0.99	1.00		1.00	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	47	643	46	25	667	196	80	62	36	111	45	95
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	664	674	567	447	846	374	102	145	84	129	73	155
Arrive On Green	0.38	0.36	0.36	0.25	0.24	0.24	0.06	0.13	0.13	0.07	0.14	0.14
Sat Flow, veh/h	1767	1856	1562	1767	3526	1559	1767	1099	638	1767	522	1101
Grp Volume(v), veh/h	47	643	46	25	667	196	80	0	98	111	0	140
Grp Sat Flow(s),veh/h/ln	1767	1856	1562	1767	1763	1559	1767	0	1738	1767	0	1623
Q Serve(g_s), s	1.7	33.8	1.9	1.1	17.7	8.5	4.5	0.0	5.2	6.2	0.0	8.1
Cycle Q Clear(g_c), s	1.7	33.8	1.9	1.1	17.7	8.5	4.5	0.0	5.2	6.2	0.0	8.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.37	1.00		0.68
Lane Grp Cap(c), veh/h	664	674	567	447	846	374	102	0	230	129	0	228
V/C Ratio(X)	0.07	0.95	0.08	0.06	0.79	0.52	0.78	0.00	0.43	0.86	0.00	0.61
Avail Cap(c_a), veh/h	664	687	578	447	1234	546	129	0	573	129	0	521
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.0	31.0	20.9	28.3	35.6	20.0	46.5	0.0	39.9	45.8	0.0	40.4
Incr Delay (d2), s/veh	0.0	25.2	0.3	0.1	7.4	5.2	21.2	0.0	1.3	40.8	0.0	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	0.7	18.6	0.7	0.4	8.1	3.4	2.6	0.0	2.3	4.1	0.0	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.1	56.2	21.2	28.4	43.0	25.2	67.7	0.0	41.2	86.6	0.0	43.1
LnGrp LOS	C	E	C	C	D	C	E	A	D	F	A	D
Approach Vol, veh/h		736			888			178			251	
Approach Delay, s/veh		51.7			38.6			53.1			62.3	
Approach LOS		D			D			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.5	17.4	29.5	41.6	10.0	18.9	41.8	29.3
Change Period (Y+Rc), s	* 4.2	* 4.2	4.2	* 5.3	4.2	* 4.9	4.2	* 5.3
Max Green Setting (Gmax), s	* 7.3	* 33	5.0	* 37	7.3	* 32	7.0	* 35
Max Q Clear Time (g_c+I1), s	8.2	7.2	3.1	35.8	6.5	10.1	3.7	19.7
Green Ext Time (p_c), s	0.0	0.5	0.0	0.5	0.0	0.7	0.0	4.3

Intersection Summary	
HCM 6th Ctrl Delay	47.5
HCM 6th LOS	D

Notes

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	19	59	96	205	74	131	1	110	477	137	1	103
Future Volume (vph)	19	59	96	205	74	131	1	110	477	137	1	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	4.0		4.2	4.0			4.2	6.0	6.0		4.2
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00	0.95	1.00		1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99			1.00	1.00	0.97		1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00	1.00		1.00
Frt	1.00	0.91		1.00	0.90			1.00	1.00	0.85		1.00
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00	1.00		0.95
Satd. Flow (prot)	1752	1673		1752	1652			1752	3505	1528		1752
Flt Permitted	0.95	1.00		0.95	1.00			0.95	1.00	1.00		0.95
Satd. Flow (perm)	1752	1673		1752	1652			1752	3505	1528		1752
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	20	63	103	220	80	141	1	118	513	147	1	111
RTOR Reduction (vph)	0	47	0	0	54	0	0	0	0	85	0	0
Lane Group Flow (vph)	20	119	0	220	167	0	0	119	513	62	0	112
Confl. Peds. (#/hr)						3				2		
Turn Type	Prot	NA		Prot	NA		Prot	Prot	NA	Perm	Prot	Prot
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases										2		
Actuated Green, G (s)	2.7	16.5		21.6	35.4			14.0	54.9	54.9		18.6
Effective Green, g (s)	2.7	16.5		21.6	35.4			14.0	54.9	54.9		18.6
Actuated g/C Ratio	0.02	0.13		0.17	0.27			0.11	0.42	0.42		0.14
Clearance Time (s)	4.2	4.0		4.2	4.0			4.2	6.0	6.0		4.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	36	212		291	449			188	1480	645		250
v/s Ratio Prot	0.01	c0.07		c0.13	0.10			c0.07	c0.15			c0.06
v/s Ratio Perm										0.04		
v/c Ratio	0.56	0.56		0.76	0.37			0.63	0.35	0.10		0.45
Uniform Delay, d1	63.1	53.3		51.7	38.3			55.5	25.4	22.6		51.0
Progression Factor	1.00	1.00		1.00	1.00			0.92	0.42	0.70		1.00
Incremental Delay, d2	17.3	3.4		10.7	0.5			5.7	0.5	0.2		1.3
Delay (s)	80.3	56.7		62.3	38.8			56.9	11.1	16.0		52.3
Level of Service	F	E		E	D			E	B	B		D
Approach Delay (s)		59.2			50.6				19.0			
Approach LOS		E			D				B			

Intersection Summary			
HCM 2000 Control Delay	32.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	18.4
Intersection Capacity Utilization	69.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	473	19
Future Volume (vph)	473	19
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	6.0	6.0
Lane Util. Factor	0.95	1.00
Frpb, ped/bikes	1.00	0.98
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	3505	1544
Flt Permitted	1.00	1.00
Satd. Flow (perm)	3505	1544
Peak-hour factor, PHF	0.93	0.93
Adj. Flow (vph)	509	20
RTOR Reduction (vph)	0	11
Lane Group Flow (vph)	509	9
Confl. Peds. (#/hr)		3
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Actuated Green, G (s)	59.5	59.5
Effective Green, g (s)	59.5	59.5
Actuated g/C Ratio	0.46	0.46
Clearance Time (s)	6.0	6.0
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	1604	706
v/s Ratio Prot	0.15	
v/s Ratio Perm		0.01
v/c Ratio	0.32	0.01
Uniform Delay, d1	22.4	19.2
Progression Factor	1.00	1.00
Incremental Delay, d2	0.5	0.0
Delay (s)	22.9	19.3
Level of Service	C	B
Approach Delay (s)	27.9	
Approach LOS	C	

Intersection Summary

Intersection	
Int Delay, s/veh	11.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	87	159	52	37	203	13	91	50	77	19	18	74
Future Vol, veh/h	87	159	52	37	203	13	91	50	77	19	18	74
Conflicting Peds, #/hr	0	0	2	0	0	7	0	0	1	0	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	-	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	96	175	57	41	223	14	100	55	85	21	20	81

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	244	0	0	234	0	0	766	724	207	786	745	242
Stage 1	-	-	-	-	-	-	398	398	-	319	319	-
Stage 2	-	-	-	-	-	-	368	326	-	467	426	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1316	-	-	1328	-	-	318	351	831	309	341	794
Stage 1	-	-	-	-	-	-	626	601	-	690	651	-
Stage 2	-	-	-	-	-	-	650	647	-	574	584	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1307	-	-	1325	-	-	247	311	829	219	302	785
Mov Cap-2 Maneuver	-	-	-	-	-	-	247	311	-	219	302	-
Stage 1	-	-	-	-	-	-	579	556	-	635	623	-
Stage 2	-	-	-	-	-	-	541	619	-	430	540	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.3	1.1	34.9	14
HCM LOS			D	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	350	1307	-	-	1325	-	-	253	785
HCM Lane V/C Ratio	0.684	0.073	-	-	0.031	-	-	0.161	0.104
HCM Control Delay (s)	34.9	8	-	-	7.8	0	-	21.9	10.1
HCM Lane LOS	D	A	-	-	A	A	-	C	B
HCM 95th %tile Q(veh)	4.8	0.2	-	-	0.1	-	-	0.6	0.3

Intersection	
Int Delay, s/veh	4.8

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Vol, veh/h	136	23	4	698	39	15	763
Future Vol, veh/h	136	23	4	698	39	15	763
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free
RT Channelized	-	None	-	-	None	-	None
Storage Length	0	-	150	-	250	250	-
Veh in Median Storage, #	0	-	-	0	-	-	0
Grade, %	0	-	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3
Mvmt Flow	148	25	4	759	42	16	829

Major/Minor	Minor1		Major1			Major2	
Conflicting Flow All	1131	380	605	0	0	801	0
Stage 1	767	-	-	-	-	-	-
Stage 2	364	-	-	-	-	-	-
Critical Hdwy	6.31	6.96	5.66	-	-	4.16	-
Critical Hdwy Stg 1	5.86	-	-	-	-	-	-
Critical Hdwy Stg 2	6.06	-	-	-	-	-	-
Follow-up Hdwy	3.68	3.33	2.33	-	-	2.23	-
Pot Cap-1 Maneuver	227	615	721	-	-	812	-
Stage 1	405	-	-	-	-	-	-
Stage 2	635	-	-	-	-	-	-
Platoon blocked, %				-	-		-
Mov Cap-1 Maneuver	221	615	721	-	-	812	-
Mov Cap-2 Maneuver	221	-	-	-	-	-	-
Stage 1	394	-	-	-	-	-	-
Stage 2	635	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	49	0.1	0.2
HCM LOS	E		

Minor Lane/Major Mvmt	NBU	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	721	-	-	244	812	-
HCM Lane V/C Ratio	0.006	-	-	0.708	0.02	-
HCM Control Delay (s)	10	-	-	49	9.5	-
HCM Lane LOS	B	-	-	E	A	-
HCM 95th %tile Q(veh)	0	-	-	4.7	0.1	-

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	34	709	132	38	867
Future Vol, veh/h	0	34	709	132	38	867
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	250	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	37	771	143	41	942

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	386	0	0	914	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.96	-	-	4.16	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	-	-	2.23	-
Pot Cap-1 Maneuver	0	610	-	-	735	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	610	-	-	735	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.3	0	0.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	610	735	-
HCM Lane V/C Ratio	-	-	0.061	0.056	-
HCM Control Delay (s)	-	-	11.3	10.2	-
HCM Lane LOS	-	-	B	B	-
HCM 95th %tile Q(veh)	-	-	0.2	0.2	-

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	243	551	185	42	283	528	102	335	494	257	173	462
Future Volume (vph)	243	551	185	42	283	528	102	335	494	257	173	462
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	5.3			4.2	5.3	5.3	4.2	5.3	5.3	4.2	6.0
Lane Util. Factor	1.00	0.95			1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	0.99			1.00	1.00	0.98	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	1.00
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)	1752	3339			1752	3505	1544	1752	3505	1547	1752	3505
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)	1752	3339			1752	3505	1544	1752	3505	1547	1752	3505
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	259	586	197	45	301	562	109	356	526	273	184	491
RTOR Reduction (vph)	0	24	0	0	0	0	74	0	0	111	0	0
Lane Group Flow (vph)	259	759	0	0	346	562	35	356	526	162	184	491
Confl. Peds. (#/hr)			24				3			1		
Turn Type	Prot	NA		Prot	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	7	4		3	3	8		5	2		1	6
Permitted Phases							8			2		
Actuated Green, G (s)	20.8	36.5			25.8	41.5	41.5	24.8	32.1	32.1	16.6	23.2
Effective Green, g (s)	20.8	36.5			25.8	41.5	41.5	24.8	32.1	32.1	16.6	23.2
Actuated g/C Ratio	0.16	0.28			0.20	0.32	0.32	0.19	0.25	0.25	0.13	0.18
Clearance Time (s)	4.2	5.3			4.2	5.3	5.3	4.2	5.3	5.3	4.2	6.0
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)	280	937			347	1118	492	334	865	381	223	625
v/s Ratio Prot	c0.15	c0.23			c0.20	0.16		c0.20	0.15		0.10	c0.14
v/s Ratio Perm							0.02			0.10		
v/c Ratio	0.93	0.81			1.00	0.50	0.07	1.07	0.61	0.43	0.83	0.79
Uniform Delay, d1	53.8	43.5			52.1	35.9	30.8	52.6	43.4	41.2	55.3	51.0
Progression Factor	1.00	1.00			0.81	0.76	1.59	1.00	1.00	1.00	0.98	0.93
Incremental Delay, d2	34.3	7.5			46.6	1.6	0.3	67.8	1.2	0.8	20.6	6.2
Delay (s)	88.1	51.0			88.7	28.8	49.4	120.4	44.6	42.0	74.8	53.6
Level of Service	F	D			F	C	D	F	D	D	E	D
Approach Delay (s)		60.2				51.4			67.3			57.9
Approach LOS		E				D			E			E

Intersection Summary			
HCM 2000 Control Delay	59.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	19.7
Intersection Capacity Utilization	94.4%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	225
Future Volume (vph)	225
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frpb, ped/bikes	0.98
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1540
Flt Permitted	1.00
Satd. Flow (perm)	1540
Peak-hour factor, PHF	0.94
Adj. Flow (vph)	239
RTOR Reduction (vph)	196
Lane Group Flow (vph)	43
Confl. Peds. (#/hr)	4
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	23.2
Effective Green, g (s)	23.2
Actuated g/C Ratio	0.18
Clearance Time (s)	6.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	274
v/s Ratio Prot	
v/s Ratio Perm	0.03
v/c Ratio	0.16
Uniform Delay, d1	45.1
Progression Factor	1.19
Incremental Delay, d2	0.3
Delay (s)	53.9
Level of Service	D
Approach Delay (s)	
Approach LOS	

Intersection Summary

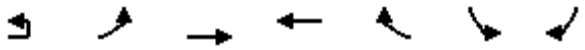
Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱		↑↑	↱			↱			↱
Traffic Vol, veh/h	0	1080	4	0	953	19	0	0	15	0	0	15
Future Vol, veh/h	0	1080	4	0	953	19	0	0	15	0	0	15
Conflicting Peds, #/hr	0	0	11	0	0	7	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	60	-	-	0	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	1113	4	0	982	20	0	0	15	0	0	15

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	568	-	-	498
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.96	-	-	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.33	-	-	3.33
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	464	0	0	515
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	459	-	-	512
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

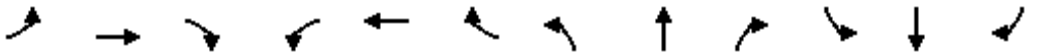
Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	13.1	12.3
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	459	-	-	-	-	512
HCM Lane V/C Ratio	0.034	-	-	-	-	0.115
HCM Control Delay (s)	13.1	-	-	-	-	12.3
HCM Lane LOS	B	-	-	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	-	0.1



Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	39	92	962	814	31	38	43
Future Volume (vph)	39	92	962	814	31	38	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2	5.3	5.3	5.3	4.2	4.2
Lane Util. Factor		1.00	0.95	0.95	1.00	1.00	1.00
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	1.00	1.00	0.85	1.00	0.85
Flt Protected		0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)		1752	3505	3505	1528	1752	1568
Flt Permitted		0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)		1752	3505	3505	1528	1752	1568
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	43	101	1057	895	34	42	47
RTOR Reduction (vph)	0	0	0	0	6	0	43
Lane Group Flow (vph)	0	144	1057	895	28	42	4
Confl. Peds. (#/hr)					2	7	
Turn Type	Prot	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	7	7	4	8		6	
Permitted Phases					8		6
Actuated Green, G (s)		16.0	109.6	89.4	89.4	10.9	10.9
Effective Green, g (s)		16.0	109.6	89.4	89.4	10.9	10.9
Actuated g/C Ratio		0.12	0.84	0.69	0.69	0.08	0.08
Clearance Time (s)		4.2	5.3	5.3	5.3	4.2	4.2
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		215	2954	2410	1050	146	131
v/s Ratio Prot		c0.08	0.30	c0.26		c0.02	
v/s Ratio Perm					0.02		0.00
v/c Ratio		0.67	0.36	0.37	0.03	0.29	0.03
Uniform Delay, d1		54.5	2.3	8.5	6.5	55.9	54.7
Progression Factor		1.07	0.73	0.21	0.12	1.00	1.00
Incremental Delay, d2		5.9	0.3	0.4	0.0	1.1	0.1
Delay (s)		64.1	1.9	2.2	0.8	57.0	54.8
Level of Service		E	A	A	A	E	D
Approach Delay (s)			9.4	2.2		55.8	
Approach LOS			A	A		E	

Intersection Summary			
HCM 2000 Control Delay	8.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	13.7
Intersection Capacity Utilization	45.3%	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 (veh/h)	114	791	31	7	662	137	16	16	10	151	21	124
Future Volume (veh/h)	114	791	31	7	662	137	16	16	10	151	21	124
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.99	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	127	879	34	8	736	152	18	18	11	168	23	138
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	714	1215	1028	17	890	394	73	107	65	174	34	202
Arrive On Green	0.40	0.65	0.65	0.01	0.25	0.25	0.04	0.10	0.10	0.10	0.15	0.15
Sat Flow, veh/h	1767	1856	1570	1767	3526	1563	1767	1074	656	1767	223	1339
Grp Volume(v), veh/h	127	879	34	8	736	152	18	0	29	168	0	161
Grp Sat Flow(s),veh/h/ln	1767	1856	1570	1767	1763	1563	1767	0	1730	1767	0	1563
Q Serve(g_s), s	6.0	40.4	0.7	0.6	25.6	8.1	1.3	0.0	2.0	12.3	0.0	12.7
Cycle Q Clear(g_c), s	6.0	40.4	0.7	0.6	25.6	8.1	1.3	0.0	2.0	12.3	0.0	12.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.38	1.00		0.86
Lane Grp Cap(c), veh/h	714	1215	1028	17	890	394	73	0	172	174	0	236
V/C Ratio(X)	0.18	0.72	0.03	0.47	0.83	0.39	0.25	0.00	0.17	0.97	0.00	0.68
Avail Cap(c_a), veh/h	714	1215	1028	68	1326	588	76	0	439	174	0	472
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.9	14.7	3.5	64.0	45.9	23.9	60.4	0.0	53.6	58.4	0.0	52.2
Incr Delay (d2), s/veh	0.1	3.8	0.1	18.7	8.7	2.8	1.7	0.0	0.5	57.9	0.0	3.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	16.1	0.3	0.3	12.0	3.2	0.6	0.0	0.9	8.2	0.0	5.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.0	18.5	3.6	82.7	54.6	26.7	62.1	0.0	54.1	116.3	0.0	55.7
LnGrp LOS	C	B	A	F	D	C	E	A	D	F	A	E
Approach Vol, veh/h		1040			896			47			329	
Approach Delay, s/veh		18.8			50.2			57.2			86.6	
Approach LOS		B			D			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.0	17.1	5.5	90.4	9.6	24.5	57.8	38.1
Change Period (Y+Rc), s	* 4.2	* 4.2	* 4.2	5.3	4.2	* 4.9	5.3	* 5.3
Max Green Setting (Gmax), s	* 13	* 33	* 5	61.5	5.6	* 39	17.6	* 49
Max Q Clear Time (g_c+I1), s	14.3	4.0	2.6	42.4	3.3	14.7	8.0	27.6
Green Ext Time (p_c), s	0.0	0.1	0.0	6.1	0.0	0.9	0.2	5.2

Intersection Summary		
HCM 6th Ctrl Delay		41.4
HCM 6th LOS		D

Notes

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

Intersection	
Int Delay, s/veh	6.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	142	215	116	69	284	21	23	13	27	6	47	48
Future Vol, veh/h	142	215	116	69	284	21	23	13	27	6	47	48
Conflicting Peds, #/hr	0	0	0	0	0	6	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	-	-	-	75	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	161	244	132	78	323	24	26	15	31	7	53	55

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	353	0	0	376	0	0	1177	1141	310	1152	1195	341
Stage 1	-	-	-	-	-	-	632	632	-	497	497	-
Stage 2	-	-	-	-	-	-	545	509	-	655	698	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1200	-	-	1177	-	-	167	200	728	174	186	699
Stage 1	-	-	-	-	-	-	467	472	-	553	543	-
Stage 2	-	-	-	-	-	-	521	536	-	453	441	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1193	-	-	1177	-	-	94	158	728	130	147	695
Mov Cap-2 Maneuver	-	-	-	-	-	-	94	158	-	130	147	-
Stage 1	-	-	-	-	-	-	404	408	-	476	495	-
Stage 2	-	-	-	-	-	-	393	489	-	362	381	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.5	1.5	32	29.4
HCM LOS			D	D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	94	335	1193	-	-	1177	-	-	145	695
HCM Lane V/C Ratio	0.278	0.136	0.135	-	-	0.067	-	-	0.415	0.078
HCM Control Delay (s)	57.4	17.4	8.5	-	-	8.3	0	-	46.4	10.6
HCM Lane LOS	F	C	A	-	-	A	A	-	E	B
HCM 95th %tile Q(veh)	1	0.5	0.5	-	-	0.2	-	-	1.8	0.3

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	91	13	8	761	76	23	709
Future Volume (vph)	91	13	8	761	76	23	709
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2		4.2	6.0	6.0	4.2	6.0
Lane Util. Factor	1.00		1.00	0.95	1.00	1.00	0.91
Frt	0.98		1.00	1.00	0.85	1.00	1.00
Flt Protected	0.96		0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1737		1752	3505	1568	1752	5036
Flt Permitted	0.96		0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1737		1752	3505	1568	1752	5036
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	103	15	9	865	86	26	806
RTOR Reduction (vph)	6	0	0	0	28	0	0
Lane Group Flow (vph)	112	0	9	865	58	26	806
Turn Type	Prot		Prot	NA	Perm	Prot	NA
Protected Phases	8		5	2		1	6
Permitted Phases					2		
Actuated Green, G (s)	17.6		1.5	81.4	81.4	6.6	86.5
Effective Green, g (s)	17.6		1.5	81.4	81.4	6.6	86.5
Actuated g/C Ratio	0.15		0.01	0.68	0.68	0.05	0.72
Clearance Time (s)	4.2		4.2	6.0	6.0	4.2	6.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	254		21	2377	1063	96	3630
v/s Ratio Prot	c0.06		0.01	c0.25		c0.01	0.16
v/s Ratio Perm					0.04		
v/c Ratio	0.44		0.43	0.36	0.05	0.27	0.22
Uniform Delay, d1	46.7		58.8	8.2	6.4	54.4	5.6
Progression Factor	1.00		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.2		13.4	0.4	0.1	1.5	0.1
Delay (s)	47.9		72.3	8.7	6.5	55.9	5.7
Level of Service	D		E	A	A	E	A
Approach Delay (s)	47.9			9.1			7.3
Approach LOS	D			A			A

Intersection Summary			
HCM 2000 Control Delay	10.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.4
Intersection Capacity Utilization	35.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	87	159	52	37	203	13	91	50	77	19	18	74
Future Vol, veh/h	87	159	52	37	203	13	91	50	77	19	18	74
Conflicting Peds, #/hr	0	0	2	0	0	7	0	0	1	0	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	-	-	-	75	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	96	175	57	41	223	14	100	55	85	21	20	81

