

# Appendix E

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Transportation Impact Study





# DRAFT

Virginia Smith Charitable Trust (VST)

Transportation Impact Study  
February 22, 2022

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## Virginia Smith Charitable Trust (VST) Transportation Impact Study

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## Table of Contents

Section	Description	Page
1.0	Introduction	1
1.1	Project Description	1
1.2	Scope of TIS and Methodology	1
2.0	2021 Existing Conditions	3
2.1	Existing (2021) Traffic Counts and Roadway Geometrics	3
2.2	Functional Roadway Classification System	3
2.3	Intersection Analysis	4
2.4	Roadway Segment Analysis	4
3.0	2030 Near Term Conditions	5
3.1	Trip Generation Methodology	5
3.2	2030 Near-Term Conditions – Without Campus Parkway	5
3.3	Intersection Level of Service – Without Campus Parkway	6
3.4	Roadway Segment Level of Service – Without Campus Parkway	11
3.5	2030 Near-Term Conditions – With Campus Parkway	11
3.6	Intersection Level of Service – With Campus Parkway	12
3.7	Roadway Segment Level of Service – With Campus Parkway	12
3.8	Internal Intersections	12
4.0	2042 Horizon Year Conditions	14
4.1	Project Trip Generation - Buildout	14
4.2	Trip Distribution	14
4.3	Approved/Pending Project Traffic – 2042 Horizon Year	14
4.4	Horizon Year (2042) Traffic Conditions With Project	15
4.5	Recommended Improvements	15
4.6	Roadway Segment Level of Service	23
4.7	Internal Roadway Configurations – 2042 Horizon Year Conditions	23
4.8	Meyers Gate Road/Lake Road/Campus Parkway Queuing Analysis	25

## Appendices

Appendix A – Traffic Impact Study Assumptions/Methodology Memorandum

Appendix B – Traffic Counts

Appendix C – Capacity Analysis Worksheets

Appendix D – Internal Trip Calculations/NCHRP Worksheets

Appendix E – Approved/Pending Projects – 2042 Horizon Year

## List of Tables

- 1-1 Signalized Intersection Level of Service Definitions
- 1-2 Unsignalized Intersections Level of Service Definitions
- 2-1 Existing (2021) Intersection Operations
- 2-2 Existing (2021) Roadway Segment Analysis
- 3-1 Phase 1 Project Trip Generation
- 3-2 Near Term (2030) Intersection Operations
- 3-3 Near Term (2030) Roadway Segment Analysis
- 3-4 Near Term (2030) Intersection Operations – With Recommended Improvements
- 4-1 Buildout Project Trip Generation
- 4-2 Horizon Year (2042) Intersection Operations
- 4-3 Horizon Year (2042) Roadway Segment Analysis
- 4-4 Project Fair Share Calculation – 2042 PM Peak Hour
- 4-5 Horizon Year (2042) Intersection Operations – With Recommended Improvements
- 4-6 2042 Queuing Analysis – Myers Gate Road, Lake Road to Campus Parkway

## List of Figures

- 1-1 Regional Location
- 1-2 Project Site Plan
- 2-1 Existing (2021) Traffic Analysis Study Area
- 2-2 Existing (2021) Lane Geometry
- 2-3 Existing (2021) Traffic - AM Peak Hour
- 2-4 Existing (2021) Traffic - PM Peak Hour
- 2-5 Sources of Existing Traffic Counts
- 2-6 Existing (2021) Roadway Segment Analysis
- 3-1 2030 Near Term Traffic Analysis Study Area
- 3-2 2030 Near Term Lane Geometry
- 3-3 2030 Near Term Trip Distribution – Without Campus Parkway
- 3-4 2030 Near Term Traffic With Project - AM Peak Hour – Without Campus Parkway
- 3-5 2030 Near Term Traffic With Project - PM Peak Hour – Without Campus Parkway
- 3-6 2030 Near Term Roadway Segment Analysis – Without Campus Parkway
- 3-7 2030 Near Term Trip Distribution – With Campus Parkway
- 3-8 2030 Near Term Traffic With Project - AM Peak Hour – With Campus Parkway
- 3-9 2030 Near Term Traffic With Project PM Peak Hour – With Campus Parkway
- 3-10 2030 Near Term Roadway Segment Analysis – With Campus Parkway
- 4-1 2042 Horizon Year Traffic Analysis Study Area
- 4-2 2042 Horizon Year Trip Distribution
- 4-3 2042 Horizon Year Traffic With Project – AM Peak Hour
- 4-4 2042 Horizon Year Traffic With Project - PM Peak Hour
- 4-5 2042 Horizon Year Roadway Segment Analysis

## 1.0 Introduction

This Transportation Impact Study (TIS) has been prepared for the purpose of analyzing traffic conditions related to the proposed Virginia Smith Charitable Trust (VST) mixed-use project (the Project) located in Merced County south of the University of California Merced (UC Merced). The TIS is intended to identify the extent to which the Project would affect traffic operations at intersections and roadway segments in the Project vicinity that may indicate a need for improvements within the study area and/or other measures to address such effects, if any. A Traffic Impact Study Assumptions/Methodology memorandum for the Project was provided to Merced County, the City of Merced, and Caltrans – District 10 for review and comment prior to preparing the details of the TIS. The assumptions/methodology memorandum is provided in Appendix A.