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	244	0	0	234	0	0	766	724	207	786	745	242
Stage 1	-	-	-	-	-	-	398	398	-	319	319	-
Stage 2	-	-	-	-	-	-	368	326	-	467	426	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1316	-	-	1328	-	-	318	351	831	309	341	794
Stage 1	-	-	-	-	-	-	626	601	-	690	651	-
Stage 2	-	-	-	-	-	-	650	647	-	574	584	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1307	-	-	1325	-	-	247	311	829	219	302	785
Mov Cap-2 Maneuver	-	-	-	-	-	-	247	311	-	219	302	-
Stage 1	-	-	-	-	-	-	579	556	-	635	623	-
Stage 2	-	-	-	-	-	-	541	619	-	430	540	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.3	1.1	20.8	14
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	247	501	1307	-	-	1325	-	-	253	785
HCM Lane V/C Ratio	0.405	0.279	0.073	-	-	0.031	-	-	0.161	0.104
HCM Control Delay (s)	29.1	14.9	8	-	-	7.8	0	-	21.9	10.1
HCM Lane LOS	D	B	A	-	-	A	A	-	C	B
HCM 95th %tile Q(veh)	1.9	1.1	0.2	-	-	0.1	-	-	0.6	0.3

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	136	23	4	698	39	15	763
Future Volume (vph)	136	23	4	698	39	15	763
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2		4.2	6.0	6.0	4.2	6.0
Lane Util. Factor	1.00		1.00	0.95	1.00	1.00	0.91
Frt	0.98		1.00	1.00	0.85	1.00	1.00
Flt Protected	0.96		0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1734		1752	3505	1568	1752	5036
Flt Permitted	0.96		0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1734		1752	3505	1568	1752	5036
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	148	25	4	759	42	16	829
RTOR Reduction (vph)	7	0	0	0	13	0	0
Lane Group Flow (vph)	166	0	4	759	29	16	829
Turn Type	Prot		Prot	NA	Perm	Prot	NA
Protected Phases	8		5	2		1	6
Permitted Phases					2		
Actuated Green, G (s)	20.9		1.3	86.8	86.8	3.9	89.4
Effective Green, g (s)	20.9		1.3	86.8	86.8	3.9	89.4
Actuated g/C Ratio	0.17		0.01	0.69	0.69	0.03	0.71
Clearance Time (s)	4.2		4.2	6.0	6.0	4.2	6.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	287		18	2414	1080	54	3573
v/s Ratio Prot	c0.10		0.00	c0.22		c0.01	0.16
v/s Ratio Perm					0.02		
v/c Ratio	0.58		0.22	0.31	0.03	0.30	0.23
Uniform Delay, d1	48.5		61.8	7.8	6.2	59.7	6.4
Progression Factor	1.00		1.20	0.35	0.06	0.64	0.43
Incremental Delay, d2	2.8		5.0	0.3	0.0	2.9	0.1
Delay (s)	51.3		79.4	3.0	0.4	41.2	2.9
Level of Service	D		E	A	A	D	A
Approach Delay (s)	51.3			3.3			3.6
Approach LOS	D			A			A

Intersection Summary			
HCM 2000 Control Delay	8.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	126.0	Sum of lost time (s)	14.4
Intersection Capacity Utilization	36.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection: 1: "G" Street & Mercy Avenue

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	T	R	UL	T	T	R
Maximum Queue (ft)	29	154	137	112	221	289	314	138	150	133	150	51
Average Queue (ft)	1	57	83	51	87	151	71	62	67	73	79	9
95th Queue (ft)	10	116	129	98	169	249	204	112	122	129	133	31
Link Distance (ft)	268	268		602		1172	1172			440	440	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)			260		250			250	260			250
Storage Blk Time (%)						2						
Queuing Penalty (veh)						2						

Intersection: 2: Sandpiper Avenue & Mercy Avenue

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	L	TR	LTR	L	TR	LT	R
Maximum Queue (ft)	70	36	177	52	115	55	54
Average Queue (ft)	22	5	29	23	32	27	25
95th Queue (ft)	53	20	86	50	71	51	48
Link Distance (ft)		602	655		2325	198	198
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	200			75			
Storage Blk Time (%)					0		
Queuing Penalty (veh)					0		

Intersection: 3: "G" Street & Project Driveway 1

Movement	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LR	U	T	T	R	L	T	T	T
Maximum Queue (ft)	186	51	255	232	53	90	94	178	72
Average Queue (ft)	71	8	86	57	11	26	27	37	17
95th Queue (ft)	131	31	208	148	36	63	76	105	50
Link Distance (ft)	595		566	566			1172	1172	1172
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)		150			250	250			
Storage Blk Time (%)			4	0					
Queuing Penalty (veh)			0	0					

Intersection: 4: "G" Street & Project Driveway 2

Movement	WB	NB	SB
Directions Served	R	R	L
Maximum Queue (ft)	46	54	121
Average Queue (ft)	17	5	24
95th Queue (ft)	37	24	63
Link Distance (ft)	581		
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		250	150
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: "G" Street & Yosemite Avenue

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	T	TR	UL	T	T	R	L	T	T	R	L
Maximum Queue (ft)	300	513	469	300	288	300	121	185	398	370	185	314
Average Queue (ft)	267	335	245	215	162	151	57	168	232	219	118	142
95th Queue (ft)	350	531	461	298	260	250	105	216	363	362	229	275
Link Distance (ft)		2524	2524		441	441	441		4875	4875		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	200			370				75			75	250
Storage Blk Time (%)	52	5						64	33	48	3	5
Queuing Penalty (veh)	121	15						176	83	92	7	10

Intersection: 5: "G" Street & Yosemite Avenue

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	292	194	124
Average Queue (ft)	126	131	41
95th Queue (ft)	217	189	88
Link Distance (ft)	536	536	536
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)	0		
Queuing Penalty (veh)	0		

Intersection: 6: Sandpiper Avenue & Yosemite Avenue

Movement	NB	SB
Directions Served	R	R
Maximum Queue (ft)	23	31
Average Queue (ft)	2	9
95th Queue (ft)	11	32
Link Distance (ft)	229	2325
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: Yosemite Avenue & Mansionette Drive

Movement	EB	EB	EB	WB	WB	WB	SB	SB
Directions Served	UL	T	T	T	T	R	L	R
Maximum Queue (ft)	161	450	49	162	162	164	139	54
Average Queue (ft)	72	97	2	58	53	13	59	29
95th Queue (ft)	132	266	16	121	125	64	108	52
Link Distance (ft)		585	585	303	303		1902	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	375					105		150
Storage Blk Time (%)		1			2		0	
Queuing Penalty (veh)		1			1		0	

Intersection: 8: Paulson Road & Yosemite Avenue

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	T	R	L	TR	L	TR
Maximum Queue (ft)	100	425	52	98	246	309	120	99	214	171	154
Average Queue (ft)	36	186	8	23	111	110	58	50	67	85	63
95th Queue (ft)	82	367	34	58	200	212	128	97	138	148	123
Link Distance (ft)		865			1498	1498			1233		2033
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	50		110	50			70	50		115	
Storage Blk Time (%)	5	31		5	27	17	0	23	12	9	1
Queuing Penalty (veh)	35	28		15	7	31	1	22	10	12	1

Zone Summary

Zone wide Queuing Penalty: 670

Intersection: 1: "G" Street & Mercy Avenue

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	L	TR	UL	T	T	R	UL	T	T	R
Maximum Queue (ft)	90	200	279	259	135	240	158	74	143	204	196	28
Average Queue (ft)	14	105	163	102	78	108	36	21	61	92	86	6
95th Queue (ft)	49	188	259	213	129	204	104	54	122	173	169	24
Link Distance (ft)	268	268		602		1172	1172			440	440	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)			260		250			250	260			250
Storage Blk Time (%)			1	0		0						
Queuing Penalty (veh)			1	0		0						

Intersection: 2: Sandpiper Avenue & Mercy Avenue

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	L	TR	LTR	L	TR	LT	R
Maximum Queue (ft)	53	26	71	82	106	79	67
Average Queue (ft)	16	1	14	37	48	31	33
95th Queue (ft)	43	11	46	61	85	64	57
Link Distance (ft)		602	655		2325	198	198
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	200			75			
Storage Blk Time (%)				1	1		
Queuing Penalty (veh)				2	1		

Intersection: 3: "G" Street & Project Driveway 1

Movement	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LR	U	T	T	R	L	T	T	T
Maximum Queue (ft)	198	31	206	178	28	52	118	155	74
Average Queue (ft)	92	3	71	41	6	11	23	38	18
95th Queue (ft)	167	17	158	109	23	36	67	95	56
Link Distance (ft)	595		579	579			1172	1172	1172
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)		150			250	250			
Storage Blk Time (%)			2						
Queuing Penalty (veh)			0						

Intersection: 4: "G" Street & Project Driveway 2

Movement	WB	NB	SB
Directions Served	R	R	L
Maximum Queue (ft)	70	22	53
Average Queue (ft)	16	1	19
95th Queue (ft)	43	7	44
Link Distance (ft)	583		
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		250	150
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: "G" Street & Yosemite Avenue

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	T	TR	UL	T	T	R	L	T	T	R	L
Maximum Queue (ft)	300	487	417	437	441	284	103	185	515	412	185	257
Average Queue (ft)	238	296	255	306	165	116	25	174	329	248	124	134
95th Queue (ft)	358	470	407	424	329	204	64	218	520	396	229	211
Link Distance (ft)		2524	2524		441	441	441		4875	4875		
Upstream Blk Time (%)				0	0							
Queuing Penalty (veh)				0	0							
Storage Bay Dist (ft)	200			370				75			75	250
Storage Blk Time (%)	21	25		5				65	44	49	9	0
Queuing Penalty (veh)	57	60		12				161	146	127	21	0

Intersection: 5: "G" Street & Yosemite Avenue

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	260	273	191
Average Queue (ft)	166	171	61
95th Queue (ft)	246	253	128
Link Distance (ft)	524	524	524
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)	0		
Queuing Penalty (veh)	0		

Intersection: 6: Sandpiper Avenue & Yosemite Avenue

Movement	WB	NB	SB
Directions Served	T	R	R
Maximum Queue (ft)	52	23	78
Average Queue (ft)	3	10	35
95th Queue (ft)	19	28	64
Link Distance (ft)	585	229	2325
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 7: Yosemite Avenue & Mansionette Drive

Movement	EB	EB	EB	WB	WB	WB	B17	B17	SB	SB
Directions Served	UL	T	T	T	T	R	T	T	L	R
Maximum Queue (ft)	206	347	47	367	367	165	132	67	95	97
Average Queue (ft)	79	79	2	99	76	9	4	2	34	27
95th Queue (ft)	162	233	16	265	215	59	43	22	77	65
Link Distance (ft)		585	585	303	303		865	865	1902	
Upstream Blk Time (%)				1	1					
Queuing Penalty (veh)				5	3					
Storage Bay Dist (ft)	375					105				150
Storage Blk Time (%)					5					
Queuing Penalty (veh)					1					

Intersection: 8: Paulson Road & Yosemite Avenue

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	T	R	L	TR	L	TR
Maximum Queue (ft)	100	906	210	99	369	345	120	52	62	214	217
Average Queue (ft)	71	348	17	17	158	152	65	11	25	109	87
95th Queue (ft)	111	611	103	66	268	274	139	34	52	173	171
Link Distance (ft)		865			1498	1498			1233		2033
Upstream Blk Time (%)		1									
Queuing Penalty (veh)		6									
Storage Bay Dist (ft)	50		110	50			70	50		115	
Storage Blk Time (%)	30	27		0	41	22	0	2	1	8	7
Queuing Penalty (veh)	244	39		0	3	30	0	1	0	12	11

Zone Summary

Zone wide Queuing Penalty: 947

Appendix G: Cumulative Year 2039 No Project Traffic Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	9	72	34	262	98	251	184	672	298	2	264	766
Future Volume (vph)	9	72	34	262	98	251	184	672	298	2	264	766
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	4.0		4.2	4.0		4.2	6.0	6.0		4.2	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00		1.00	0.95
Frpb, ped/bikes	1.00	1.00		1.00	0.99		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	1.00		1.00	1.00
Frt	1.00	0.95		1.00	0.89		1.00	1.00	0.85		1.00	1.00
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1752	1756		1752	1631		1752	3505	1532		1752	3505
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1752	1756		1752	1631		1752	3505	1532		1752	3505
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	10	78	37	285	107	273	200	730	324	2	287	833
RTOR Reduction (vph)	0	13	0	0	69	0	0	0	206	0	0	0
Lane Group Flow (vph)	10	102	0	285	311	0	200	730	118	0	289	833
Confl. Peds. (#/hr)						1			1			
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	Prot	NA
Protected Phases	7	4		3	8		5	2		1	1	6
Permitted Phases									2			
Actuated Green, G (s)	2.0	12.1		29.0	39.1		23.6	49.6	49.6		26.9	52.9
Effective Green, g (s)	2.0	12.1		29.0	39.1		23.6	49.6	49.6		26.9	52.9
Actuated g/C Ratio	0.01	0.09		0.21	0.29		0.17	0.36	0.36		0.20	0.39
Clearance Time (s)	4.2	4.0		4.2	4.0		4.2	6.0	6.0		4.2	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	25	156		373	468		304	1278	558		346	1363
v/s Ratio Prot	0.01	c0.06		c0.16	0.19		0.11	0.21			c0.16	c0.24
v/s Ratio Perm									0.08			
v/c Ratio	0.40	0.66		0.76	0.66		0.66	0.57	0.21		0.84	0.61
Uniform Delay, d1	66.4	59.9		50.3	42.7		52.4	34.7	29.7		52.4	33.3
Progression Factor	1.00	1.00		1.00	1.00		0.90	0.56	0.71		1.00	1.00
Incremental Delay, d2	10.2	9.5		9.0	3.5		3.1	1.1	0.5		15.8	2.1
Delay (s)	76.6	69.4		59.3	46.2		50.3	20.6	21.6		68.2	35.4
Level of Service	E	E		E	D		D	C	C		E	D
Approach Delay (s)		70.0			51.8			25.6				43.0
Approach LOS		E			D			C				D

Intersection Summary			
HCM 2000 Control Delay	39.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	136.0	Sum of lost time (s)	18.4
Intersection Capacity Utilization	66.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	52
Future Volume (vph)	52
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frpb, ped/bikes	1.00
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1568
Flt Permitted	1.00
Satd. Flow (perm)	1568
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	57
RTOR Reduction (vph)	35
Lane Group Flow (vph)	22
Confl. Peds. (#/hr)	
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	52.9
Effective Green, g (s)	52.9
Actuated g/C Ratio	0.39
Clearance Time (s)	6.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	609
v/s Ratio Prot	
v/s Ratio Perm	0.01
v/c Ratio	0.04
Uniform Delay, d1	25.8
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	25.9
Level of Service	C
Approach Delay (s)	
Approach LOS	

Intersection Summary

Intersection	
Int Delay, s/veh	7.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	235	368	113	42	480	29	23	1	11	8	16	79
Future Vol, veh/h	235	368	113	42	480	29	23	1	11	8	16	79
Conflicting Peds, #/hr	0	0	0	0	0	6	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	-	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	255	400	123	46	522	32	25	1	12	9	17	86

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	560	0	0	523	0	0	1654	1624	462	1614	1669	544
Stage 1	-	-	-	-	-	-	972	972	-	636	636	-
Stage 2	-	-	-	-	-	-	682	652	-	978	1033	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1006	-	-	1038	-	-	78	102	598	83	96	537
Stage 1	-	-	-	-	-	-	302	329	-	464	470	-
Stage 2	-	-	-	-	-	-	438	463	-	300	308	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1000	-	-	1038	-	-	41	71	598	61	67	534
Mov Cap-2 Maneuver	-	-	-	-	-	-	41	71	-	61	67	-
Stage 1	-	-	-	-	-	-	225	245	-	344	437	-
Stage 2	-	-	-	-	-	-	330	431	-	218	229	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3.2	0.7	141.3	31.8
HCM LOS			F	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	59	1000	-	-	1038	-	-	65	534
HCM Lane V/C Ratio	0.645	0.255	-	-	0.044	-	-	0.401	0.161
HCM Control Delay (s)	141.3	9.8	-	-	8.6	0	-	93.5	13
HCM Lane LOS	F	A	-	-	A	A	-	F	B
HCM 95th %tile Q(veh)	2.7	1	-	-	0.1	-	-	1.5	0.6

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	242	791	220	2	289	791	195	452	703	314	238	630
Future Volume (vph)	242	791	220	2	289	791	195	452	703	314	238	630
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	5.3			4.2	5.3	5.3	4.2	5.3	5.3	4.2	6.0
Lane Util. Factor	1.00	0.95			1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	0.99			1.00	1.00	0.99	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	1.00
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)	1752	3361			1752	3505	1547	1752	3505	1545	1752	3505
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)	1752	3361			1752	3505	1547	1752	3505	1545	1752	3505
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	263	860	239	2	314	860	212	491	764	341	259	685
RTOR Reduction (vph)	0	19	0	0	0	0	137	0	0	95	0	0
Lane Group Flow (vph)	263	1080	0	0	316	860	75	491	764	246	259	685
Confl. Peds. (#/hr)			23				1			2		
Turn Type	Prot	NA		Prot	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	7	4		3	3	8		5	2		1	6
Permitted Phases							8			2		
Actuated Green, G (s)	21.2	40.7			19.8	39.3	39.3	29.8	35.2	35.2	21.3	26.0
Effective Green, g (s)	21.2	40.7			19.8	39.3	39.3	29.8	35.2	35.2	21.3	26.0
Actuated g/C Ratio	0.16	0.30			0.15	0.29	0.29	0.22	0.26	0.26	0.16	0.19
Clearance Time (s)	4.2	5.3			4.2	5.3	5.3	4.2	5.3	5.3	4.2	6.0
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)	273	1005			255	1012	447	383	907	399	274	670
v/s Ratio Prot	0.15	c0.32			c0.18	0.25		c0.28	c0.22		0.15	c0.20
v/s Ratio Perm							0.05			0.16		
v/c Ratio	0.96	1.07			1.24	0.85	0.17	1.28	0.84	0.62	0.95	1.02
Uniform Delay, d1	57.0	47.6			58.1	45.6	36.1	53.1	47.8	44.5	56.8	55.0
Progression Factor	1.00	1.00			0.88	0.86	1.36	1.00	1.00	1.00	0.88	0.99
Incremental Delay, d2	44.1	50.7			134.8	8.3	0.8	145.5	7.2	2.8	34.3	36.9
Delay (s)	101.1	98.4			185.9	47.5	49.8	198.6	54.9	47.3	84.2	91.4
Level of Service	F	F			F	D	D	F	D	D	F	F
Approach Delay (s)		98.9				79.4			97.5			92.3
Approach LOS		F				E			F			F

Intersection Summary			
HCM 2000 Control Delay	92.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.15		
Actuated Cycle Length (s)	136.0	Sum of lost time (s)	19.7
Intersection Capacity Utilization	105.0%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	202
Future Volume (vph)	202
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frpb, ped/bikes	0.98
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1537
Flt Permitted	1.00
Satd. Flow (perm)	1537
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	220
RTOR Reduction (vph)	177
Lane Group Flow (vph)	43
Confl. Peds. (#/hr)	5
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	26.0
Effective Green, g (s)	26.0
Actuated g/C Ratio	0.19
Clearance Time (s)	6.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	293
v/s Ratio Prot	
v/s Ratio Perm	0.03
v/c Ratio	0.15
Uniform Delay, d1	45.8
Progression Factor	2.28
Incremental Delay, d2	0.2
Delay (s)	104.6
Level of Service	F
Approach Delay (s)	
Approach LOS	

Intersection Summary

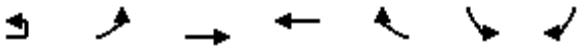
Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱		↑↑	↱			↱			↱
Traffic Vol, veh/h	0	1286	2	0	1174	0	0	0	7	0	0	0
Future Vol, veh/h	0	1286	2	0	1174	0	0	0	7	0	0	0
Conflicting Peds, #/hr	0	0	21	0	0	3	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	60	-	-	0	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	1354	2	0	1236	0	0	0	7	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	698	-	-	621
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.96	-	-	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.33	-	-	3.33
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	381	0	0	428
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	373	-	-	427
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

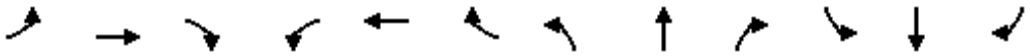
Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	14.8	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	373	-	-	-	-	-
HCM Lane V/C Ratio	0.02	-	-	-	-	-
HCM Control Delay (s)	14.8	-	-	-	-	0
HCM Lane LOS	B	-	-	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	-	-



Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	38	123	1158	1127	88	98	108
Future Volume (vph)	38	123	1158	1127	88	98	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2	5.3	5.3	5.3	4.2	4.2
Lane Util. Factor		1.00	0.95	0.95	1.00	1.00	1.00
Frpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected		0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)		1752	3505	3505	1568	1752	1568
Flt Permitted		0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)		1752	3505	3505	1568	1752	1568
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	41	132	1245	1212	95	105	116
RTOR Reduction (vph)	0	0	0	0	14	0	103
Lane Group Flow (vph)	0	173	1245	1212	81	105	13
Confl. Peds. (#/hr)						24	
Turn Type	Prot	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	7	7	4	8		6	
Permitted Phases					8		6
Actuated Green, G (s)		18.7	111.0	88.1	88.1	15.5	15.5
Effective Green, g (s)		18.7	111.0	88.1	88.1	15.5	15.5
Actuated g/C Ratio		0.14	0.82	0.65	0.65	0.11	0.11
Clearance Time (s)		4.2	5.3	5.3	5.3	4.2	4.2
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		240	2860	2270	1015	199	178
v/s Ratio Prot		c0.10	0.36	c0.35		c0.06	
v/s Ratio Perm					0.05		0.01
v/c Ratio		0.72	0.44	0.53	0.08	0.53	0.07
Uniform Delay, d1		56.2	3.6	12.9	8.9	56.8	53.8
Progression Factor		0.87	0.54	0.62	0.60	1.00	1.00
Incremental Delay, d2		4.1	0.2	0.8	0.1	2.5	0.2
Delay (s)		52.8	2.1	8.8	5.5	59.3	54.0
Level of Service		D	A	A	A	E	D
Approach Delay (s)			8.3	8.6		56.5	
Approach LOS			A	A		E	

Intersection Summary			
HCM 2000 Control Delay	12.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	136.0	Sum of lost time (s)	13.7
Intersection Capacity Utilization	58.2%	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 (veh/h)	74	968	67	43	963	256	119	103	63	166	76	148
Future Volume (veh/h)	74	968	67	43	963	256	119	103	63	166	76	148
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	76	998	69	44	993	264	123	106	65	171	78	153
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	96	1070	903	56	1954	868	146	154	94	199	95	186
Arrive On Green	0.05	0.58	0.58	0.03	0.55	0.55	0.08	0.14	0.14	0.11	0.17	0.17
Sat Flow, veh/h	1767	1856	1566	1767	3526	1567	1767	1075	659	1767	552	1082
Grp Volume(v), veh/h	76	998	69	44	993	264	123	0	171	171	0	231
Grp Sat Flow(s),veh/h/ln	1767	1856	1566	1767	1763	1567	1767	0	1734	1767	0	1633
Q Serve(g_s), s	5.8	67.0	2.7	3.4	23.8	7.1	9.3	0.0	12.7	12.9	0.0	18.6
Cycle Q Clear(g_c), s	5.8	67.0	2.7	3.4	23.8	7.1	9.3	0.0	12.7	12.9	0.0	18.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.38	1.00		0.66
Lane Grp Cap(c), veh/h	96	1070	903	56	1954	868	146	0	248	199	0	281
V/C Ratio(X)	0.79	0.93	0.08	0.78	0.51	0.30	0.84	0.00	0.69	0.86	0.00	0.82
Avail Cap(c_a), veh/h	162	1070	903	65	1954	868	173	0	421	199	0	381
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	63.5	26.4	12.8	65.4	18.8	5.4	61.5	0.0	55.4	59.2	0.0	54.3
Incr Delay (d2), s/veh	13.5	15.5	0.2	39.7	0.9	0.9	25.9	0.0	3.4	29.0	0.0	10.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	31.4	0.9	2.1	9.4	4.1	5.3	0.0	5.9	7.3	0.0	8.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	77.0	41.8	12.9	105.1	19.8	6.3	87.4	0.0	58.7	88.3	0.0	64.5
LnGrp LOS	E	D	B	F	B	A	F	A	E	F	A	E
Approach Vol, veh/h		1143			1301			294			402	
Approach Delay, s/veh		42.4			19.9			70.7			74.6	
Approach LOS		D			B			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.2	23.5	8.5	83.7	15.5	28.3	11.6	80.7
Change Period (Y+Rc), s	4.9	* 4	* 4.2	5.3	* 4.2	4.9	* 4.2	5.3
Max Green Setting (Gmax), s	12.9	* 33	* 5	67.4	* 13	31.7	* 13	59.9
Max Q Clear Time (g_c+I1), s	14.9	14.7	5.4	69.0	11.3	20.6	7.8	25.8
Green Ext Time (p_c), s	0.0	0.9	0.0	0.0	0.1	0.9	0.0	8.9

Intersection Summary	
HCM 6th Ctrl Delay	39.9
HCM 6th LOS	D

Notes

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	34	70	134	291	88	154	2	159	677	188	2	125
Future Volume (vph)	34	70	134	291	88	154	2	159	677	188	2	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	4.0		4.2	4.0			4.2	6.0	6.0		4.2
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00	0.95	1.00		1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99			1.00	1.00	0.97		1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00	1.00		1.00
Frt	1.00	0.90		1.00	0.90			1.00	1.00	0.85		1.00
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00	1.00		0.95
Satd. Flow (prot)	1752	1663		1752	1653			1752	3505	1527		1752
Flt Permitted	0.95	1.00		0.95	1.00			0.95	1.00	1.00		0.95
Satd. Flow (perm)	1752	1663		1752	1653			1752	3505	1527		1752
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	37	75	144	313	95	166	2	171	728	202	2	134
RTOR Reduction (vph)	0	51	0	0	49	0	0	0	0	127	0	0
Lane Group Flow (vph)	37	168	0	313	212	0	0	173	728	75	0	136
Confl. Peds. (#/hr)						3				2		
Turn Type	Prot	NA		Prot	NA		Prot	Prot	NA	Perm	Prot	Prot
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases										2		
Actuated Green, G (s)	5.7	18.0		30.4	42.7			18.2	51.9	51.9		21.3
Effective Green, g (s)	5.7	18.0		30.4	42.7			18.2	51.9	51.9		21.3
Actuated g/C Ratio	0.04	0.13		0.22	0.31			0.13	0.37	0.37		0.15
Clearance Time (s)	4.2	4.0		4.2	4.0			4.2	6.0	6.0		4.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	71	213		380	504			227	1299	566		266
v/s Ratio Prot	0.02	c0.10		c0.18	0.13			c0.10	0.21			0.08
v/s Ratio Perm										0.05		
v/c Ratio	0.52	0.79		0.82	0.42			0.76	0.56	0.13		0.51
Uniform Delay, d1	65.8	59.1		52.2	38.8			58.8	35.0	29.1		54.6
Progression Factor	1.00	1.00		1.00	1.00			0.83	0.40	1.02		1.00
Incremental Delay, d2	6.7	17.2		13.5	0.6			9.2	1.1	0.3		1.7
Delay (s)	72.6	76.4		65.7	39.4			57.8	15.2	30.2		56.2
Level of Service	E	E		E	D			E	B	C		E
Approach Delay (s)		75.8			53.7				24.6			
Approach LOS		E			D				C			

Intersection Summary			
HCM 2000 Control Delay	39.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	18.4
Intersection Capacity Utilization	79.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	728	34
Future Volume (vph)	728	34
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	6.0	6.0
Lane Util. Factor	0.95	1.00
Frpb, ped/bikes	1.00	0.98
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	3505	1543
Flt Permitted	1.00	1.00
Satd. Flow (perm)	3505	1543
Peak-hour factor, PHF	0.93	0.93
Adj. Flow (vph)	783	37
RTOR Reduction (vph)	0	22
Lane Group Flow (vph)	783	15
Confl. Peds. (#/hr)		3
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Actuated Green, G (s)	55.0	55.0
Effective Green, g (s)	55.0	55.0
Actuated g/C Ratio	0.39	0.39
Clearance Time (s)	6.0	6.0
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	1376	606
v/s Ratio Prot	c0.22	
v/s Ratio Perm		0.01
v/c Ratio	0.57	0.02
Uniform Delay, d1	33.2	26.0
Progression Factor	1.00	1.00
Incremental Delay, d2	1.7	0.1
Delay (s)	34.9	26.1
Level of Service	C	C
Approach Delay (s)	37.6	
Approach LOS	D	

Intersection Summary

Intersection	
Int Delay, s/veh	13.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	144	229	49	20	316	16	91	13	50	25	1	110
Future Vol, veh/h	144	229	49	20	316	16	91	13	50	25	1	110
Conflicting Peds, #/hr	0	0	2	0	0	7	0	0	1	0	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	-	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	157	249	53	22	343	17	99	14	54	27	1	120

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	367	0	0	304	0	0	1053	1003	279	1028	1021	364
Stage 1	-	-	-	-	-	-	592	592	-	403	403	-
Stage 2	-	-	-	-	-	-	461	411	-	625	618	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1186	-	-	1251	-	-	203	241	757	211	235	679
Stage 1	-	-	-	-	-	-	491	492	-	622	598	-
Stage 2	-	-	-	-	-	-	579	593	-	471	479	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1178	-	-	1249	-	-	146	202	755	163	197	671
Mov Cap-2 Maneuver	-	-	-	-	-	-	146	202	-	163	197	-
Stage 1	-	-	-	-	-	-	425	426	-	536	581	-
Stage 2	-	-	-	-	-	-	462	576	-	366	414	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.9	0.5	72.5	15.3
HCM LOS			F	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	204	1178	-	-	1249	-	-	164	671
HCM Lane V/C Ratio	0.821	0.133	-	-	0.017	-	-	0.172	0.178
HCM Control Delay (s)	72.5	8.5	-	-	7.9	0	-	31.5	11.5
HCM Lane LOS	F	A	-	-	A	A	-	D	B
HCM 95th %tile Q(veh)	6	0.5	-	-	0.1	-	-	0.6	0.6

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	264	878	362	2	261	708	107	536	648	336	229	661
Future Volume (vph)	264	878	362	2	261	708	107	536	648	336	229	661
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	5.3			4.2	5.3	5.3	4.2	5.3	5.3	4.2	6.0
Lane Util. Factor	1.00	0.95			1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	0.99			1.00	1.00	0.98	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	1.00
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)	1752	3310			1752	3505	1544	1752	3505	1547	1752	3505
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)	1752	3310			1752	3505	1544	1752	3505	1547	1752	3505
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	281	934	385	2	278	753	114	570	689	357	244	703
RTOR Reduction (vph)	0	32	0	0	0	0	81	0	0	100	0	0
Lane Group Flow (vph)	281	1287	0	0	280	753	33	570	689	257	244	703
Confl. Peds. (#/hr)			24				3			1		
Turn Type	Prot	NA		Prot	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	7	4		3	3	8		5	2		1	6
Permitted Phases							8			2		
Actuated Green, G (s)	23.0	47.7			15.8	40.5	40.5	30.8	35.0	35.0	22.5	26.0
Effective Green, g (s)	23.0	47.7			15.8	40.5	40.5	30.8	35.0	35.0	22.5	26.0
Actuated g/C Ratio	0.16	0.34			0.11	0.29	0.29	0.22	0.25	0.25	0.16	0.19
Clearance Time (s)	4.2	5.3			4.2	5.3	5.3	4.2	5.3	5.3	4.2	6.0
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)	287	1127			197	1013	446	385	876	386	281	650
v/s Ratio Prot	0.16	c0.39			c0.16	0.21		c0.33	c0.20		0.14	c0.20
v/s Ratio Perm							0.02			0.17		
v/c Ratio	0.98	1.14			1.42	0.74	0.07	1.48	0.79	0.67	0.87	1.08
Uniform Delay, d1	58.3	46.1			62.1	45.0	36.1	54.6	49.0	47.2	57.3	57.0
Progression Factor	1.00	1.00			0.86	0.86	1.94	1.00	1.00	1.00	0.90	0.90
Incremental Delay, d2	46.8	74.7			214.2	4.5	0.3	229.8	4.7	4.3	19.7	56.0
Delay (s)	105.1	120.9			267.8	43.0	70.3	284.4	53.7	51.6	71.2	107.1
Level of Service	F	F			F	D	E	F	D	D	E	F
Approach Delay (s)		118.1				100.6			134.6			88.6
Approach LOS		F				F			F			F

Intersection Summary			
HCM 2000 Control Delay	112.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.25		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.7
Intersection Capacity Utilization	115.9%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	273
Future Volume (vph)	273
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frpb, ped/bikes	0.98
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1539
Flt Permitted	1.00
Satd. Flow (perm)	1539
Peak-hour factor, PHF	0.94
Adj. Flow (vph)	290
RTOR Reduction (vph)	221
Lane Group Flow (vph)	69
Confl. Peds. (#/hr)	4
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	26.0
Effective Green, g (s)	26.0
Actuated g/C Ratio	0.19
Clearance Time (s)	6.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	285
v/s Ratio Prot	
v/s Ratio Perm	0.04
v/c Ratio	0.24
Uniform Delay, d1	48.6
Progression Factor	1.20
Incremental Delay, d2	0.4
Delay (s)	58.5
Level of Service	E
Approach Delay (s)	
Approach LOS	

Intersection Summary

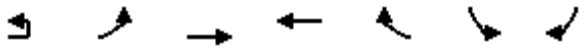
Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱		↑↑	↱			↱			↱
Traffic Vol, veh/h	0	1544	7	0	1365	0	0	0	27	0	0	0
Future Vol, veh/h	0	1544	7	0	1365	0	0	0	27	0	0	0
Conflicting Peds, #/hr	0	0	11	0	0	7	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	60	-	-	0	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	1592	7	0	1407	0	0	0	28	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	807	-	-	711
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.96	-	-	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.33	-	-	3.33
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	322	0	0	373
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	319	-	-	371
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

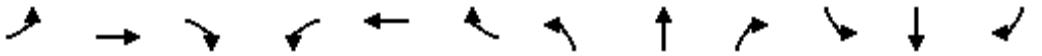
Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	17.4	0
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	319	-	-	-	-	-
HCM Lane V/C Ratio	0.087	-	-	-	-	-
HCM Control Delay (s)	17.4	-	-	-	-	0
HCM Lane LOS	C	-	-	-	-	A
HCM 95th %tile Q(veh)	0.3	-	-	-	-	-



Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	70	137	1360	1114	43	40	47
Future Volume (vph)	70	137	1360	1114	43	40	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2	5.3	5.3	5.3	4.2	4.2
Lane Util. Factor		1.00	0.95	0.95	1.00	1.00	1.00
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	1.00	1.00	0.85	1.00	0.85
Flt Protected		0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)		1752	3505	3505	1528	1752	1568
Flt Permitted		0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)		1752	3505	3505	1528	1752	1568
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	76	149	1478	1211	47	43	51
RTOR Reduction (vph)	0	0	0	0	7	0	47
Lane Group Flow (vph)	0	225	1478	1211	40	43	4
Confl. Peds. (#/hr)					2	7	
Turn Type	Prot	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	7	7	4	8		6	
Permitted Phases					8		6
Actuated Green, G (s)		23.2	119.4	92.0	92.0	11.1	11.1
Effective Green, g (s)		23.2	119.4	92.0	92.0	11.1	11.1
Actuated g/C Ratio		0.17	0.85	0.66	0.66	0.08	0.08
Clearance Time (s)		4.2	5.3	5.3	5.3	4.2	4.2
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		290	2989	2303	1004	138	124
v/s Ratio Prot		c0.13	0.42	c0.35		c0.02	
v/s Ratio Perm					0.03		0.00
v/c Ratio		0.78	0.49	0.53	0.04	0.31	0.03
Uniform Delay, d1		55.9	2.6	12.6	8.5	60.8	59.5
Progression Factor		1.02	0.55	0.33	0.11	1.00	1.00
Incremental Delay, d2		6.0	0.3	0.7	0.1	1.3	0.1
Delay (s)		62.8	1.7	4.9	1.0	62.1	59.6
Level of Service		E	A	A	A	E	E
Approach Delay (s)			9.8	4.7		60.8	
Approach LOS			A	A		E	

Intersection Summary			
HCM 2000 Control Delay	9.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.7
Intersection Capacity Utilization	57.8%	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 (veh/h)	193	1082	43	13	881	173	14	23	18	177	23	215
Future Volume (veh/h)	193	1082	43	13	881	173	14	23	18	177	23	215
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	210	1176	47	14	958	188	15	25	20	192	25	234
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	605	948	802	260	1114	495	28	112	89	162	29	272
Arrive On Green	0.34	0.51	0.51	0.15	0.32	0.32	0.02	0.12	0.12	0.09	0.19	0.19
Sat Flow, veh/h	1767	1856	1569	1767	3526	1565	1767	951	760	1767	151	1409
Grp Volume(v), veh/h	210	1176	47	14	958	188	15	0	45	192	0	259
Grp Sat Flow(s),veh/h/ln	1767	1856	1569	1767	1763	1565	1767	0	1711	1767	0	1560
Q Serve(g_s), s	12.4	71.5	1.8	1.0	35.7	10.0	1.2	0.0	3.3	12.8	0.0	22.5
Cycle Q Clear(g_c), s	12.4	71.5	1.8	1.0	35.7	10.0	1.2	0.0	3.3	12.8	0.0	22.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.44	1.00		0.90
Lane Grp Cap(c), veh/h	605	948	802	260	1114	495	28	0	201	162	0	301
V/C Ratio(X)	0.35	1.24	0.06	0.05	0.86	0.38	0.54	0.00	0.22	1.19	0.00	0.86
Avail Cap(c_a), veh/h	605	948	802	260	1393	618	69	0	403	162	0	439
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	34.4	34.3	11.9	51.3	45.0	21.9	68.4	0.0	56.0	63.6	0.0	54.6
Incr Delay (d2), s/veh	0.3	117.5	0.1	0.1	8.7	2.2	15.1	0.0	0.6	130.4	0.0	11.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	60.9	0.8	0.4	16.5	3.9	0.7	0.0	1.5	11.5	0.0	9.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.7	151.7	12.0	51.4	53.7	24.1	83.5	0.0	56.5	194.0	0.0	65.7
LnGrp LOS	C	F	B	D	D	C	F	A	E	F	A	E
Approach Vol, veh/h		1433			1160			60			451	
Approach Delay, s/veh		130.0			48.9			63.3			120.3	
Approach LOS		F			D			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.0	21.4	24.8	76.8	6.4	32.0	52.1	49.5
Change Period (Y+Rc), s	* 4.2	* 4.9	4.2	* 5.3	* 4.2	4.9	4.2	* 5.3
Max Green Setting (Gmax), s	* 13	* 33	5.0	* 72	* 5.5	39.4	21.2	* 55
Max Q Clear Time (g_c+I1), s	14.8	5.3	3.0	73.5	3.2	24.5	14.4	37.7
Green Ext Time (p_c), s	0.0	0.2	0.0	0.0	0.0	1.3	0.3	6.5

Intersection Summary	
HCM 6th Ctrl Delay	97.0
HCM 6th LOS	F

Notes

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	9	72	34	262	95	243	187	680	298	2	264	766
Future Volume (vph)	9	72	34	262	95	243	187	680	298	2	264	766
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	4.0		4.2	4.0		4.2	6.0	6.0		4.2	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00		1.00	0.95
Frpb, ped/bikes	1.00	1.00		1.00	0.99		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	1.00		1.00	1.00
Frt	1.00	0.95		1.00	0.89		1.00	1.00	0.85		1.00	1.00
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1752	1756		1752	1630		1752	3505	1532		1752	3505
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1752	1756		1752	1630		1752	3505	1532		1752	3505
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	10	78	37	285	103	264	203	739	324	2	287	833
RTOR Reduction (vph)	0	13	0	0	69	0	0	0	209	0	0	0
Lane Group Flow (vph)	10	102	0	285	298	0	203	739	115	0	289	833
Confl. Peds. (#/hr)						1			1			
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	Prot	NA
Protected Phases	7	4		3	8		5	2		1	1	6
Permitted Phases									2			
Actuated Green, G (s)	2.0	12.1		29.0	39.1		20.5	48.1	48.1		28.4	56.0
Effective Green, g (s)	2.0	12.1		29.0	39.1		20.5	48.1	48.1		28.4	56.0
Actuated g/C Ratio	0.01	0.09		0.21	0.29		0.15	0.35	0.35		0.21	0.41
Clearance Time (s)	4.2	4.0		4.2	4.0		4.2	6.0	6.0		4.2	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	25	156		373	468		264	1239	541		365	1443
v/s Ratio Prot	0.01	c0.06		c0.16	0.18		c0.12	0.21			c0.16	c0.24
v/s Ratio Perm									0.07			
v/c Ratio	0.40	0.66		0.76	0.64		0.77	0.60	0.21		0.79	0.58
Uniform Delay, d1	66.4	59.9		50.3	42.3		55.5	36.0	30.7		51.0	30.9
Progression Factor	1.00	1.00		1.00	1.00		0.90	0.59	1.09		1.00	1.00
Incremental Delay, d2	10.2	9.5		9.0	2.8		9.2	1.5	0.6		11.2	1.7
Delay (s)	76.6	69.4		59.3	45.1		59.2	22.7	34.2		62.2	32.6
Level of Service	E	E		E	D		E	C	C		E	C
Approach Delay (s)		70.0			51.3			31.5				39.4
Approach LOS		E			D			C				D

Intersection Summary			
HCM 2000 Control Delay	39.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	136.0	Sum of lost time (s)	18.4
Intersection Capacity Utilization	67.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	52
Future Volume (vph)	52
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frpb, ped/bikes	1.00
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1568
Flt Permitted	1.00
Satd. Flow (perm)	1568
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	57
RTOR Reduction (vph)	34
Lane Group Flow (vph)	23
Confl. Peds. (#/hr)	
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	56.0
Effective Green, g (s)	56.0
Actuated g/C Ratio	0.41
Clearance Time (s)	6.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	645
v/s Ratio Prot	
v/s Ratio Perm	0.01
v/c Ratio	0.04
Uniform Delay, d1	23.9
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	24.0
Level of Service	C
Approach Delay (s)	
Approach LOS	

Intersection Summary

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	235	368	113	58	492	29	0	0	12	0	0	79
Future Vol, veh/h	235	368	113	58	492	29	0	0	12	0	0	79
Conflicting Peds, #/hr	0	0	0	0	0	6	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	75	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	255	400	123	63	535	32	0	0	13	0	0	86

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	573	0	0	523	0	0	-	-	462	-	-	557
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	4.13	-	-	4.13	-	-	-	-	6.23	-	-	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	-	-	3.327	-	-	3.327
Pot Cap-1 Maneuver	995	-	-	1038	-	-	0	0	598	0	0	528
Stage 1	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	989	-	-	1038	-	-	-	-	598	-	-	525
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3.3	0.9	11.2	13.2
HCM LOS			B	B

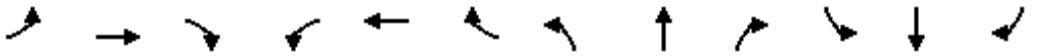
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	598	989	-	-	1038	-	-	525
HCM Lane V/C Ratio	0.022	0.258	-	-	0.061	-	-	0.164
HCM Control Delay (s)	11.2	9.9	-	-	8.7	-	-	13.2
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.1	1	-	-	0.2	-	-	0.6

Intersection	
Intersection Delay, s/veh	30.7
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	235	368	113	42	480	29	23	1	11	8	16	79
Future Vol, veh/h	235	368	113	42	480	29	23	1	11	8	16	79
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	255	400	123	46	522	32	25	1	12	9	17	86
Number of Lanes	1	1	0	1	1	0	1	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	24.7	43.4	11.4	11.3
HCM LOS	C	E	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	100%	0%	33%	0%
Vol Thru, %	0%	8%	0%	77%	0%	94%	67%	0%
Vol Right, %	0%	92%	0%	23%	0%	6%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	23	12	235	481	42	509	24	79
LT Vol	23	0	235	0	42	0	8	0
Through Vol	0	1	0	368	0	480	16	0
RT Vol	0	11	0	113	0	29	0	79
Lane Flow Rate	25	13	255	523	46	553	26	86
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.059	0.027	0.451	0.826	0.084	0.931	0.058	0.169
Departure Headway (Hd)	8.565	7.386	6.362	5.69	6.605	6.059	7.972	7.08
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	417	482	565	633	541	598	448	505
Service Time	6.347	5.167	4.113	3.44	4.36	3.813	5.741	4.848
HCM Lane V/C Ratio	0.06	0.027	0.451	0.826	0.085	0.925	0.058	0.17
HCM Control Delay	11.9	10.4	14.3	29.8	10	46.2	11.2	11.3
HCM Lane LOS	B	B	B	D	A	E	B	B
HCM 95th-tile Q	0.2	0.1	2.3	8.7	0.3	12	0.2	0.6



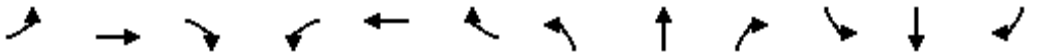
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	242	791	220	291	791	195	452	703	314	238	630	202
Future Volume (veh/h)	242	791	220	291	791	195	452	703	314	238	630	202
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1930	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	263	860	239	316	860	212	491	764	341	259	685	220
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	278	831	231	647	1846	823	376	1121	1075	312	674	298
Arrive On Green	0.16	0.31	0.31	0.49	0.70	0.70	0.20	0.32	0.32	0.03	0.06	0.06
Sat Flow, veh/h	1767	2710	752	1767	3526	1572	1838	3526	1570	3428	3526	1560
Grp Volume(v), veh/h	263	559	540	316	860	212	491	764	341	259	685	220
Grp Sat Flow(s),veh/h/ln	1767	1763	1700	1767	1763	1572	1838	1763	1570	1714	1763	1560
Q Serve(g_s), s	20.0	41.7	41.7	16.4	14.9	6.8	27.8	25.7	4.6	10.2	26.0	18.8
Cycle Q Clear(g_c), s	20.0	41.7	41.7	16.4	14.9	6.8	27.8	25.7	4.6	10.2	26.0	18.8
Prop In Lane	1.00		0.44	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	278	540	521	647	1846	823	376	1121	1075	312	674	298
V/C Ratio(X)	0.95	1.03	1.04	0.49	0.47	0.26	1.31	0.68	0.32	0.83	1.02	0.74
Avail Cap(c_a), veh/h	278	540	521	647	1846	823	376	1121	1075	353	674	298
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.7	47.1	47.2	26.3	12.1	10.9	54.1	40.4	11.7	64.9	63.7	59.9
Incr Delay (d2), s/veh	39.5	47.9	49.0	0.6	0.8	0.8	156.2	1.7	0.2	13.9	38.8	9.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.8	24.8	24.1	6.2	4.9	2.3	28.8	11.1	4.2	5.2	15.9	8.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	96.2	95.0	96.2	26.9	12.9	11.6	210.3	42.1	11.8	78.8	102.5	69.2
LnGrp LOS	F	F	F	C	B	B	F	D	B	E	F	E
Approach Vol, veh/h		1362			1388			1596			1164	
Approach Delay, s/veh		95.7			15.9			87.4			91.0	
Approach LOS		F			B			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.6	48.5	55.1	47.0	33.1	32.0	25.6	76.5
Change Period (Y+Rc), s	* 4.2	5.3	5.3	* 5.3	5.3	* 6	* 4.2	5.3
Max Green Setting (Gmax), s	* 14	40.5	20.8	* 42	27.8	* 26	* 21	41.1
Max Q Clear Time (g_c+I1), s	12.2	27.7	18.4	43.7	29.8	28.0	22.0	16.9
Green Ext Time (p_c), s	0.2	4.9	0.2	0.0	0.0	0.0	0.0	6.6

Intersection Summary	
HCM 6th Ctrl Delay	72.2
HCM 6th LOS	E

Notes

* 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 (veh/h)	74	968	67	43	963	256	119	103	63	166	76	148
Future Volume (veh/h)	74	968	67	43	963	256	119	103	63	166	76	148
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	76	998	69	44	993	264	123	106	65	171	78	153
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	487	1923	133	57	1139	505	148	161	99	197	95	187
Arrive On Green	0.28	0.57	0.57	0.03	0.32	0.32	0.08	0.15	0.15	0.11	0.17	0.17
Sat Flow, veh/h	1767	3344	231	1767	3526	1563	1767	1076	660	1767	552	1082
Grp Volume(v), veh/h	76	526	541	44	993	264	123	0	171	171	0	231
Grp Sat Flow(s),veh/h/ln	1767	1763	1813	1767	1763	1563	1767	0	1735	1767	0	1634
Q Serve(g_s), s	4.4	24.6	24.6	3.4	36.1	13.7	9.3	0.0	12.6	12.9	0.0	18.5
Cycle Q Clear(g_c), s	4.4	24.6	24.6	3.4	36.1	13.7	9.3	0.0	12.6	12.9	0.0	18.5
Prop In Lane	1.00		0.13	1.00		1.00	1.00		0.38	1.00		0.66
Lane Grp Cap(c), veh/h	487	1013	1042	57	1139	505	148	0	260	197	0	282
V/C Ratio(X)	0.16	0.52	0.52	0.78	0.87	0.52	0.83	0.00	0.66	0.87	0.00	0.82
Avail Cap(c_a), veh/h	487	1013	1042	117	1312	581	231	0	421	288	0	438
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	37.3	17.5	17.5	65.3	43.4	20.1	61.4	0.0	54.5	59.4	0.0	54.2
Incr Delay (d2), s/veh	0.1	1.9	1.8	20.0	9.2	3.8	13.7	0.0	2.8	16.9	0.0	6.8
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	9.9	10.2	1.8	16.7	5.3	4.8	0.0	5.8	6.6	0.0	8.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.4	19.4	19.4	85.3	52.6	23.9	75.1	0.0	57.3	76.3	0.0	61.0
LnGrp LOS	D	B	B	F	D	C	E	A	E	E	A	E
Approach Vol, veh/h		1143			1301			294			402	
Approach Delay, s/veh		20.6			47.9			64.8			67.5	
Approach LOS		C			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.4	24.6	8.6	83.5	15.6	28.4	42.8	49.2
Change Period (Y+Rc), s	* 4.2	* 4.2	* 4.2	5.3	4.2	* 4.9	5.3	* 5.3
Max Green Setting (Gmax), s	* 22	* 33	* 9	54.1	17.8	* 37	12.5	* 51
Max Q Clear Time (g_c+I1), s	14.9	14.6	5.4	26.6	11.3	20.5	6.4	38.1
Green Ext Time (p_c), s	0.2	0.9	0.0	7.1	0.1	1.1	0.1	5.9

Intersection Summary	
HCM 6th Ctrl Delay	42.1
HCM 6th LOS	D

Notes

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	34	70	134	291	72	125	2	175	706	188	2	125
Future Volume (vph)	34	70	134	291	72	125	2	175	706	188	2	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	4.0		4.2	4.0			4.2	6.0	6.0		4.2
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00	0.95	1.00		1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99			1.00	1.00	0.97		1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00	1.00		1.00
Frt	1.00	0.90		1.00	0.90			1.00	1.00	0.85		1.00
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00	1.00		0.95
Satd. Flow (prot)	1752	1663		1752	1653			1752	3505	1527		1752
Flt Permitted	0.95	1.00		0.95	1.00			0.95	1.00	1.00		0.95
Satd. Flow (perm)	1752	1663		1752	1653			1752	3505	1527		1752
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	37	75	144	313	77	134	2	188	759	202	2	134
RTOR Reduction (vph)	0	51	0	0	48	0	0	0	0	127	0	0
Lane Group Flow (vph)	37	168	0	313	163	0	0	190	759	75	0	136
Confl. Peds. (#/hr)						3				2		
Turn Type	Prot	NA		Prot	NA		Prot	Prot	NA	Perm	Prot	Prot
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases										2		
Actuated Green, G (s)	5.7	18.0		30.1	42.4			19.4	52.1	52.1		21.4
Effective Green, g (s)	5.7	18.0		30.1	42.4			19.4	52.1	52.1		21.4
Actuated g/C Ratio	0.04	0.13		0.22	0.30			0.14	0.37	0.37		0.15
Clearance Time (s)	4.2	4.0		4.2	4.0			4.2	6.0	6.0		4.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	71	213		376	500			242	1304	568		267
v/s Ratio Prot	0.02	c0.10		c0.18	0.10			c0.11	0.22			0.08
v/s Ratio Perm										0.05		
v/c Ratio	0.52	0.79		0.83	0.33			0.79	0.58	0.13		0.51
Uniform Delay, d1	65.8	59.1		52.5	37.7			58.3	35.2	29.0		54.5
Progression Factor	1.00	1.00		1.00	1.00			0.92	0.58	0.69		1.00
Incremental Delay, d2	6.7	17.2		14.5	0.4			11.8	1.4	0.4		1.5
Delay (s)	72.6	76.4		67.1	38.1			65.6	21.8	20.4		56.0
Level of Service	E	E		E	D			E	C	C		E
Approach Delay (s)		75.8			55.4				28.8			
Approach LOS		E			E				C			

Intersection Summary			
HCM 2000 Control Delay	40.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	18.4
Intersection Capacity Utilization	80.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	728	34
Future Volume (vph)	728	34
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	6.0	6.0
Lane Util. Factor	0.95	1.00
Frpb, ped/bikes	1.00	0.98
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	3505	1543
Flt Permitted	1.00	1.00
Satd. Flow (perm)	3505	1543
Peak-hour factor, PHF	0.93	0.93
Adj. Flow (vph)	783	37
RTOR Reduction (vph)	0	23
Lane Group Flow (vph)	783	14
Confl. Peds. (#/hr)		3
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Actuated Green, G (s)	54.1	54.1
Effective Green, g (s)	54.1	54.1
Actuated g/C Ratio	0.39	0.39
Clearance Time (s)	6.0	6.0
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	1354	596
v/s Ratio Prot	c0.22	
v/s Ratio Perm		0.01
v/c Ratio	0.58	0.02
Uniform Delay, d1	33.9	26.6
Progression Factor	1.00	1.00
Incremental Delay, d2	1.8	0.1
Delay (s)	35.7	26.7
Level of Service	D	C
Approach Delay (s)	38.3	
Approach LOS	D	

Intersection Summary

Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	144	229	49	21	362	16	0	0	63	0	0	110
Future Vol, veh/h	144	229	49	21	362	16	0	0	63	0	0	110
Conflicting Peds, #/hr	0	0	2	0	0	7	0	0	1	0	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	75	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	157	249	53	23	393	17	0	0	68	0	0	120

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	417	0	0	304	0	0	-	-	279	-	-	414
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	4.13	-	-	4.13	-	-	-	-	6.23	-	-	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	-	-	3.327	-	-	3.327
Pot Cap-1 Maneuver	1137	-	-	1251	-	-	0	0	757	0	0	636
Stage 1	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1129	-	-	1249	-	-	-	-	755	-	-	629
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3	0.4	10.2	12.1
HCM LOS			B	B

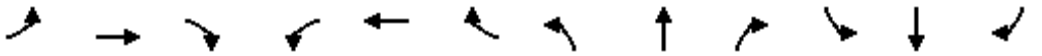
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	755	1129	-	-	1249	-	-	629
HCM Lane V/C Ratio	0.091	0.139	-	-	0.018	-	-	0.19
HCM Control Delay (s)	10.2	8.7	-	-	7.9	-	-	12.1
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.3	0.5	-	-	0.1	-	-	0.7

Intersection	
Intersection Delay, s/veh	14.9
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	144	229	49	20	316	16	91	13	50	25	1	110
Future Vol, veh/h	144	229	49	20	316	16	91	13	50	25	1	110
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	157	249	53	22	343	17	99	14	54	27	1	120
Number of Lanes	1	1	0	1	1	0	1	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	14.1	18.6	11.7	11.2
HCM LOS	B	C	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	100%	0%	96%	0%
Vol Thru, %	0%	21%	0%	82%	0%	95%	4%	0%
Vol Right, %	0%	79%	0%	18%	0%	5%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	91	63	144	278	20	332	26	110
LT Vol	91	0	144	0	20	0	25	0
Through Vol	0	13	0	229	0	316	1	0
RT Vol	0	50	0	49	0	16	0	110
Lane Flow Rate	99	68	157	302	22	361	28	120
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.211	0.126	0.292	0.51	0.041	0.628	0.061	0.217
Departure Headway (Hd)	7.688	6.608	6.706	6.073	6.803	6.261	7.74	6.531
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	464	538	534	589	524	574	460	545
Service Time	5.482	4.401	4.478	3.845	4.576	4.034	5.537	4.327
HCM Lane V/C Ratio	0.213	0.126	0.294	0.513	0.042	0.629	0.061	0.22
HCM Control Delay	12.6	10.4	12.2	15.1	9.9	19.1	11	11.2
HCM Lane LOS	B	B	B	C	A	C	B	B
HCM 95th-tile Q	0.8	0.4	1.2	2.9	0.1	4.3	0.2	0.8



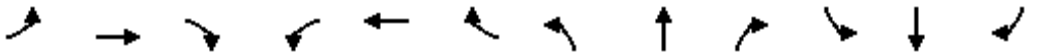
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	264	878	362	263	708	107	536	648	336	229	661	273
Future Volume (veh/h)	264	878	362	263	708	107	536	648	336	229	661	273
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1930	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	281	934	385	280	753	114	570	689	357	244	703	290
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	295	844	344	546	1754	781	378	1117	984	299	655	290
Arrive On Green	0.17	0.35	0.35	0.62	1.00	1.00	0.21	0.32	0.32	0.03	0.06	0.06
Sat Flow, veh/h	1767	2426	990	1767	3526	1570	1838	3526	1571	3428	3526	1562
Grp Volume(v), veh/h	281	676	643	280	753	114	570	689	357	244	703	290
Grp Sat Flow(s),veh/h/ln	1767	1763	1653	1767	1763	1570	1838	1763	1571	1714	1763	1562
Q Serve(g_s), s	22.0	48.7	48.7	12.4	0.2	0.1	28.8	23.2	4.8	9.9	26.0	24.9
Cycle Q Clear(g_c), s	22.0	48.7	48.7	12.4	0.2	0.1	28.8	23.2	4.8	9.9	26.0	24.9
Prop In Lane	1.00		0.60	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	295	613	575	546	1754	781	378	1117	984	299	655	290
V/C Ratio(X)	0.95	1.10	1.12	0.51	0.43	0.15	1.51	0.62	0.36	0.81	1.07	1.00
Avail Cap(c_a), veh/h	295	613	575	546	1754	781	378	1117	984	407	655	290
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.7	45.7	45.7	20.8	0.2	0.2	55.6	40.6	14.7	66.9	65.7	60.1
Incr Delay (d2), s/veh	39.3	67.7	74.4	0.8	0.8	0.4	241.8	1.0	0.2	8.9	56.6	52.7
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	12.9	32.0	31.1	4.1	0.2	0.1	38.4	10.0	5.3	4.8	17.4	14.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	97.1	113.4	120.0	21.7	0.9	0.6	297.4	41.6	14.9	75.8	122.3	112.8
LnGrp LOS	F	F	F	C	A	A	F	D	B	E	F	F
Approach Vol, veh/h		1600			1147			1616			1237	
Approach Delay, s/veh		113.2			6.0			125.9			110.9	
Approach LOS		F			A			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.4	49.7	48.6	54.0	34.1	32.0	27.6	75.0
Change Period (Y+Rc), s	* 4.2	5.3	5.3	* 5.3	5.3	* 6	* 4.2	5.3
Max Green Setting (Gmax), s	* 17	38.9	16.8	* 49	28.8	* 26	* 23	42.1
Max Q Clear Time (g_c+I1), s	11.9	25.2	14.4	50.7	30.8	28.0	24.0	2.2
Green Ext Time (p_c), s	0.3	4.7	0.2	0.0	0.0	0.0	0.0	5.8

Intersection Summary	
HCM 6th Ctrl Delay	94.4
HCM 6th LOS	F

Notes

* 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 (veh/h)	193	1082	43	13	881	173	14	23	18	177	23	215
Future Volume (veh/h)	193	1082	43	13	881	173	14	23	18	177	23	215
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	210	1176	47	14	958	188	15	25	20	192	25	234
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	581	2154	86	26	1064	472	63	96	77	216	29	274
Arrive On Green	0.33	0.62	0.62	0.01	0.30	0.30	0.04	0.10	0.10	0.12	0.19	0.19
Sat Flow, veh/h	1767	3455	138	1767	3526	1565	1767	952	761	1767	151	1409
Grp Volume(v), veh/h	210	600	623	14	958	188	15	0	45	192	0	259
Grp Sat Flow(s),veh/h/ln	1767	1763	1830	1767	1763	1565	1767	0	1713	1767	0	1560
Q Serve(g_s), s	12.7	27.2	27.2	1.1	36.5	9.6	1.2	0.0	3.4	15.0	0.0	22.5
Cycle Q Clear(g_c), s	12.7	27.2	27.2	1.1	36.5	9.6	1.2	0.0	3.4	15.0	0.0	22.5
Prop In Lane	1.00		0.08	1.00		1.00	1.00		0.44	1.00		0.90
Lane Grp Cap(c), veh/h	581	1099	1141	26	1064	472	63	0	174	216	0	303
V/C Ratio(X)	0.36	0.55	0.55	0.53	0.90	0.40	0.24	0.00	0.26	0.89	0.00	0.85
Avail Cap(c_a), veh/h	581	1099	1141	63	1151	511	63	0	404	254	0	536
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	35.8	15.0	15.0	68.5	46.9	20.1	65.6	0.0	58.1	60.5	0.0	54.5
Incr Delay (d2), s/veh	0.4	1.9	1.9	15.3	12.1	2.5	1.9	0.0	0.8	26.7	0.0	6.8
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	5.4	10.7	11.1	0.6	17.3	3.7	0.6	0.0	1.5	8.2	0.0	9.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.2	17.0	16.9	83.8	58.9	22.6	67.6	0.0	58.8	87.2	0.0	61.3
LnGrp LOS	D	B	B	F	E	C	E	A	E	F	A	E
Approach Vol, veh/h		1433			1160			60			451	
Approach Delay, s/veh		19.8			53.3			61.0			72.3	
Approach LOS		B			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.0	19.1	6.3	92.6	9.0	32.1	51.3	47.5
Change Period (Y+Rc), s	4.9	* 4.9	* 4.2	5.3	4.0	4.9	5.3	* 5.3
Max Green Setting (Gmax), s	20.1	* 33	* 5	63.5	5.0	48.1	22.8	* 46
Max Q Clear Time (g_c+I1), s	17.0	5.4	3.1	29.2	3.2	24.5	14.7	38.5
Green Ext Time (p_c), s	0.1	0.2	0.0	9.1	0.0	1.6	0.3	3.8

Intersection Summary	
HCM 6th Ctrl Delay	40.7
HCM 6th LOS	D

Notes

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

Intersection: 1: "G" Street & Mercy Avenue

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	T	R	UL	T	T	R
Maximum Queue (ft)	49	242	360	595	380	402	373	217	358	363	374	50
Average Queue (ft)	10	88	221	235	169	194	122	56	195	184	184	12
95th Queue (ft)	34	172	364	468	324	358	302	127	320	288	293	35
Link Distance (ft)	268	268		614		1172	1172			440	440	
Upstream Blk Time (%)				0								
Queuing Penalty (veh)				0								
Storage Bay Dist (ft)			260		250			250	260			250
Storage Blk Time (%)			12	6	2	9	2		4	1	2	
Queuing Penalty (veh)			39	15	7	17	5		15	3	1	

Intersection: 2: Sandpiper Avenue & Mercy Avenue

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	R	R
Maximum Queue (ft)	96	22	49	20	31	94
Average Queue (ft)	49	1	16	1	5	34
95th Queue (ft)	89	10	42	9	24	63
Link Distance (ft)		614		654		198
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	200		75			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 5: "G" Street & Yosemite Avenue

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	T	TR	L	T	T	R	L	T	T	R	L
Maximum Queue (ft)	749	785	846	415	398	389	112	750	2599	2586	185	204
Average Queue (ft)	210	502	532	294	221	239	48	734	1395	869	131	110
95th Queue (ft)	409	718	760	402	341	356	98	818	2376	2134	228	175
Link Distance (ft)		2519	2519		439	439	439		4875	4875		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	600			370				600			75	250
Storage Blk Time (%)		9		4	2			78	1	43	12	
Queuing Penalty (veh)		21		16	5			275	5	135	41	

Intersection: 5: "G" Street & Yosemite Avenue

Movement	SB	SB	SB	SB
Directions Served	L	T	T	R
Maximum Queue (ft)	370	545	540	144
Average Queue (ft)	151	275	287	55
95th Queue (ft)	304	476	486	115
Link Distance (ft)		536	536	536
Upstream Blk Time (%)		1	1	
Queuing Penalty (veh)		3	2	
Storage Bay Dist (ft)	250			
Storage Blk Time (%)		20		
Queuing Penalty (veh)		49		

Intersection: 6: Sandpiper Avenue & Yosemite Avenue

Movement	WB	NB
Directions Served	T	R
Maximum Queue (ft)	97	22
Average Queue (ft)	3	4
95th Queue (ft)	32	19
Link Distance (ft)	589	228
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: Yosemite Avenue & Mansionette Drive

Movement	EB	EB	EB	WB	WB	WB	B17	B17	SB	SB
Directions Served	UL	T	T	T	T	R	T	T	L	R
Maximum Queue (ft)	203	141	163	367	367	164	189	164	182	71
Average Queue (ft)	95	27	32	175	173	29	15	13	85	37
95th Queue (ft)	167	89	90	394	389	117	81	71	158	65
Link Distance (ft)		589	589	303	303		865	865	1902	
Upstream Blk Time (%)				5	5					
Queuing Penalty (veh)				29	29					
Storage Bay Dist (ft)	375					105				150
Storage Blk Time (%)					12				5	
Queuing Penalty (veh)					10				5	

Intersection: 8: Paulson Road & Yosemite Avenue

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	T	R	L	TR	L	TR
Maximum Queue (ft)	100	370	413	100	580	674	120	100	405	257	240
Average Queue (ft)	63	175	192	38	272	275	85	76	197	141	128
95th Queue (ft)	110	306	329	86	467	483	158	125	368	235	206
Link Distance (ft)		865	865		1498	1498			1234		2033
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	50			50			70	50		600	
Storage Blk Time (%)	30	30		21	41	35	1	46	45		
Queuing Penalty (veh)	144	22		102	18	89	3	77	54		

Zone Summary

Zone wide Queuing Penalty: 1237

Intersection: 1: "G" Street & Mercy Avenue

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	L	TR	UL	T	T	R	UL	T	T	R
Maximum Queue (ft)	117	290	348	351	380	511	426	370	186	223	274	48
Average Queue (ft)	34	162	205	128	165	203	131	55	97	138	149	8
95th Queue (ft)	89	288	318	272	298	349	308	165	176	242	247	29
Link Distance (ft)	268	268		614		1172	1172			440	440	
Upstream Blk Time (%)		3										
Queuing Penalty (veh)		0										
Storage Bay Dist (ft)			260		250			250	260			250
Storage Blk Time (%)			8	0	8	7	2				0	
Queuing Penalty (veh)			16	1	28	12	3				0	

Intersection: 2: Sandpiper Avenue & Mercy Avenue

Movement	EB	WB	WB	NB	SB
Directions Served	L	L	TR	R	R
Maximum Queue (ft)	143	25	49	54	90
Average Queue (ft)	34	5	2	30	37
95th Queue (ft)	85	20	16	48	58
Link Distance (ft)			654		198
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	200	75			
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 5: "G" Street & Yosemite Avenue

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	T	TR	L	T	T	R	L	T	T	R	L
Maximum Queue (ft)	749	1668	1665	439	494	456	89	750	4531	4458	185	213
Average Queue (ft)	495	735	756	381	397	235	38	748	2849	2628	145	90
95th Queue (ft)	843	1427	1422	548	605	404	77	762	4899	4980	243	156
Link Distance (ft)		2519	2519		439	439	439		4875	4875		
Upstream Blk Time (%)				41	53	0						
Queuing Penalty (veh)				0	216	2						
Storage Bay Dist (ft)	600			370				600			75	250
Storage Blk Time (%)	0	30		71	5			83		41	10	
Queuing Penalty (veh)	0	78		252	13			270		139	32	

Intersection: 5: "G" Street & Yosemite Avenue

Movement	SB	SB	SB	SB
Directions Served	L	T	T	R
Maximum Queue (ft)	368	386	339	193
Average Queue (ft)	110	235	244	65
95th Queue (ft)	214	318	313	125
Link Distance (ft)		524	524	524
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	250			
Storage Blk Time (%)		4		
Queuing Penalty (veh)		9		

Intersection: 6: Sandpiper Avenue & Yosemite Avenue

Movement	WB	WB	NB
Directions Served	T	T	R
Maximum Queue (ft)	589	631	44
Average Queue (ft)	313	259	15
95th Queue (ft)	680	648	36
Link Distance (ft)	589	589	228
Upstream Blk Time (%)	2	0	
Queuing Penalty (veh)	9	1	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 7: Yosemite Avenue & Mansionette Drive

Movement	EB	EB	EB	WB	WB	WB	B17	B17	SB	SB
Directions Served	UL	T	T	T	T	R	T	T	L	R
Maximum Queue (ft)	271	175	207	367	367	31	143	116	73	53
Average Queue (ft)	140	20	24	131	106	6	12	5	27	29
95th Queue (ft)	235	87	93	291	264	24	72	40	62	52
Link Distance (ft)		589	589	303	303		865	865	1902	
Upstream Blk Time (%)				1	1					
Queuing Penalty (veh)				8	7					
Storage Bay Dist (ft)	375					105				150
Storage Blk Time (%)					8					
Queuing Penalty (veh)					4					

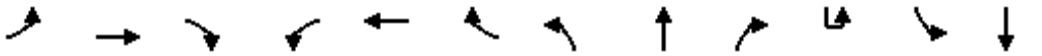
Intersection: 8: Paulson Road & Yosemite Avenue

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	T	R	L	TR	L	TR
Maximum Queue (ft)	100	371	356	99	519	482	120	54	74	241	303
Average Queue (ft)	93	235	232	22	239	238	63	23	35	137	110
95th Queue (ft)	115	351	340	63	409	419	146	53	69	222	233
Link Distance (ft)		865	865		1498	1498			1234		2033
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	50			50			70	50		600	
Storage Blk Time (%)	51	24		3	41	32	1	8	12		
Queuing Penalty (veh)	276	46		13	5	56	6	3	2		

Zone Summary

Zone wide Queuing Penalty: 1508

Appendix H: Cumulative Year 2039 plus Project Traffic Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	9	73	69	262	98	251	209	687	298	2	266	792
Future Volume (vph)	9	73	69	262	98	251	209	687	298	2	266	792
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	4.0		4.2	4.0		4.2	6.0	6.0		4.2	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00		1.00	0.95
Frpb, ped/bikes	1.00	1.00		1.00	0.99		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	1.00		1.00	1.00
Frt	1.00	0.93		1.00	0.89		1.00	1.00	0.85		1.00	1.00
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1752	1710		1752	1630		1752	3505	1532		1752	3505
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1752	1710		1752	1630		1752	3505	1532		1752	3505
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	10	79	75	285	107	273	227	747	324	2	289	861
RTOR Reduction (vph)	0	25	0	0	65	0	0	0	214	0	0	0
Lane Group Flow (vph)	10	129	0	285	315	0	227	747	110	0	291	861
Confl. Peds. (#/hr)						1			1			
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	Prot	NA
Protected Phases	7	4		3	8		5	2		1	1	6
Permitted Phases									2			
Actuated Green, G (s)	1.0	14.1		30.3	43.4		22.4	47.6	47.6		29.6	54.8
Effective Green, g (s)	1.0	14.1		30.3	43.4		22.4	47.6	47.6		29.6	54.8
Actuated g/C Ratio	0.01	0.10		0.22	0.31		0.16	0.34	0.34		0.21	0.39
Clearance Time (s)	4.2	4.0		4.2	4.0		4.2	6.0	6.0		4.2	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	12	172		379	505		280	1191	520		370	1371
v/s Ratio Prot	0.01	c0.08		c0.16	0.19		c0.13	0.21			c0.17	c0.25
v/s Ratio Perm									0.07			
v/c Ratio	0.83	0.75		0.75	0.62		0.81	0.63	0.21		0.79	0.63
Uniform Delay, d1	69.4	61.2		51.3	41.3		56.8	38.8	32.9		52.2	34.4
Progression Factor	1.00	1.00		1.00	1.00		1.04	0.66	0.41		1.00	1.00
Incremental Delay, d2	168.3	16.3		8.2	2.4		5.8	0.8	0.3		10.5	2.2
Delay (s)	237.7	77.5		59.5	43.7		64.7	26.4	13.9		62.7	36.6
Level of Service	F	E		E	D		E	C	B		E	D
Approach Delay (s)		87.3			50.5			30.0				42.4
Approach LOS		F			D			C				D

Intersection Summary			
HCM 2000 Control Delay	41.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	18.4
Intersection Capacity Utilization	74.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	52
Future Volume (vph)	52
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frpb, ped/bikes	1.00
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1568
Flt Permitted	1.00
Satd. Flow (perm)	1568
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	57
RTOR Reduction (vph)	35
Lane Group Flow (vph)	22
Confl. Peds. (#/hr)	
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	54.8
Effective Green, g (s)	54.8
Actuated g/C Ratio	0.39
Clearance Time (s)	6.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	613
v/s Ratio Prot	
v/s Ratio Perm	0.01
v/c Ratio	0.04
Uniform Delay, d1	26.3
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	26.4
Level of Service	C
Approach Delay (s)	
Approach LOS	

Intersection Summary

Intersection	
Int Delay, s/veh	103.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	235	368	116	69	480	29	23	13	27	8	51	79
Future Vol, veh/h	235	368	116	69	480	29	23	13	27	8	51	79
Conflicting Peds, #/hr	0	0	0	0	0	6	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	-	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	255	400	126	75	522	32	25	14	29	9	55	86

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	560	0	0	526	0	0	1732	1683	463	1689	1730	544
Stage 1	-	-	-	-	-	-	973	973	-	694	694	-
Stage 2	-	-	-	-	-	-	759	710	-	995	1036	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1006	-	-	1036	-	-	69	94	597	74	88	537
Stage 1	-	-	-	-	-	-	302	329	-	432	443	-
Stage 2	-	-	-	-	-	-	397	435	-	294	307	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1000	-	-	1036	-	-	~ 6	62	597	43	58	534
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 6	62	-	43	58	-
Stage 1	-	-	-	-	-	-	225	245	-	320	394	-
Stage 2	-	-	-	-	-	-	256	387	-	196	229	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3.2	1	$ 2113.3	134.4
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	15	1000	-	-	1036	-	-	55	534
HCM Lane V/C Ratio	4.565	0.255	-	-	0.072	-	-	1.166	0.161
HCM Control Delay (s)	$ 2113.3	9.8	-	-	8.7	0	-	296.9	13
HCM Lane LOS	F	A	-	-	A	A	-	F	B
HCM 95th %tile Q(veh)	9.4	1	-	-	0.2	-	-	5.5	0.6

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

Intersection	
Int Delay, s/veh	10.7

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Vol, veh/h	91	13	8	1171	76	23	1104
Future Vol, veh/h	91	13	8	1171	76	23	1104
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free
RT Channelized	-	None	-	-	None	-	None
Storage Length	0	-	150	-	250	250	-
Veh in Median Storage, #	0	-	-	0	-	-	0
Grade, %	0	-	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3
Mvmt Flow	99	14	9	1273	83	25	1200

Major/Minor	Minor1		Major1			Major2	
Conflicting Flow All	1821	637	876	0	0	1356	0
Stage 1	1291	-	-	-	-	-	-
Stage 2	530	-	-	-	-	-	-
Critical Hdwy	6.31	6.96	5.66	-	-	4.16	-
Critical Hdwy Stg 1	5.86	-	-	-	-	-	-
Critical Hdwy Stg 2	6.06	-	-	-	-	-	-
Follow-up Hdwy	3.68	3.33	2.33	-	-	2.23	-
Pot Cap-1 Maneuver	~ 89	418	511	-	-	498	-
Stage 1	215	-	-	-	-	-	-
Stage 2	519	-	-	-	-	-	-
Platoon blocked, %				-	-		-
Mov Cap-1 Maneuver	~ 83	418	511	-	-	498	-
Mov Cap-2 Maneuver	~ 83	-	-	-	-	-	-
Stage 1	201	-	-	-	-	-	-
Stage 2	519	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	251.4	0.1	0.3
HCM LOS	F		

Minor Lane/Major Mvmt	NBU	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	511	-	-	92	498	-
HCM Lane V/C Ratio	0.017	-	-	1.229	0.05	-
HCM Control Delay (s)	12.2	-	-	251.4	12.6	-
HCM Lane LOS	B	-	-	F	B	-
HCM 95th %tile Q(veh)	0.1	-	-	8	0.2	-

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

Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	44	1214	191	57	1150
Future Vol, veh/h	0	44	1214	191	57	1150
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	250	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	48	1320	208	62	1250

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	660	0	0	1528	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.96	-	-	4.16	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	-	-	2.23	-
Pot Cap-1 Maneuver	0	403	-	-	427	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	403	-	-	427	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.1	0	0.7
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	403	427	-
HCM Lane V/C Ratio	-	-	0.119	0.145	-
HCM Control Delay (s)	-	-	15.1	14.9	-
HCM Lane LOS	-	-	C	B	-
HCM 95th %tile Q(veh)	-	-	0.4	0.5	-

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	343	775	212	53	351	851	247	442	808	306	267	645
Future Volume (vph)	343	775	212	53	351	851	247	442	808	306	267	645
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	5.3			4.2	5.3	5.3	4.2	5.3	5.3	4.2	6.0
Lane Util. Factor	1.00	0.95			1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	0.99			1.00	1.00	0.99	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	1.00
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)	1752	3362			1752	3505	1547	1752	3505	1545	1752	3505
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)	1752	3362			1752	3505	1547	1752	3505	1545	1752	3505
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	373	842	230	58	382	925	268	480	878	333	290	701
RTOR Reduction (vph)	0	18	0	0	0	0	156	0	0	95	0	0
Lane Group Flow (vph)	373	1054	0	0	440	925	112	480	878	238	290	701
Confl. Peds. (#/hr)			23				1			2		
Turn Type	Prot	NA		Prot	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	7	4		3	3	8		5	2		1	6
Permitted Phases							8			2		
Actuated Green, G (s)	21.8	40.7			25.8	44.7	44.7	27.8	33.7	33.7	20.8	26.0
Effective Green, g (s)	21.8	40.7			25.8	44.7	44.7	27.8	33.7	33.7	20.8	26.0
Actuated g/C Ratio	0.16	0.29			0.18	0.32	0.32	0.20	0.24	0.24	0.15	0.19
Clearance Time (s)	4.2	5.3			4.2	5.3	5.3	4.2	5.3	5.3	4.2	6.0
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)	272	977			322	1119	493	347	843	371	260	650
v/s Ratio Prot	c0.21	c0.31			c0.25	0.26		c0.27	c0.25		0.17	c0.20
v/s Ratio Perm							0.07			0.15		
v/c Ratio	1.37	1.08			1.37	0.83	0.23	1.38	1.04	0.64	1.12	1.08
Uniform Delay, d1	59.1	49.6			57.1	44.1	35.0	56.1	53.1	47.7	59.6	57.0
Progression Factor	1.00	1.00			0.79	0.72	0.58	1.00	1.00	1.00	0.83	0.85
Incremental Delay, d2	188.7	52.6			182.5	6.6	1.0	189.5	42.3	3.8	85.5	55.4
Delay (s)	247.8	102.2			227.6	38.5	21.1	245.6	95.5	51.5	135.1	103.6
Level of Service	F	F			F	D	C	F	F	D	F	F
Approach Delay (s)		139.8				86.6			129.4			98.1
Approach LOS		F				F			F			F

Intersection Summary			
HCM 2000 Control Delay	113.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.25		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.7
Intersection Capacity Utilization	110.4%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	228
Future Volume (vph)	228
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frpb, ped/bikes	0.98
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1537
Flt Permitted	1.00
Satd. Flow (perm)	1537
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	248
RTOR Reduction (vph)	190
Lane Group Flow (vph)	58
Confl. Peds. (#/hr)	5
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	26.0
Effective Green, g (s)	26.0
Actuated g/C Ratio	0.19
Clearance Time (s)	6.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	285
v/s Ratio Prot	
v/s Ratio Perm	0.04
v/c Ratio	0.20
Uniform Delay, d1	48.2
Progression Factor	0.81
Incremental Delay, d2	0.3
Delay (s)	39.2
Level of Service	D
Approach Delay (s)	
Approach LOS	

Intersection Summary

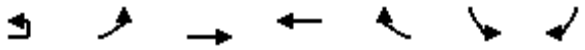
Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱		↑↑	↱			↱			↱
Traffic Vol, veh/h	0	1343	2	0	1250	33	0	0	7	0	0	0
Future Vol, veh/h	0	1343	2	0	1250	33	0	0	7	0	0	0
Conflicting Peds, #/hr	0	0	21	0	0	3	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	60	-	-	0	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	1414	2	0	1316	35	0	0	7	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	728	-	-	661
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.96	-	-	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.33	-	-	3.33
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	364	0	0	403
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	357	-	-	402
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

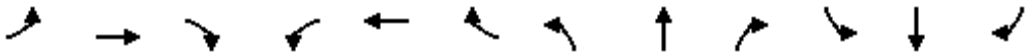
Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	15.3	0
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	357	-	-	-	-	-
HCM Lane V/C Ratio	0.021	-	-	-	-	-
HCM Control Delay (s)	15.3	-	-	-	-	0
HCM Lane LOS	C	-	-	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	-	-



Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	38	138	1200	1209	88	98	132
Future Volume (vph)	38	138	1200	1209	88	98	132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2	5.3	5.3	5.3	4.2	4.2
Lane Util. Factor		1.00	0.95	0.95	1.00	1.00	1.00
Frpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected		0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)		1752	3505	3505	1568	1752	1568
Flt Permitted		0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)		1752	3505	3505	1568	1752	1568
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	41	148	1290	1300	95	105	142
RTOR Reduction (vph)	0	0	0	0	13	0	126
Lane Group Flow (vph)	0	189	1290	1300	82	105	16
Confl. Peds. (#/hr)						24	
Turn Type	Prot	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	7	7	4	8		6	
Permitted Phases					8		6
Actuated Green, G (s)		20.0	114.8	90.6	90.6	15.7	15.7
Effective Green, g (s)		20.0	114.8	90.6	90.6	15.7	15.7
Actuated g/C Ratio		0.14	0.82	0.65	0.65	0.11	0.11
Clearance Time (s)		4.2	5.3	5.3	5.3	4.2	4.2
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		250	2874	2268	1014	196	175
v/s Ratio Prot		c0.11	0.37	c0.37		c0.06	
v/s Ratio Perm					0.05		0.01
v/c Ratio		0.76	0.45	0.57	0.08	0.54	0.09
Uniform Delay, d1		57.7	3.6	13.9	9.2	58.7	55.7
Progression Factor		0.89	0.60	0.33	0.16	1.00	1.00
Incremental Delay, d2		3.7	0.1	0.9	0.1	2.8	0.2
Delay (s)		55.1	2.3	5.4	1.6	61.5	56.0
Level of Service		E	A	A	A	E	E
Approach Delay (s)			9.0	5.2		58.3	
Approach LOS			A	A		E	

Intersection Summary			
HCM 2000 Control Delay	11.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.7
Intersection Capacity Utilization	62.8%	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 (veh/h)	79	981	75	43	997	256	128	103	63	166	76	158
Future Volume (veh/h)	79	981	75	43	997	256	128	103	63	166	76	158
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	81	1011	77	44	1028	264	132	106	65	171	78	163
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	447	1062	896	56	1210	537	155	186	114	168	92	193
Arrive On Green	0.25	0.57	0.57	0.03	0.34	0.34	0.09	0.17	0.17	0.09	0.18	0.18
Sat Flow, veh/h	1767	1856	1566	1767	3526	1563	1767	1075	659	1767	527	1102
Grp Volume(v), veh/h	81	1011	77	44	1028	264	132	0	171	171	0	241
Grp Sat Flow(s),veh/h/ln	1767	1856	1566	1767	1763	1563	1767	0	1735	1767	0	1630
Q Serve(g_s), s	5.0	71.7	2.0	3.5	37.8	14.0	10.3	0.0	12.7	13.3	0.0	20.0
Cycle Q Clear(g_c), s	5.0	71.7	2.0	3.5	37.8	14.0	10.3	0.0	12.7	13.3	0.0	20.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.38	1.00		0.68
Lane Grp Cap(c), veh/h	447	1062	896	56	1210	537	155	0	300	168	0	285
V/C Ratio(X)	0.18	0.95	0.09	0.78	0.85	0.49	0.85	0.00	0.57	1.02	0.00	0.84
Avail Cap(c_a), veh/h	447	1062	896	63	1584	702	181	0	409	168	0	362
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	40.9	28.1	5.4	67.3	42.6	20.5	62.9	0.0	53.1	63.4	0.0	55.9
Incr Delay (d2), s/veh	0.2	18.2	0.2	41.6	7.5	3.2	27.2	0.0	1.7	74.4	0.0	13.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	34.4	1.1	2.2	17.2	5.4	5.9	0.0	5.7	9.4	0.0	9.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.1	46.4	5.6	108.9	50.2	23.7	90.1	0.0	54.8	137.8	0.0	69.5
LnGrp LOS	D	D	A	F	D	C	F	A	D	F	A	E
Approach Vol, veh/h		1169			1336			303			412	
Approach Delay, s/veh		43.3			46.9			70.2			97.9	
Approach LOS		D			D			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.5	28.4	8.7	85.4	16.5	29.4	40.7	53.4
Change Period (Y+Rc), s	* 4.2	* 4.2	* 4.2	5.3	4.2	* 4.9	5.3	* 5.3
Max Green Setting (Gmax), s	* 13	* 33	* 5	71.0	14.3	* 31	13.1	* 63
Max Q Clear Time (g_c+I1), s	15.3	14.7	5.5	73.7	12.3	22.0	7.0	39.8
Green Ext Time (p_c), s	0.0	0.9	0.0	0.0	0.1	0.9	0.1	8.2

Intersection Summary	
HCM 6th Ctrl Delay	54.3
HCM 6th LOS	D

Notes

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	34	71	156	291	88	154	2	181	699	188	2	127
Future Volume (vph)	34	71	156	291	88	154	2	181	699	188	2	127
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	4.0		4.2	4.0			4.2	6.0	6.0		4.2
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00	0.95	1.00		1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99			1.00	1.00	0.97		1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00	1.00		1.00
Frt	1.00	0.90		1.00	0.90			1.00	1.00	0.85		1.00
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00	1.00		0.95
Satd. Flow (prot)	1752	1654		1752	1653			1752	3505	1527		1752
Flt Permitted	0.95	1.00		0.95	1.00			0.95	1.00	1.00		0.95
Satd. Flow (perm)	1752	1654		1752	1653			1752	3505	1527		1752
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	37	76	168	313	95	166	2	195	752	202	2	137
RTOR Reduction (vph)	0	58	0	0	48	0	0	0	0	130	0	0
Lane Group Flow (vph)	37	186	0	313	213	0	0	197	752	72	0	139
Confl. Peds. (#/hr)						3				2		
Turn Type	Prot	NA		Prot	NA		Prot	Prot	NA	Perm	Prot	Prot
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases										2		
Actuated Green, G (s)	5.7	19.2		29.9	43.4			19.7	50.2	50.2		22.3
Effective Green, g (s)	5.7	19.2		29.9	43.4			19.7	50.2	50.2		22.3
Actuated g/C Ratio	0.04	0.14		0.21	0.31			0.14	0.36	0.36		0.16
Clearance Time (s)	4.2	4.0		4.2	4.0			4.2	6.0	6.0		4.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	71	226		374	512			246	1256	547		279
v/s Ratio Prot	0.02	c0.11		c0.18	0.13			c0.11	0.21			0.08
v/s Ratio Perm										0.05		
v/c Ratio	0.52	0.82		0.84	0.42			0.80	0.60	0.13		0.50
Uniform Delay, d1	65.8	58.8		52.7	38.3			58.2	36.7	30.2		53.7
Progression Factor	1.00	1.00		1.00	1.00			0.92	0.53	0.73		1.00
Incremental Delay, d2	6.7	21.0		14.9	0.6			9.6	1.1	0.3		1.4
Delay (s)	72.6	79.7		67.7	38.8			63.1	20.6	22.3		55.1
Level of Service	E	E		E	D			E	C	C		E
Approach Delay (s)		78.8			54.5				28.2			
Approach LOS		E			D				C			

Intersection Summary			
HCM 2000 Control Delay	41.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	18.4
Intersection Capacity Utilization	82.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	746	34
Future Volume (vph)	746	34
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	6.0	6.0
Lane Util. Factor	0.95	1.00
Frpb, ped/bikes	1.00	0.98
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	3505	1543
Flt Permitted	1.00	1.00
Satd. Flow (perm)	3505	1543
Peak-hour factor, PHF	0.93	0.93
Adj. Flow (vph)	802	37
RTOR Reduction (vph)	0	23
Lane Group Flow (vph)	802	14
Confl. Peds. (#/hr)		3
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Actuated Green, G (s)	52.8	52.8
Effective Green, g (s)	52.8	52.8
Actuated g/C Ratio	0.38	0.38
Clearance Time (s)	6.0	6.0
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	1321	581
v/s Ratio Prot	c0.23	
v/s Ratio Perm		0.01
v/c Ratio	0.61	0.02
Uniform Delay, d1	35.2	27.4
Progression Factor	1.00	1.00
Incremental Delay, d2	2.1	0.1
Delay (s)	37.3	27.5
Level of Service	D	C
Approach Delay (s)	39.5	
Approach LOS	D	

Intersection Summary

Intersection	
Int Delay, s/veh	38.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	144	229	52	37	316	16	91	52	77	25	18	110
Future Vol, veh/h	144	229	52	37	316	16	91	52	77	25	18	110
Conflicting Peds, #/hr	0	0	2	0	0	7	0	0	1	0	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	-	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	157	249	57	40	343	17	99	57	84	27	20	120

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	367	0	0	308	0	0	1101	1041	281	1102	1061	364
Stage 1	-	-	-	-	-	-	594	594	-	439	439	-
Stage 2	-	-	-	-	-	-	507	447	-	663	622	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1186	-	-	1247	-	-	188	229	755	188	223	679
Stage 1	-	-	-	-	-	-	490	491	-	595	576	-
Stage 2	-	-	-	-	-	-	546	572	-	449	477	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1178	-	-	1245	-	-	123	189	753	112	184	671
Mov Cap-2 Maneuver	-	-	-	-	-	-	123	189	-	112	184	-
Stage 1	-	-	-	-	-	-	424	425	-	512	549	-
Stage 2	-	-	-	-	-	-	413	545	-	300	413	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.9	0.8	182.3	21.1
HCM LOS			F	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	197	1178	-	-	1245	-	-	134	671
HCM Lane V/C Ratio	1.214	0.133	-	-	0.032	-	-	0.349	0.178
HCM Control Delay (s)	182.3	8.5	-	-	8	0	-	45.6	11.5
HCM Lane LOS	F	A	-	-	A	A	-	E	B
HCM 95th %tile Q(veh)	12.5	0.5	-	-	0.1	-	-	1.4	0.6

Intersection	
Int Delay, s/veh	21.4

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Vol, veh/h	136	23	4	1041	39	15	1185
Future Vol, veh/h	136	23	4	1041	39	15	1185
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free
RT Channelized	-	None	-	-	None	-	None
Storage Length	0	-	150	-	250	250	-
Veh in Median Storage, #	0	-	-	0	-	-	0
Grade, %	0	-	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3
Mvmt Flow	148	25	4	1132	42	16	1288

Major/Minor	Minor1		Major1			Major2	
Conflicting Flow All	1687	566	940	0	0	1174	0
Stage 1	1140	-	-	-	-	-	-
Stage 2	547	-	-	-	-	-	-
Critical Hdwy	6.31	6.96	5.66	-	-	4.16	-
Critical Hdwy Stg 1	5.86	-	-	-	-	-	-
Critical Hdwy Stg 2	6.06	-	-	-	-	-	-
Follow-up Hdwy	3.68	3.33	2.33	-	-	2.23	-
Pot Cap-1 Maneuver	~ 107	465	470	-	-	585	-
Stage 1	259	-	-	-	-	-	-
Stage 2	509	-	-	-	-	-	-
Platoon blocked, %				-	-		-
Mov Cap-1 Maneuver	~ 103	465	470	-	-	585	-
Mov Cap-2 Maneuver	~ 103	-	-	-	-	-	-
Stage 1	250	-	-	-	-	-	-
Stage 2	509	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 327.8	0	0.1
HCM LOS	F		

Minor Lane/Major Mvmt	NBU	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	470	-	-	116	585	-
HCM Lane V/C Ratio	0.009	-	-	1.49	0.028	-
HCM Control Delay (s)	12.7	-	-	$ 327.8	11.3	-
HCM Lane LOS	B	-	-	F	B	-
HCM 95th %tile Q(veh)	0	-	-	12.4	0.1	-

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

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	34	1052	132	38	1289
Future Vol, veh/h	0	34	1052	132	38	1289
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	250	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	37	1143	143	41	1401

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	572	0	0	1286	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.96	-	-	4.16	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	-	-	2.23	-
Pot Cap-1 Maneuver	0	461	-	-	530	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	461	-	-	530	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.5	0	0.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	461	530	-
HCM Lane V/C Ratio	-	-	0.08	0.078	-
HCM Control Delay (s)	-	-	13.5	12.4	-
HCM Lane LOS	-	-	B	B	-
HCM 95th %tile Q(veh)	-	-	0.3	0.3	-

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	329	870	355	43	312	752	140	528	712	330	269	703
Future Volume (vph)	329	870	355	43	312	752	140	528	712	330	269	703
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	5.3			4.2	5.3	5.3	4.2	5.3	5.3	4.2	6.0
Lane Util. Factor	1.00	0.95			1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	0.99			1.00	1.00	0.98	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	1.00
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)	1752	3312			1752	3505	1544	1752	3505	1547	1752	3505
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)	1752	3312			1752	3505	1544	1752	3505	1547	1752	3505
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	350	926	378	46	332	800	149	562	757	351	286	748
RTOR Reduction (vph)	0	31	0	0	0	0	100	0	0	90	0	0
Lane Group Flow (vph)	350	1273	0	0	378	800	49	562	757	261	286	748
Confl. Peds. (#/hr)			24				3			1		
Turn Type	Prot	NA		Prot	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	7	4		3	3	8		5	2		1	6
Permitted Phases							8			2		
Actuated Green, G (s)	19.8	44.7			19.8	44.7	44.7	28.8	38.7	38.7	17.8	27.0
Effective Green, g (s)	19.8	44.7			19.8	44.7	44.7	28.8	38.7	38.7	17.8	27.0
Actuated g/C Ratio	0.14	0.32			0.14	0.32	0.32	0.21	0.28	0.28	0.13	0.19
Clearance Time (s)	4.2	5.3			4.2	5.3	5.3	4.2	5.3	5.3	4.2	6.0
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)	247	1057			247	1119	492	360	968	427	222	675
v/s Ratio Prot	c0.20	c0.38			c0.22	0.23		c0.32	0.22		c0.16	c0.21
v/s Ratio Perm							0.03			0.17		
v/c Ratio	1.42	1.20			1.53	0.71	0.10	1.56	0.78	0.61	1.29	1.11
Uniform Delay, d1	60.1	47.6			60.1	42.0	33.5	55.6	46.8	44.1	61.1	56.5
Progression Factor	1.00	1.00			0.78	0.68	0.88	1.00	1.00	1.00	0.91	0.86
Incremental Delay, d2	209.8	101.0			256.0	3.5	0.4	265.7	4.2	2.6	154.7	65.4
Delay (s)	269.9	148.6			302.8	32.0	29.9	321.3	50.9	46.7	210.6	114.1
Level of Service	F	F			F	C	C	F	D	D	F	F
Approach Delay (s)		174.3				108.9			141.0			115.2
Approach LOS		F				F			F			F

Intersection Summary			
HCM 2000 Control Delay	137.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.35		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.7
Intersection Capacity Utilization	121.1%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	311
Future Volume (vph)	311
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frpb, ped/bikes	0.98
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1539
Flt Permitted	1.00
Satd. Flow (perm)	1539
Peak-hour factor, PHF	0.94
Adj. Flow (vph)	331
RTOR Reduction (vph)	221
Lane Group Flow (vph)	110
Confl. Peds. (#/hr)	4
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	27.0
Effective Green, g (s)	27.0
Actuated g/C Ratio	0.19
Clearance Time (s)	6.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	296
v/s Ratio Prot	
v/s Ratio Perm	0.07
v/c Ratio	0.37
Uniform Delay, d1	49.1
Progression Factor	0.71
Incremental Delay, d2	0.6
Delay (s)	35.4
Level of Service	D
Approach Delay (s)	
Approach LOS	

Intersection Summary

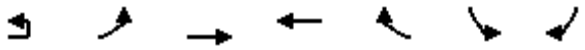
Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱		↑↑	↱			↱			↱
Traffic Vol, veh/h	0	1613	7	0	1414	19	0	0	27	0	0	15
Future Vol, veh/h	0	1613	7	0	1414	19	0	0	27	0	0	15
Conflicting Peds, #/hr	0	0	11	0	0	7	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	60	-	-	0	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	1663	7	0	1458	20	0	0	28	0	0	15

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	843	-	-	736
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.96	-	-	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.33	-	-	3.33
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	305	0	0	359
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	302	-	-	357
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

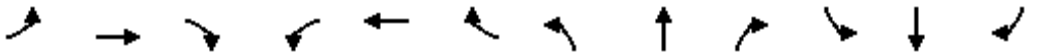
Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	18.1	15.5
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	302	-	-	-	-	357
HCM Lane V/C Ratio	0.092	-	-	-	-	0.043
HCM Control Delay (s)	18.1	-	-	-	-	15.5
HCM Lane LOS	C	-	-	-	-	C
HCM 95th %tile Q(veh)	0.3	-	-	-	-	0.1



Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	70	147	1419	1166	43	40	61
Future Volume (vph)	70	147	1419	1166	43	40	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2	5.3	5.3	5.3	4.2	4.2
Lane Util. Factor		1.00	0.95	0.95	1.00	1.00	1.00
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	1.00	1.00	0.85	1.00	0.85
Flt Protected		0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)		1752	3505	3505	1528	1752	1568
Flt Permitted		0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)		1752	3505	3505	1528	1752	1568
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	76	160	1542	1267	47	43	66
RTOR Reduction (vph)	0	0	0	0	6	0	61
Lane Group Flow (vph)	0	236	1542	1267	41	43	5
Confl. Peds. (#/hr)					2	7	
Turn Type	Prot	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	7	7	4	8		6	
Permitted Phases					8		6
Actuated Green, G (s)		23.9	119.4	91.3	91.3	11.1	11.1
Effective Green, g (s)		23.9	119.4	91.3	91.3	11.1	11.1
Actuated g/C Ratio		0.17	0.85	0.65	0.65	0.08	0.08
Clearance Time (s)		4.2	5.3	5.3	5.3	4.2	4.2
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		299	2989	2285	996	138	124
v/s Ratio Prot		c0.13	0.44	c0.36		c0.02	
v/s Ratio Perm					0.03		0.00
v/c Ratio		0.79	0.52	0.55	0.04	0.31	0.04
Uniform Delay, d1		55.6	2.7	13.3	8.7	60.8	59.5
Progression Factor		0.92	0.62	0.31	0.13	1.00	1.00
Incremental Delay, d2		3.8	0.2	0.8	0.1	1.3	0.1
Delay (s)		54.8	1.9	4.9	1.2	62.1	59.7
Level of Service		D	A	A	A	E	E
Approach Delay (s)			8.9	4.8		60.6	
Approach LOS			A	A		E	

Intersection Summary			
HCM 2000 Control Delay	9.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.7
Intersection Capacity Utilization	59.8%	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 (veh/h)	200	1108	50	13	906	173	19	23	18	177	23	220
Future Volume (veh/h)	200	1108	50	13	906	173	19	23	18	177	23	220
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	217	1204	54	14	985	188	21	25	20	192	25	239
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	568	1181	1000	26	1137	505	35	118	94	162	29	276
Arrive On Green	0.32	0.64	0.64	0.01	0.32	0.32	0.02	0.12	0.12	0.09	0.20	0.20
Sat Flow, veh/h	1767	1856	1570	1767	3526	1565	1767	951	761	1767	148	1412
Grp Volume(v), veh/h	217	1204	54	14	985	188	21	0	45	192	0	264
Grp Sat Flow(s),veh/h/ln	1767	1856	1570	1767	1763	1565	1767	0	1711	1767	0	1559
Q Serve(g_s), s	13.3	89.1	1.8	1.1	36.8	9.9	1.7	0.0	3.3	12.8	0.0	23.0
Cycle Q Clear(g_c), s	13.3	89.1	1.8	1.1	36.8	9.9	1.7	0.0	3.3	12.8	0.0	23.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.44	1.00		0.91
Lane Grp Cap(c), veh/h	568	1181	1000	26	1137	505	35	0	212	162	0	305
V/C Ratio(X)	0.38	1.02	0.05	0.53	0.87	0.37	0.60	0.00	0.21	1.19	0.00	0.87
Avail Cap(c_a), veh/h	568	1181	1000	63	1377	612	76	0	403	162	0	433
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	36.8	25.4	9.6	68.5	44.6	21.4	68.0	0.0	55.2	63.6	0.0	54.5
Incr Delay (d2), s/veh	0.4	31.1	0.1	15.3	8.9	2.1	15.1	0.0	0.5	130.4	0.0	12.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.7	44.6	0.6	0.6	17.0	3.8	0.9	0.0	1.5	11.5	0.0	9.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.2	56.5	9.7	83.8	53.5	23.5	83.1	0.0	55.7	194.0	0.0	66.8
LnGrp LOS	D	F	A	F	D	C	F	A	E	F	A	E
Approach Vol, veh/h		1475			1187			66			456	
Approach Delay, s/veh		51.9			49.1			64.4			120.4	
Approach LOS		D			D			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.0	22.3	6.3	94.4	7.0	32.3	50.3	50.5
Change Period (Y+Rc), s	* 4.2	* 4.9	* 4.2	5.3	* 4.2	4.9	5.3	* 5.3
Max Green Setting (Gmax), s	* 13	* 33	* 5	71.5	* 6	38.9	21.8	* 55
Max Q Clear Time (g_c+I1), s	14.8	5.3	3.1	91.1	3.7	25.0	15.3	38.8
Green Ext Time (p_c), s	0.0	0.2	0.0	0.0	0.0	1.3	0.3	6.4

Intersection Summary	
HCM 6th Ctrl Delay	60.9
HCM 6th LOS	E

Notes

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	9	73	69	262	92	234	215	704	298	2	266	792
Future Volume (vph)	9	73	69	262	92	234	215	704	298	2	266	792
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	4.0		4.2	4.0		4.2	6.0	6.0		4.2	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00		1.00	0.95
Frpb, ped/bikes	1.00	1.00		1.00	0.99		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	1.00		1.00	1.00
Frt	1.00	0.93		1.00	0.89		1.00	1.00	0.85		1.00	1.00
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1752	1710		1752	1631		1752	3505	1532		1752	3505
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1752	1710		1752	1631		1752	3505	1532		1752	3505
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	10	79	75	285	100	254	234	765	324	2	289	861
RTOR Reduction (vph)	0	25	0	0	67	0	0	0	213	0	0	0
Lane Group Flow (vph)	10	129	0	285	287	0	234	765	111	0	291	861
Confl. Peds. (#/hr)						1			1			
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	Prot	NA
Protected Phases	7	4		3	8		5	2		1	1	6
Permitted Phases									2			
Actuated Green, G (s)	2.0	13.6		28.8	40.4		22.2	46.8	46.8		28.4	53.0
Effective Green, g (s)	2.0	13.6		28.8	40.4		22.2	46.8	46.8		28.4	53.0
Actuated g/C Ratio	0.01	0.10		0.21	0.30		0.16	0.34	0.34		0.21	0.39
Clearance Time (s)	4.2	4.0		4.2	4.0		4.2	6.0	6.0		4.2	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	25	171		371	484		285	1206	527		365	1365
v/s Ratio Prot	0.01	c0.08		c0.16	0.18		c0.13	0.22			c0.17	c0.25
v/s Ratio Perm									0.07			
v/c Ratio	0.40	0.75		0.77	0.59		0.82	0.63	0.21		0.80	0.63
Uniform Delay, d1	66.4	59.6		50.5	40.8		55.0	37.4	31.5		51.1	33.6
Progression Factor	1.00	1.00		1.00	1.00		1.08	0.68	2.33		1.00	1.00
Incremental Delay, d2	10.2	17.0		9.2	1.9		15.3	2.3	0.8		11.5	2.2
Delay (s)	76.6	76.6		59.7	42.7		74.8	27.6	74.5		62.5	35.8
Level of Service	E	E		E	D		E	C	E		E	D
Approach Delay (s)		76.6			50.3			47.4				41.8
Approach LOS		E			D			D				D

Intersection Summary			
HCM 2000 Control Delay	47.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	136.0	Sum of lost time (s)	18.4
Intersection Capacity Utilization	73.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	52
Future Volume (vph)	52
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frpb, ped/bikes	1.00
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1568
Flt Permitted	1.00
Satd. Flow (perm)	1568
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	57
RTOR Reduction (vph)	35
Lane Group Flow (vph)	22
Confl. Peds. (#/hr)	
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	53.0
Effective Green, g (s)	53.0
Actuated g/C Ratio	0.39
Clearance Time (s)	6.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	611
v/s Ratio Prot	
v/s Ratio Perm	0.01
v/c Ratio	0.04
Uniform Delay, d1	25.7
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	25.8
Level of Service	C
Approach Delay (s)	
Approach LOS	

Intersection Summary

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	235	368	116	120	480	29	0	0	40	0	0	79
Future Vol, veh/h	235	368	116	120	480	29	0	0	40	0	0	79
Conflicting Peds, #/hr	0	0	0	0	0	6	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	75	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	255	400	126	130	522	32	0	0	43	0	0	86

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	560	0	0	526	0	0	-	-	463	-	-	544
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	4.13	-	-	4.13	-	-	-	-	6.23	-	-	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	-	-	3.327	-	-	3.327
Pot Cap-1 Maneuver	1006	-	-	1036	-	-	0	0	597	0	0	537
Stage 1	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1000	-	-	1036	-	-	-	-	597	-	-	534
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3.2	1.7	11.5	13
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	597	1000	-	-	1036	-	-	534
HCM Lane V/C Ratio	0.073	0.255	-	-	0.126	-	-	0.161
HCM Control Delay (s)	11.5	9.8	-	-	9	-	-	13
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.2	1	-	-	0.4	-	-	0.6

Intersection	
Intersection Delay, s/veh	39.7
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	235	368	116	69	480	29	23	13	27	8	51	79
Future Vol, veh/h	235	368	116	69	480	29	23	13	27	8	51	79
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	255	400	126	75	522	32	25	14	29	9	55	86
Number of Lanes	1	1	0	1	1	0	1	1	0	0	1	1

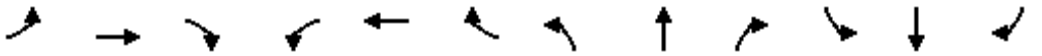
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	32.5	58.4	11.9	12.1
HCM LOS	D	F	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	100%	0%	14%	0%
Vol Thru, %	0%	32%	0%	76%	0%	94%	86%	0%
Vol Right, %	0%	68%	0%	24%	0%	6%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	23	40	235	484	69	509	59	79
LT Vol	23	0	235	0	69	0	8	0
Through Vol	0	13	0	368	0	480	51	0
RT Vol	0	27	0	116	0	29	0	79
Lane Flow Rate	25	43	255	526	75	553	64	86
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.062	0.096	0.482	0.894	0.148	1.005	0.147	0.178
Departure Headway (Hd)	8.991	7.982	6.909	6.229	7.087	6.538	8.25	7.456
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	400	450	524	584	509	559	436	483
Service Time	6.721	5.711	4.609	3.929	4.787	4.238	5.972	5.178
HCM Lane V/C Ratio	0.063	0.096	0.487	0.901	0.147	0.989	0.147	0.178
HCM Control Delay	12.3	11.6	15.9	40.5	11	64.8	12.4	11.8
HCM Lane LOS	B	B	C	E	B	F	B	B
HCM 95th-tile Q	0.2	0.3	2.6	10.6	0.5	14.6	0.5	0.6

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	142	36	8	1171	76	23	1104
Future Volume (vph)	142	36	8	1171	76	23	1104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	4.2	4.2	6.0	6.0	4.2	6.0
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00	0.91
Frt	1.00	0.85	1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1752	1568	1752	3505	1568	1752	5036
Flt Permitted	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1752	1568	1752	3505	1568	1752	5036
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	154	39	9	1273	83	25	1200
RTOR Reduction (vph)	0	33	0	0	24	0	0
Lane Group Flow (vph)	154	6	9	1273	59	25	1200
Turn Type	Prot	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	8		5	2		1	6
Permitted Phases		8			2		
Actuated Green, G (s)	20.8	20.8	1.5	94.0	94.0	6.8	99.3
Effective Green, g (s)	20.8	20.8	1.5	94.0	94.0	6.8	99.3
Actuated g/C Ratio	0.15	0.15	0.01	0.69	0.69	0.05	0.73
Clearance Time (s)	4.2	4.2	4.2	6.0	6.0	4.2	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	267	239	19	2422	1083	87	3677
v/s Ratio Prot	c0.09		0.01	c0.36		0.01	c0.24
v/s Ratio Perm		0.00			0.04		
v/c Ratio	0.58	0.02	0.47	0.53	0.05	0.29	0.33
Uniform Delay, d1	53.5	49.0	66.9	10.2	6.7	62.3	6.5
Progression Factor	1.00	1.00	0.93	0.88	1.14	0.78	0.72
Incremental Delay, d2	3.0	0.0	8.7	0.4	0.0	1.4	0.2
Delay (s)	56.5	49.0	70.7	9.4	7.7	49.7	4.9
Level of Service	E	D	E	A	A	D	A
Approach Delay (s)	55.0			9.7			5.8
Approach LOS	D			A			A

Intersection Summary			
HCM 2000 Control Delay	11.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	136.0	Sum of lost time (s)	14.4
Intersection Capacity Utilization	48.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



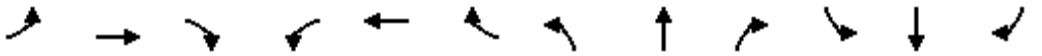
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	343	775	212	353	851	247	442	808	306	318	645	228
Future Volume (veh/h)	343	775	212	353	851	247	442	808	306	318	645	228
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1930	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	373	842	230	384	925	268	480	878	333	346	701	248
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	518	1114	304	309	996	444	349	993	717	386	674	298
Arrive On Green	0.29	0.41	0.41	0.35	0.56	0.56	0.19	0.28	0.28	0.04	0.06	0.06
Sat Flow, veh/h	1767	2725	744	1767	3526	1571	1838	3526	1569	3428	3526	1560
Grp Volume(v), veh/h	373	544	528	384	925	268	480	878	333	346	701	248
Grp Sat Flow(s),veh/h/ln	1767	1763	1707	1767	1763	1571	1838	1763	1569	1714	1763	1560
Q Serve(g_s), s	25.7	35.9	36.0	23.8	32.7	13.9	25.8	32.4	19.9	13.7	26.0	21.4
Cycle Q Clear(g_c), s	25.7	35.9	36.0	23.8	32.7	13.9	25.8	32.4	19.9	13.7	26.0	21.4
Prop In Lane	1.00		0.44	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	518	720	697	309	996	444	349	993	717	386	674	298
V/C Ratio(X)	0.72	0.76	0.76	1.24	0.93	0.60	1.38	0.88	0.46	0.90	1.04	0.83
Avail Cap(c_a), veh/h	518	720	697	309	1081	482	349	993	717	386	674	298
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	0.33	0.33	0.33
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	43.1	34.4	34.4	44.2	28.3	20.3	55.1	46.7	25.5	64.7	63.7	61.5
Incr Delay (d2), s/veh	4.8	7.3	7.5	133.2	15.8	6.0	186.7	9.6	0.5	22.8	45.5	17.8
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	11.6	16.2	15.8	19.7	11.2	4.6	29.7	15.1	7.3	7.4	16.5	10.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.9	41.7	41.9	177.4	44.2	26.3	241.8	56.3	26.0	87.5	109.2	79.3
LnGrp LOS	D	D	D	F	D	C	F	E	C	F	F	E
Approach Vol, veh/h		1445			1577			1691			1295	
Approach Delay, s/veh		43.4			73.6			103.0			97.7	
Approach LOS		D			E			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.5	43.6	28.0	60.9	31.1	32.0	45.2	43.7
Change Period (Y+Rc), s	* 4.2	5.3	* 4.2	5.3	5.3	* 6	5.3	* 5.3
Max Green Setting (Gmax), s	* 15	37.2	* 24	40.7	25.8	* 26	22.8	* 42
Max Q Clear Time (g_c+I1), s	15.7	34.4	25.8	38.0	27.8	28.0	27.7	34.7
Green Ext Time (p_c), s	0.0	1.7	0.0	1.6	0.0	0.0	0.0	3.7

Intersection Summary	
HCM 6th Ctrl Delay	79.8
HCM 6th LOS	E

Notes

* 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 (veh/h)	79	981	75	43	997	256	128	103	63	166	76	158
Future Volume (veh/h)	79	981	75	43	997	256	128	103	63	166	76	158
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	81	1011	77	44	1028	264	132	106	65	171	78	163
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	451	1874	143	57	1175	521	157	172	106	197	94	196
Arrive On Green	0.26	0.56	0.56	0.03	0.33	0.33	0.09	0.16	0.16	0.11	0.18	0.18
Sat Flow, veh/h	1767	3319	253	1767	3526	1563	1767	1076	660	1767	528	1103
Grp Volume(v), veh/h	81	537	551	44	1028	264	132	0	171	171	0	241
Grp Sat Flow(s),veh/h/ln	1767	1763	1809	1767	1763	1563	1767	0	1735	1767	0	1630
Q Serve(g_s), s	4.9	25.9	25.9	3.4	37.3	13.4	10.0	0.0	12.5	12.9	0.0	19.4
Cycle Q Clear(g_c), s	4.9	25.9	25.9	3.4	37.3	13.4	10.0	0.0	12.5	12.9	0.0	19.4
Prop In Lane	1.00		0.14	1.00		1.00	1.00		0.38	1.00		0.68
Lane Grp Cap(c), veh/h	451	995	1021	57	1175	521	157	0	278	197	0	290
V/C Ratio(X)	0.18	0.54	0.54	0.78	0.87	0.51	0.84	0.00	0.61	0.87	0.00	0.83
Avail Cap(c_a), veh/h	451	995	1021	114	1340	594	240	0	421	283	0	424
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	39.5	18.5	18.5	65.3	42.7	19.3	61.0	0.0	53.2	59.4	0.0	54.0
Incr Delay (d2), s/veh	0.2	2.1	2.0	20.0	9.2	3.5	14.7	0.0	2.2	17.6	0.0	8.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	10.5	10.8	1.8	17.2	5.2	5.2	0.0	5.7	6.7	0.0	8.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.7	20.6	20.6	85.3	51.9	22.8	75.7	0.0	55.4	77.1	0.0	62.8
LnGrp LOS	D	C	C	F	D	C	E	A	E	E	A	E
Approach Vol, veh/h		1169			1336			303			412	
Approach Delay, s/veh		21.9			47.2			64.3			68.7	
Approach LOS		C			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.4	26.0	8.6	82.1	16.3	29.1	40.0	50.6
Change Period (Y+Rc), s	* 4.2	* 4.2	* 4.2	5.3	4.2	* 4.9	5.3	* 5.3
Max Green Setting (Gmax), s	* 22	* 33	* 8.8	54.7	18.5	* 35	11.8	* 52
Max Q Clear Time (g_c+I1), s	14.9	14.5	5.4	27.9	12.0	21.4	6.9	39.3
Green Ext Time (p_c), s	0.2	0.9	0.0	7.2	0.2	1.1	0.1	6.0

Intersection Summary	
HCM 6th Ctrl Delay	42.4
HCM 6th LOS	D

Notes

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	34	71	156	291	55	96	2	214	757	188	2	127
Future Volume (vph)	34	71	156	291	55	96	2	214	757	188	2	127
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	4.0		4.2	4.0			4.2	6.0	6.0		4.2
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00	0.95	1.00		1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99			1.00	1.00	0.97		1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00	1.00		1.00
Frt	1.00	0.90		1.00	0.90			1.00	1.00	0.85		1.00
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00	1.00		0.95
Satd. Flow (prot)	1752	1654		1752	1653			1752	3505	1527		1752
Flt Permitted	0.95	1.00		0.95	1.00			0.95	1.00	1.00		0.95
Satd. Flow (perm)	1752	1654		1752	1653			1752	3505	1527		1752
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	37	76	168	313	59	103	2	230	814	202	2	137
RTOR Reduction (vph)	0	57	0	0	47	0	0	0	0	120	0	0
Lane Group Flow (vph)	37	187	0	313	115	0	0	232	814	82	0	139
Confl. Peds. (#/hr)						3				2		
Turn Type	Prot	NA		Prot	NA		Prot	Prot	NA	Perm	Prot	Prot
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases										2		
Actuated Green, G (s)	5.7	19.9		28.9	43.1			22.4	57.1	57.1		15.7
Effective Green, g (s)	5.7	19.9		28.9	43.1			22.4	57.1	57.1		15.7
Actuated g/C Ratio	0.04	0.14		0.21	0.31			0.16	0.41	0.41		0.11
Clearance Time (s)	4.2	4.0		4.2	4.0			4.2	6.0	6.0		4.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	71	235		361	508			280	1429	622		196
v/s Ratio Prot	0.02	c0.11		c0.18	0.07			c0.13	0.23			0.08
v/s Ratio Perm										0.05		
v/c Ratio	0.52	0.79		0.87	0.23			0.83	0.57	0.13		0.71
Uniform Delay, d1	65.8	58.1		53.7	36.0			56.9	32.0	25.9		59.9
Progression Factor	1.00	1.00		1.00	1.00			0.84	0.80	2.24		1.00
Incremental Delay, d2	6.7	16.6		19.1	0.2			16.8	1.5	0.4		11.1
Delay (s)	72.6	74.7		72.8	36.3			64.6	27.2	58.5		71.1
Level of Service	E	E		E	D			E	C	E		E
Approach Delay (s)		74.4			60.4				39.2			
Approach LOS		E			E				D			

Intersection Summary			
HCM 2000 Control Delay	47.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	18.4
Intersection Capacity Utilization	84.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	746	34
Future Volume (vph)	746	34
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	6.0	6.0
Lane Util. Factor	0.95	1.00
Frpb, ped/bikes	1.00	0.98
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	3505	1543
Flt Permitted	1.00	1.00
Satd. Flow (perm)	3505	1543
Peak-hour factor, PHF	0.93	0.93
Adj. Flow (vph)	802	37
RTOR Reduction (vph)	0	24
Lane Group Flow (vph)	802	13
Confl. Peds. (#/hr)		3
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Actuated Green, G (s)	50.4	50.4
Effective Green, g (s)	50.4	50.4
Actuated g/C Ratio	0.36	0.36
Clearance Time (s)	6.0	6.0
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	1261	555
v/s Ratio Prot	c0.23	
v/s Ratio Perm		0.01
v/c Ratio	0.64	0.02
Uniform Delay, d1	37.2	28.9
Progression Factor	1.00	1.00
Incremental Delay, d2	2.5	0.1
Delay (s)	39.6	29.0
Level of Service	D	C
Approach Delay (s)	43.7	
Approach LOS	D	

Intersection Summary

Intersection	
Int Delay, s/veh	4.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	144	229	52	55	316	16	0	0	129	0	0	110
Future Vol, veh/h	144	229	52	55	316	16	0	0	129	0	0	110
Conflicting Peds, #/hr	0	0	2	0	0	7	0	0	1	0	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	75	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	157	249	57	60	343	17	0	0	140	0	0	120

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	367	0	0	308	0	0	-	-	281	-	-	364
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	4.13	-	-	4.13	-	-	-	-	6.23	-	-	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	-	-	3.327	-	-	3.327
Pot Cap-1 Maneuver	1186	-	-	1247	-	-	0	0	755	0	0	679
Stage 1	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1178	-	-	1245	-	-	-	-	753	-	-	671
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.9	1.1	10.9	11.5
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	753	1178	-	-	1245	-	-	671
HCM Lane V/C Ratio	0.186	0.133	-	-	0.048	-	-	0.178
HCM Control Delay (s)	10.9	8.5	-	-	8	-	-	11.5
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.7	0.5	-	-	0.2	-	-	0.6

Intersection	
Intersection Delay, s/veh	16.5
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	144	229	52	37	316	16	91	52	77	25	18	110
Future Vol, veh/h	144	229	52	37	316	16	91	52	77	25	18	110
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	157	249	57	40	343	17	99	57	84	27	20	120
Number of Lanes	1	1	0	1	1	0	1	1	0	0	1	1

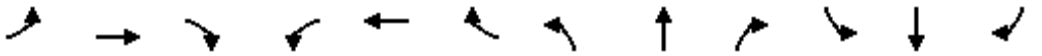
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	15.9	21.3	12.7	11.8
HCM LOS	C	C	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	100%	0%	58%	0%
Vol Thru, %	0%	40%	0%	81%	0%	95%	42%	0%
Vol Right, %	0%	60%	0%	19%	0%	5%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	91	129	144	281	37	332	43	110
LT Vol	91	0	144	0	37	0	25	0
Through Vol	0	52	0	229	0	316	18	0
RT Vol	0	77	0	52	0	16	0	110
Lane Flow Rate	99	140	157	305	40	361	47	120
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.22	0.275	0.314	0.558	0.081	0.677	0.104	0.232
Departure Headway (Hd)	8.015	7.073	7.224	6.582	7.293	6.749	8.006	6.987
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	448	508	498	550	492	538	448	514
Service Time	5.758	4.815	4.961	4.318	5.029	4.485	5.751	4.732
HCM Lane V/C Ratio	0.221	0.276	0.315	0.555	0.081	0.671	0.105	0.233
HCM Control Delay	13	12.5	13.2	17.3	10.7	22.5	11.7	11.8
HCM Lane LOS	B	B	B	C	B	C	B	B
HCM 95th-tile Q	0.8	1.1	1.3	3.4	0.3	5.1	0.3	0.9

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	177	114	4	1041	39	15	1185
Future Volume (vph)	177	114	4	1041	39	15	1185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	4.2	4.2	6.0	6.0	4.2	6.0
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00	0.91
Frt	1.00	0.85	1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1752	1568	1752	3505	1568	1752	5036
Flt Permitted	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1752	1568	1752	3505	1568	1752	5036
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	192	124	4	1132	42	16	1288
RTOR Reduction (vph)	0	102	0	0	12	0	0
Lane Group Flow (vph)	192	22	4	1132	30	16	1288
Turn Type	Prot	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	8		5	2		1	6
Permitted Phases		8			2		
Actuated Green, G (s)	23.4	23.4	2.9	98.9	98.9	3.3	99.3
Effective Green, g (s)	23.4	23.4	2.9	98.9	98.9	3.3	99.3
Actuated g/C Ratio	0.17	0.17	0.02	0.71	0.71	0.02	0.71
Clearance Time (s)	4.2	4.2	4.2	6.0	6.0	4.2	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	292	262	36	2476	1107	41	3571
v/s Ratio Prot	c0.11		0.00	c0.32		0.01	c0.26
v/s Ratio Perm		0.01			0.02		
v/c Ratio	0.66	0.08	0.11	0.46	0.03	0.39	0.36
Uniform Delay, d1	54.6	49.2	67.3	8.9	6.2	67.4	7.9
Progression Factor	1.00	1.00	0.72	0.67	0.54	1.09	0.79
Incremental Delay, d2	5.3	0.1	0.7	0.3	0.0	4.5	0.2
Delay (s)	59.8	49.4	49.5	6.3	3.3	78.2	6.5
Level of Service	E	D	D	A	A	E	A
Approach Delay (s)	55.7			6.3			7.4
Approach LOS	E			A			A

Intersection Summary			
HCM 2000 Control Delay	12.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	14.4
Intersection Capacity Utilization	47.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



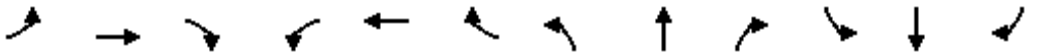
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	329	870	355	314	752	140	528	712	330	310	703	311
Future Volume (veh/h)	329	870	355	314	752	140	528	712	330	310	703	311
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1930	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	350	926	378	334	800	149	562	757	351	330	748	331
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	275	794	321	540	1706	760	365	985	919	384	680	301
Arrive On Green	0.16	0.33	0.33	0.61	0.97	0.97	0.20	0.28	0.28	0.07	0.13	0.13
Sat Flow, veh/h	1767	2432	983	1767	3526	1570	1838	3526	1571	3428	3526	1563
Grp Volume(v), veh/h	350	669	635	334	800	149	562	757	351	330	748	331
Grp Sat Flow(s),veh/h/ln	1767	1763	1652	1767	1763	1570	1838	1763	1571	1714	1763	1563
Q Serve(g_s), s	21.8	45.7	45.7	16.6	1.9	0.5	27.8	27.6	5.7	13.3	27.0	27.0
Cycle Q Clear(g_c), s	21.8	45.7	45.7	16.6	1.9	0.5	27.8	27.6	5.7	13.3	27.0	27.0
Prop In Lane	1.00		0.60	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	275	575	539	540	1706	760	365	985	919	384	680	301
V/C Ratio(X)	1.27	1.16	1.18	0.62	0.47	0.20	1.54	0.77	0.38	0.86	1.10	1.10
Avail Cap(c_a), veh/h	275	575	539	540	1706	760	365	985	919	451	680	301
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	0.67	0.67	0.67
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	59.1	47.1	47.2	22.1	1.2	1.2	56.1	46.3	13.8	63.7	61.0	61.0
Incr Delay (d2), s/veh	147.7	91.1	97.9	2.2	0.9	0.6	256.3	3.7	0.3	13.7	65.2	80.8
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	20.8	33.9	32.8	5.2	0.6	0.3	38.6	12.3	4.9	6.6	18.3	17.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	206.8	138.2	145.1	24.3	2.1	1.7	312.4	50.0	14.0	77.4	126.1	141.7
LnGrp LOS	F	F	F	C	A	A	F	D	B	E	F	F
Approach Vol, veh/h		1654			1283			1670			1409	
Approach Delay, s/veh		155.4			7.8			130.7			118.4	
Approach LOS		F			A			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.9	45.1	48.1	51.0	32.0	33.0	26.0	73.1
Change Period (Y+Rc), s	* 4.2	* 6	5.3	* 5.3	* 4.2	6.0	* 4.2	5.3
Max Green Setting (Gmax), s	* 18	* 37	19.8	* 46	* 28	27.0	* 22	43.7
Max Q Clear Time (g_c+I1), s	15.3	29.6	18.6	47.7	29.8	29.0	23.8	3.9
Green Ext Time (p_c), s	0.3	3.5	0.1	0.0	0.0	0.0	0.0	6.4

Intersection Summary	
HCM 6th Ctrl Delay	108.4
HCM 6th LOS	F

Notes

* 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 (veh/h)	200	1108	50	13	906	173	19	23	18	177	23	220
Future Volume (veh/h)	200	1108	50	13	906	173	19	23	18	177	23	220
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	217	1204	54	14	985	188	21	25	20	192	25	239
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	581	2169	97	26	1091	484	35	94	75	216	30	284
Arrive On Green	0.33	0.63	0.63	0.01	0.31	0.31	0.02	0.10	0.10	0.12	0.20	0.20
Sat Flow, veh/h	1767	3436	154	1767	3526	1565	1767	952	761	1767	148	1413
Grp Volume(v), veh/h	217	617	641	14	985	188	21	0	45	192	0	264
Grp Sat Flow(s),veh/h/ln	1767	1763	1828	1767	1763	1565	1767	0	1713	1767	0	1560
Q Serve(g_s), s	13.2	27.8	27.9	1.1	37.5	9.6	1.7	0.0	3.4	15.0	0.0	22.8
Cycle Q Clear(g_c), s	13.2	27.8	27.9	1.1	37.5	9.6	1.7	0.0	3.4	15.0	0.0	22.8
Prop In Lane	1.00		0.08	1.00		1.00	1.00		0.44	1.00		0.91
Lane Grp Cap(c), veh/h	581	1113	1154	26	1091	484	35	0	169	216	0	314
V/C Ratio(X)	0.37	0.55	0.56	0.53	0.90	0.39	0.60	0.00	0.27	0.89	0.00	0.84
Avail Cap(c_a), veh/h	581	1113	1154	63	1176	522	76	0	404	250	0	512
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	35.9	14.6	14.7	68.5	46.3	19.9	68.0	0.0	58.4	60.5	0.0	53.8
Incr Delay (d2), s/veh	0.4	2.0	1.9	15.3	12.0	2.3	15.1	0.0	0.8	27.5	0.0	6.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	10.9	11.3	0.6	17.7	3.7	0.9	0.0	1.5	8.3	0.0	9.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.3	16.6	16.6	83.8	58.3	22.3	83.1	0.0	59.2	88.0	0.0	60.5
LnGrp LOS	D	B	B	F	E	C	F	A	E	F	A	E
Approach Vol, veh/h		1475			1187			66			456	
Approach Delay, s/veh		19.5			52.9			66.8			72.1	
Approach LOS		B			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.3	18.7	6.3	93.7	7.0	33.0	51.3	48.6
Change Period (Y+Rc), s	* 4.2	* 4.9	* 4.2	5.3	* 4.2	4.9	5.3	* 5.3
Max Green Setting (Gmax), s	* 20	* 33	* 5	64.5	* 6	45.9	22.8	* 47
Max Q Clear Time (g_c+I1), s	17.0	5.4	3.1	29.9	3.7	24.8	15.2	39.5
Green Ext Time (p_c), s	0.1	0.2	0.0	9.5	0.0	1.5	0.3	3.9

Intersection Summary	
HCM 6th Ctrl Delay	40.5
HCM 6th LOS	D

Notes

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

Intersection: 1: "G" Street & Mercy Avenue

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	T	R	UL	T	T	R
Maximum Queue (ft)	49	267	305	374	379	546	492	143	318	369	305	48
Average Queue (ft)	11	141	188	202	202	261	195	82	174	180	180	17
95th Queue (ft)	34	237	285	344	329	427	395	145	302	296	284	41
Link Distance (ft)	268	268		614		1160	1160			440	440	
Upstream Blk Time (%)		0										
Queuing Penalty (veh)		0										
Storage Bay Dist (ft)			260		250			250	260			250
Storage Blk Time (%)			3	7	4	19	3		5	3	1	
Queuing Penalty (veh)			11	17	13	41	9		18	7	0	

Intersection: 2: Sandpiper Avenue & Mercy Avenue

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	R	R
Maximum Queue (ft)	139	51	67	56	54	54
Average Queue (ft)	56	2	28	2	23	32
95th Queue (ft)	106	19	57	18	46	52
Link Distance (ft)		614		654	2325	198
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	200		75			
Storage Blk Time (%)			0	0		
Queuing Penalty (veh)			1	0		

Intersection: 3: "G" Street & Project Driveway 1

Movement	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	R	U	T	T	R	L	T	T	T
Maximum Queue (ft)	213	62	51	224	226	31	53	379	229	206
Average Queue (ft)	103	24	13	74	43	5	16	91	82	54
95th Queue (ft)	175	53	41	179	120	21	45	224	170	136
Link Distance (ft)	596			566	566			1160	1160	1160
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)		100	150			250	250			
Storage Blk Time (%)	12			2				1		
Queuing Penalty (veh)	4			0				0		

Intersection: 4: "G" Street & Project Driveway 2

Movement	WB	NB	SB	SB	SB
Directions Served	R	R	L	T	T
Maximum Queue (ft)	60	22	268	436	352
Average Queue (ft)	19	2	33	77	68
95th Queue (ft)	41	13	116	283	252
Link Distance (ft)	574			566	566
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		250	150		
Storage Blk Time (%)				7	
Queuing Penalty (veh)				4	

Intersection: 5: "G" Street & Yosemite Avenue

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	T	TR	L	T	T	R	L	T	T	R	L
Maximum Queue (ft)	750	1441	1395	438	484	448	154	750	3150	3102	185	308
Average Queue (ft)	439	606	601	366	355	329	83	725	1766	1668	155	170
95th Queue (ft)	840	1228	1180	477	549	489	142	876	2973	2913	253	272
Link Distance (ft)		2519	2519		439	439	439		4875	4875		
Upstream Blk Time (%)				8	10	1						
Queuing Penalty (veh)				0	36	4						
Storage Bay Dist (ft)	600			370				600			75	250
Storage Blk Time (%)	2	26		29	9			80	2	66	5	2
Queuing Penalty (veh)	8	90		124	32			325	9	201	21	7

Intersection: 5: "G" Street & Yosemite Avenue

Movement	SB	SB	SB	SB
Directions Served	L	T	T	R
Maximum Queue (ft)	370	563	587	465
Average Queue (ft)	276	397	401	101
95th Queue (ft)	453	637	647	276
Link Distance (ft)		536	536	536
Upstream Blk Time (%)		12	12	
Queuing Penalty (veh)		49	47	
Storage Bay Dist (ft)	250			
Storage Blk Time (%)	6	44		
Queuing Penalty (veh)	18	138		

Intersection: 6: Sandpiper Avenue & Yosemite Avenue

Movement	WB	NB
Directions Served	T	R
Maximum Queue (ft)	136	22
Average Queue (ft)	16	4
95th Queue (ft)	76	17
Link Distance (ft)	589	228
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: Yosemite Avenue & Mansionette Drive

Movement	EB	EB	EB	WB	WB	WB	B17	B17	SB	SB
Directions Served	UL	T	T	T	T	R	T	T	L	R
Maximum Queue (ft)	294	200	221	367	367	165	63	127	179	114
Average Queue (ft)	138	55	59	72	81	16	2	4	80	44
95th Queue (ft)	230	150	151	224	231	68	21	42	154	81
Link Distance (ft)		589	589	303	303		865	865	1902	
Upstream Blk Time (%)				1	1					
Queuing Penalty (veh)				4	7					
Storage Bay Dist (ft)	375					105				150
Storage Blk Time (%)					5				2	
Queuing Penalty (veh)					4				3	

Intersection: 8: Paulson Road & Yosemite Avenue

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	T	R	L	TR	L	TR
Maximum Queue (ft)	100	358	385	100	491	515	120	100	618	292	259
Average Queue (ft)	59	133	160	39	277	305	87	87	210	152	145
95th Queue (ft)	105	269	305	80	413	446	156	115	451	243	233
Link Distance (ft)		865	865		1498	1498			1234		2033
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	50			50			70	50		600	
Storage Blk Time (%)	27	27		21	42	35	1	55	44		
Queuing Penalty (veh)	135	22		104	18	90	4	91	57		

Zone Summary

Zone wide Queuing Penalty: 1774

Intersection: 1: "G" Street & Mercy Avenue

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	L	TR	UL	T	T	R	UL	T	T	R
Maximum Queue (ft)	93	328	348	319	379	561	519	97	207	301	302	26
Average Queue (ft)	34	163	225	98	186	254	141	39	100	185	188	11
95th Queue (ft)	82	280	333	209	328	446	364	81	177	272	276	31
Link Distance (ft)	268	268		614		1160	1160			440	440	
Upstream Blk Time (%)		1										
Queuing Penalty (veh)		0										
Storage Bay Dist (ft)			260		250			250	260			250
Storage Blk Time (%)			6	0	7	11	0			2	2	
Queuing Penalty (veh)			10	0	25	25	0			2	1	

Intersection: 2: Sandpiper Avenue & Mercy Avenue

Movement	EB	WB	NB	SB
Directions Served	L	L	R	R
Maximum Queue (ft)	55	24	103	55
Average Queue (ft)	25	12	45	37
95th Queue (ft)	49	32	82	54
Link Distance (ft)			2325	198
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	200	75		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: "G" Street & Project Driveway 1

Movement	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	R	U	T	T	R	L	T	T	T
Maximum Queue (ft)	297	200	31	287	205	31	52	369	380	295
Average Queue (ft)	135	59	3	87	47	5	12	92	83	61
95th Queue (ft)	246	149	16	213	138	23	39	238	219	179
Link Distance (ft)	596			579	579			1160	1160	1160
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)		100	150			250	250			
Storage Blk Time (%)	20	1		3				2		
Queuing Penalty (veh)	22	1		0				0		

Intersection: 4: "G" Street & Project Driveway 2

Movement	WB	NB	SB	SB	SB	SB
Directions Served	R	R	L	T	T	T
Maximum Queue (ft)	42	22	270	608	418	274
Average Queue (ft)	18	1	35	115	91	24
95th Queue (ft)	36	7	142	407	333	138
Link Distance (ft)	576			579	579	579
Upstream Blk Time (%)				0		
Queuing Penalty (veh)				0		
Storage Bay Dist (ft)		250	150			
Storage Blk Time (%)				14		
Queuing Penalty (veh)				5		

Intersection: 5: "G" Street & Yosemite Avenue

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	T	TR	L	T	T	R	L	T	T	R	L
Maximum Queue (ft)	750	2562	2582	439	527	393	155	750	4364	4356	185	223
Average Queue (ft)	714	1762	1745	384	396	181	31	725	2530	2462	163	123
95th Queue (ft)	876	3084	3065	535	617	322	81	855	4346	4337	235	195
Link Distance (ft)		2519	2519		439	439	439		4875	4875		
Upstream Blk Time (%)		36	22	35	49							
Queuing Penalty (veh)		0	0	0	206							
Storage Bay Dist (ft)	600			370				600			75	250
Storage Blk Time (%)	80	33		69				78	0	52	15	
Queuing Penalty (veh)	347	108		258				277	1	172	52	

Intersection: 5: "G" Street & Yosemite Avenue

Movement	SB	SB	SB	SB
Directions Served	L	T	T	R
Maximum Queue (ft)	370	554	539	262
Average Queue (ft)	246	373	376	116
95th Queue (ft)	446	601	601	208
Link Distance (ft)		524	524	524
Upstream Blk Time (%)		17	17	
Queuing Penalty (veh)		76	77	
Storage Bay Dist (ft)	250			
Storage Blk Time (%)	0	41		
Queuing Penalty (veh)	0	128		

Intersection: 6: Sandpiper Avenue & Yosemite Avenue

Movement	WB	WB	NB	SB
Directions Served	T	T	R	R
Maximum Queue (ft)	604	276	22	114
Average Queue (ft)	431	22	14	32
95th Queue (ft)	844	124	32	96
Link Distance (ft)	589	589	228	2325
Upstream Blk Time (%)	28			
Queuing Penalty (veh)	123			
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: Yosemite Avenue & Mansionette Drive

Movement	EB	EB	EB	WB	WB	WB	B17	B17	SB	SB
Directions Served	UL	T	T	T	T	R	T	T	L	R
Maximum Queue (ft)	330	178	118	385	386	51	883	907	137	72
Average Queue (ft)	159	23	27	294	191	6	352	316	44	31
95th Queue (ft)	282	88	87	509	403	28	938	928	104	60
Link Distance (ft)		589	589	303	303		865	865	1902	
Upstream Blk Time (%)				53	7		6	2		
Queuing Penalty (veh)				301	42		35	13		
Storage Bay Dist (ft)	375					105				150
Storage Blk Time (%)					12				0	
Queuing Penalty (veh)					5				0	

Intersection: 8: Paulson Road & Yosemite Avenue

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	T	R	L	TR	L	TR
Maximum Queue (ft)	100	332	326	99	702	780	120	89	74	311	440
Average Queue (ft)	89	208	203	12	330	335	79	21	33	158	133
95th Queue (ft)	117	334	325	45	613	648	158	60	58	254	295
Link Distance (ft)		865	865		1498	1498			1234		2033
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	50			50			70	50		600	
Storage Blk Time (%)	55	23		0	49	41	3	8	11		
Queuing Penalty (veh)	302	46		0	6	71	13	3	2		

Zone Summary

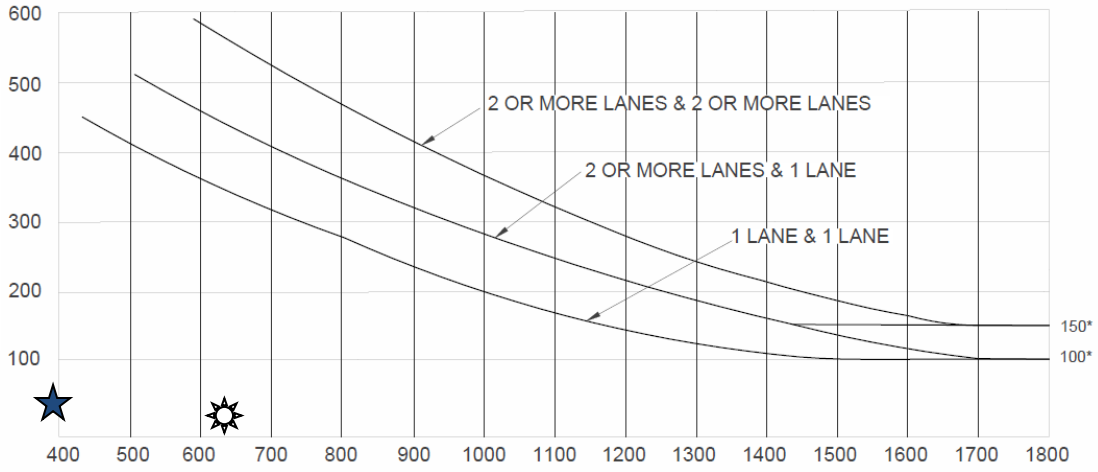
Zone wide Queuing Penalty: 2757

Appendix I: Signal Warrants

Warrant 3: Peak Hour (Urban)

Existing Traffic Conditions
2. Sandpiper Avenue / Mercy Avenue
AM (PM) Peak Hour

Sandpiper Avenue Highest Approach Volume = 35 (42) VPH



Mercy Avenue Total of Both Approaches = 630 (395) VPH

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Not Met

PM Peak Hour – Signal Warrant is Not Met

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Chapter 4C: Traffic Control Signal Needs Studies
Part 4: Highway Traffic Signals
November 7, 2014

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Fresno, CA 93704
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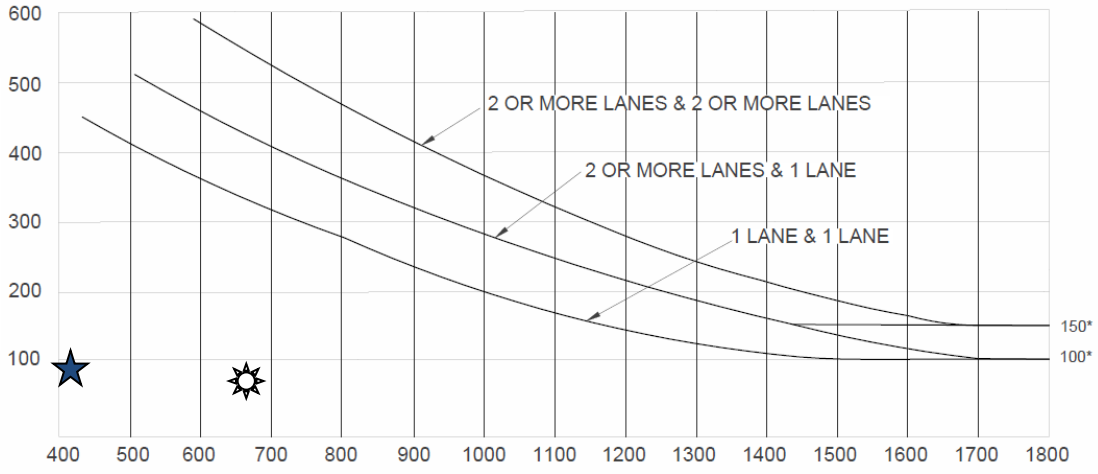
Warrant 3: Peak Hour (Urban)

Existing plus Project Traffic Conditions
2. Sandpiper Avenue / Mercy Avenue
AM (PM) Peak Hour

Sandpiper Avenue Highest Approach Volume = 70 (79) VPH



Mercy Avenue Total of Both Approaches = 660 (415) VPH

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Not Met

PM Peak Hour – Signal Warrant is Not Met

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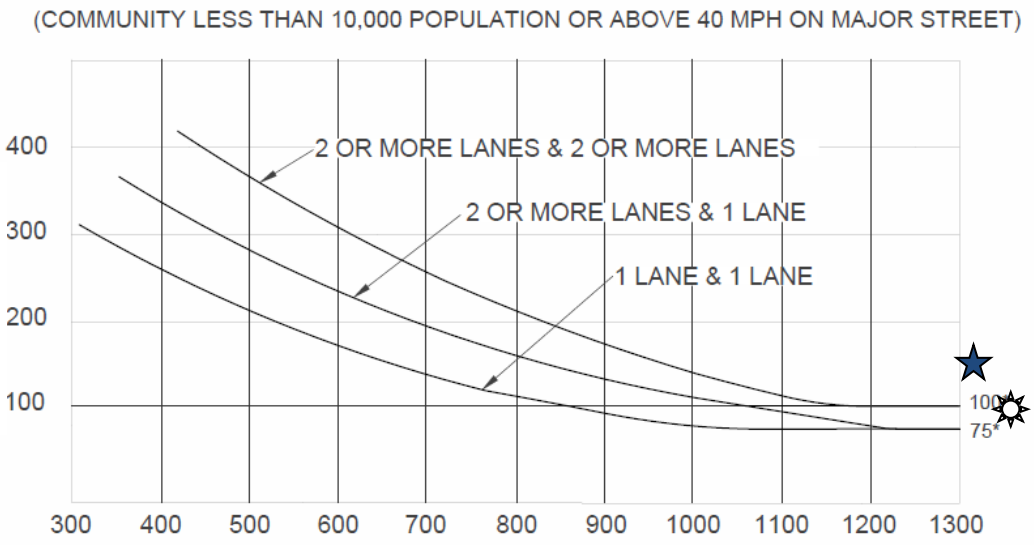
Warrant 3: Peak Hour (Rural)

Existing plus Project Traffic Conditions
3. "G" Street / Project Driveway 1
AM (PM) Peak Hour

Project Driveway 1 Highest Approach Volume = 98 (148) VPH



"G" Street Total of Both Approaches =

1394 (1310) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Met

PM Peak Hour – Signal Warrant is Met

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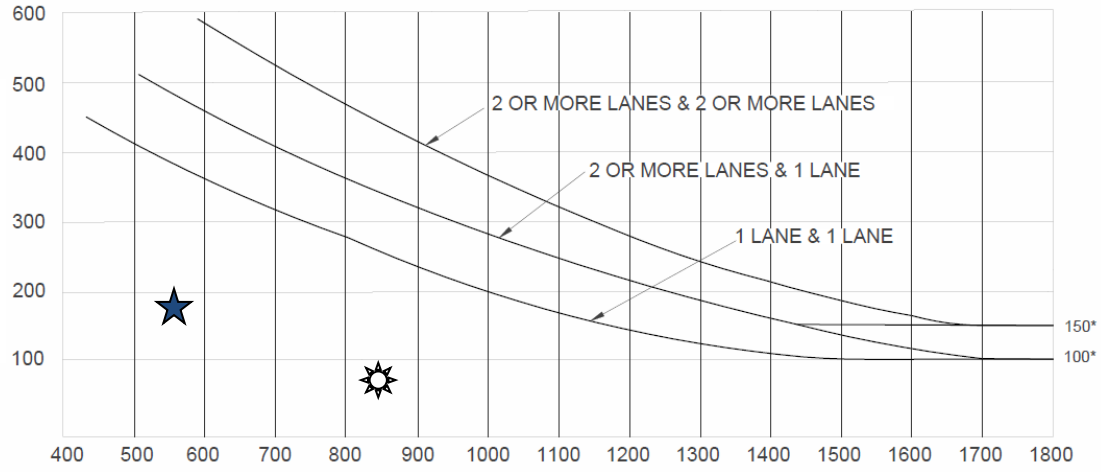
Warrant 3: Peak Hour (Urban)

Near Term plus Project Traffic Conditions
2. Sandpiper Avenue / Mercy Avenue
AM (PM) Peak Hour

Sandpiper Avenue Highest Approach Volume = 77 (180) VPH



Mercy Avenue Total of Both Approaches = 847 (551) VPH

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Not Met

PM Peak Hour – Signal Warrant is Not Met

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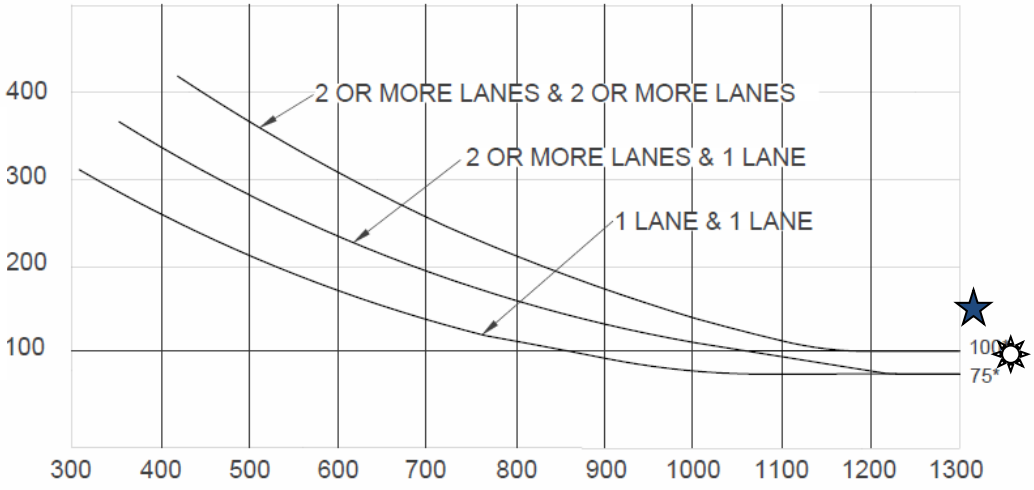
Warrant 3: Peak Hour (Rural)

Near Term plus Project Traffic Conditions
3. "G" Street / Project Driveway 1
AM (PM) Peak Hour

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)

Project Driveway 1 Highest Approach Volume = 98 (148) VPH



"G" Street Total of Both Approaches =

1577 (1519) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Met

PM Peak Hour – Signal Warrant is Met

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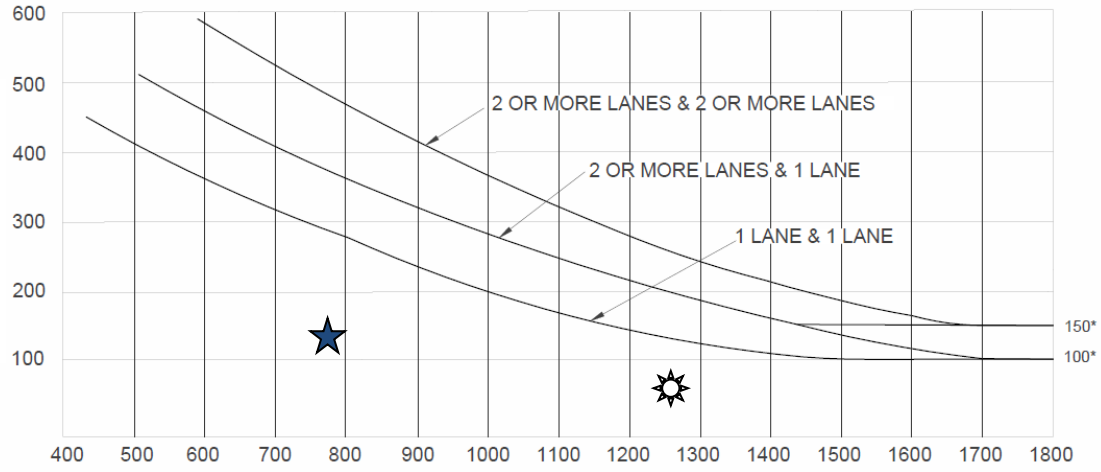
Warrant 3: Peak Hour (Urban)

Cumulative Year 2039 No Project Traffic Conditions
2. Sandpiper Avenue / Mercy Avenue
AM (PM) Peak Hour

Sandpiper Avenue Highest Approach Volume = 64 (129) VPH



Mercy Avenue Total of Both Approaches = 1267 (774) VPH

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Not Met

PM Peak Hour – Signal Warrant is Not Met

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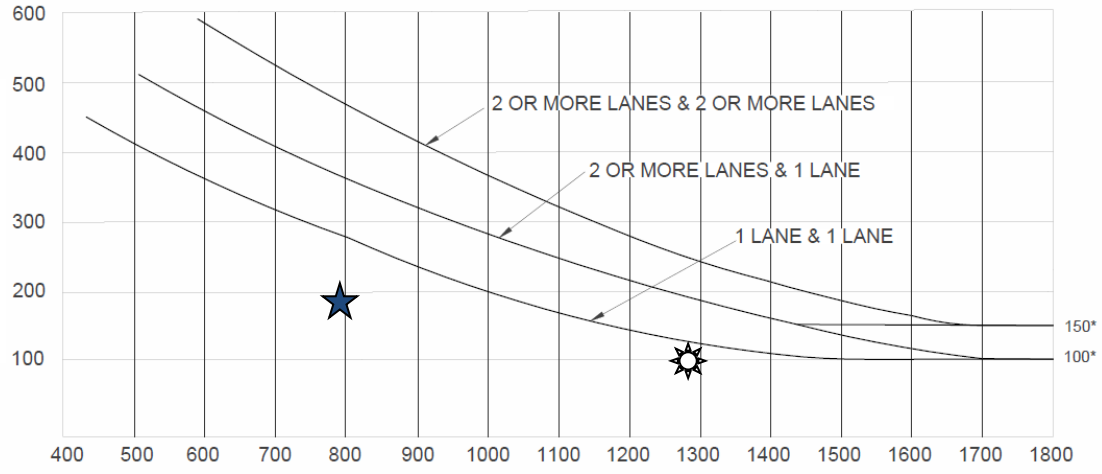
Warrant 3: Peak Hour (Urban)

Cumulative Year 2039 plus Project Traffic Conditions
2. Sandpiper Avenue / Mercy Avenue
AM (PM) Peak Hour

Sandpiper Avenue Highest Approach Volume = 99 (182) VPH



Mercy Avenue Total of Both Approaches = 1297 (794) VPH

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Not Met

PM Peak Hour – Signal Warrant is Not Met

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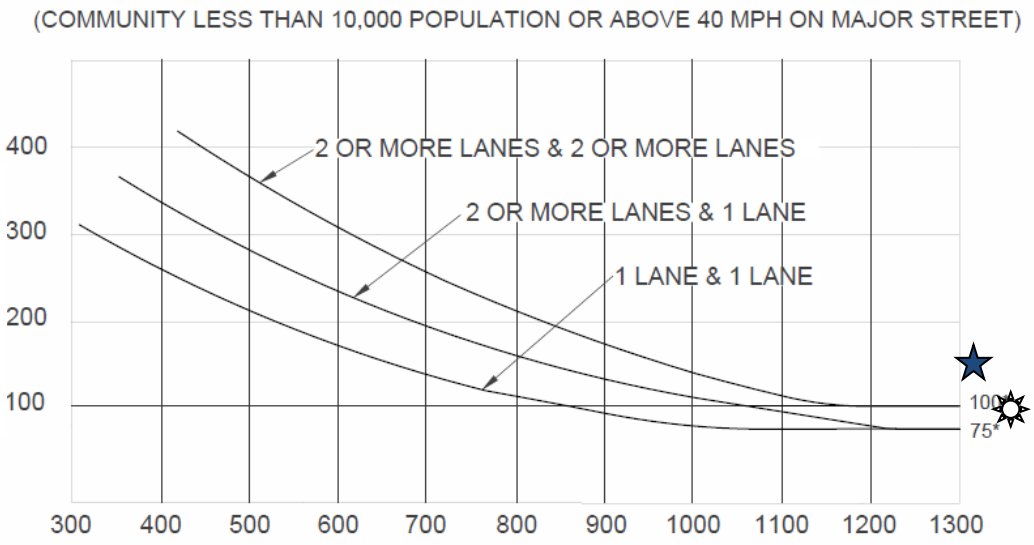
Warrant 3: Peak Hour (Rural)

Cumulative Year 2039 plus Project Traffic Conditions
3. "G" Street / Project Driveway 1
AM (PM) Peak Hour

Project Driveway 1 Highest Approach Volume = 98 (148) VPH



"G" Street Total of Both Approaches =

2382 (2284) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Met

PM Peak Hour – Signal Warrant is Met

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Chapter 4C: Traffic Control Signal Needs Studies
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