Analysis of vehicle miles traveled (VMT) was provided in a separate report conducted to satisfy the requirement to analyze transportation impacts under the California Environmental Quality Act (CEQA). As of July 1, 2020, the implementation of Senate Bill 743 (SB 743) requires that roadway level of service and delay no longer be used for analyzing CEQA environmental impacts and VMT is the new CEQA transportation performance measure.

### 1.1 Project Description

The Project location is shown in Figure 1-1 and the site plan is shown in Figure 1-2. Plans call for the development of approximately 3,900 residential units plus retail, office, parks, and an elementary school. The project is located just south of UC Merced and is intended to serve the University community by providing nearby housing and amenities.

The Project is proposed to be developed in two phases. The first phase, consisting of approximately 2,400 dwelling units and a portion of the remaining uses, is assumed to be in place by 2030 for the purposes of this TIS. The full buildout of the Project is assumed to be built between 2030 and 2042.

Merced County previously evaluated the University Community Plan's traffic impacts under CEQA using an LOS-based transportation analysis prior to the enactment of SB 743. Since 2004 when Merced County adopted the University Community Plan (UCP), the Virginia Smith Trust (VST) has proposed a specific plan which includes land use changes to the VST portion of the UCP warranting subsequent environmental review. The land use plan, circulation plan and selected development policies and standards will be amended as part of the project. That subsequent review will include a comparison of the approved 2004 UCP to the proposed amended UCP.

A number of environmental documents, including the EIR for the University Community Plan (SCH# 2001021056), and the EIR for the UC Merced and University Community Plan (SCH # 2008041009) evaluated the environmental impacts of the development of University Community

Plan. These environmental documents included analysis of the VST project site, which is included in the University Community Plan (UCP). The approved and adopted UCP contains 11,616 dwelling units, 2,026,000 square feet of retail, office and business park uses, and reported an aggregate project/plan total VMT of 667,020 per day. By comparison, the proposed project (amended UCP) includes 9,680 dwelling units and 1,246,650 square feet of retail and office uses and is estimated to have total daily plan/project VMT of 178,427.

In the case of the VST project, an additional consideration is that the City of Merced intends to annex the project, as stated in Urban Expansion Policy 1.4 of the 2030 General Plan. The annexation would be a subsequent activity under the EIR. While Merced County was the lead agency for the previous CEQA approvals and will be the CEQA lead agency for the VST specific plan and the UCP Community Plan update, consideration was given to conforming with the VMT and level of service metrics that would apply to the project if it were located in the City of Merced.

It should be noted that this TIS focuses on traffic issues related to the VST project. However, the traffic forecasts include all development that would be included in the UCP Update.

## 1.2 Scope of TIS and Methodology

In analyzing street and intersection capacities, level of service (LOS) methodologies are applied. LOS standards are applied by transportation agencies to quantitatively assess a street and highway system's performance by rating intersections on a scale of LOS "A" through "F". Tables 1-1 and 1-2 define LOS "A" to "F" by indicating the ranges in the amounts of average delay for a vehicle at signalized and unsignalized intersections for each level of service ranging from LOS "A" to "F". In addition, safety concerns are analyzed to determine the need for appropriate mitigation resulting from increased traffic near sensitive uses and other evaluations such as the need for signalized intersections or other improvements. The complete methodology for this TIS is set forth in the assumptions/methodology memorandum included in Appendix A.

Per the Circulation Element of the General Plan, Merced County intends to achieve level of service C operating conditions in rural areas. For Urban Communities and for roadways that connect Urban Communities, the County intends to achieve level of service D operating conditions. Per its Circulation Element of the General Plan, the City of Merced intends to achieve level of service D operating conditions. This TIS uses level of service D as the desired operating condition throughout the traffic analysis study area. Therefore, improvements were considered whenever a level of service of E or F was indicated.

This TIS includes analysis for the following traffic scenarios:

1. Existing (2021) Conditions
2. 2030 Near Term Conditions without an extension of Campus Parkway north of its current terminus at Yosemite Avenue, corresponding with development of Phase 1 of the Project.

Under this scenario, Campus Parkway would be built from SR 99 to its current terminus at Yosemite Avenue and within the VST project site.

3. 2030 Near Term Conditions with an extension of Campus Parkway north of its current terminus at Yosemite Avenue to Bellevue Road, corresponding with development of Phase 1 of the Project. Under this scenario, Lake Road would include traffic calming features to encourage traffic to use Campus Parkway as the access route between the central area of Merced and UC Merced.
4. 2042 Horizon Year Conditions, corresponding with full buildout of the Project and the UCP.

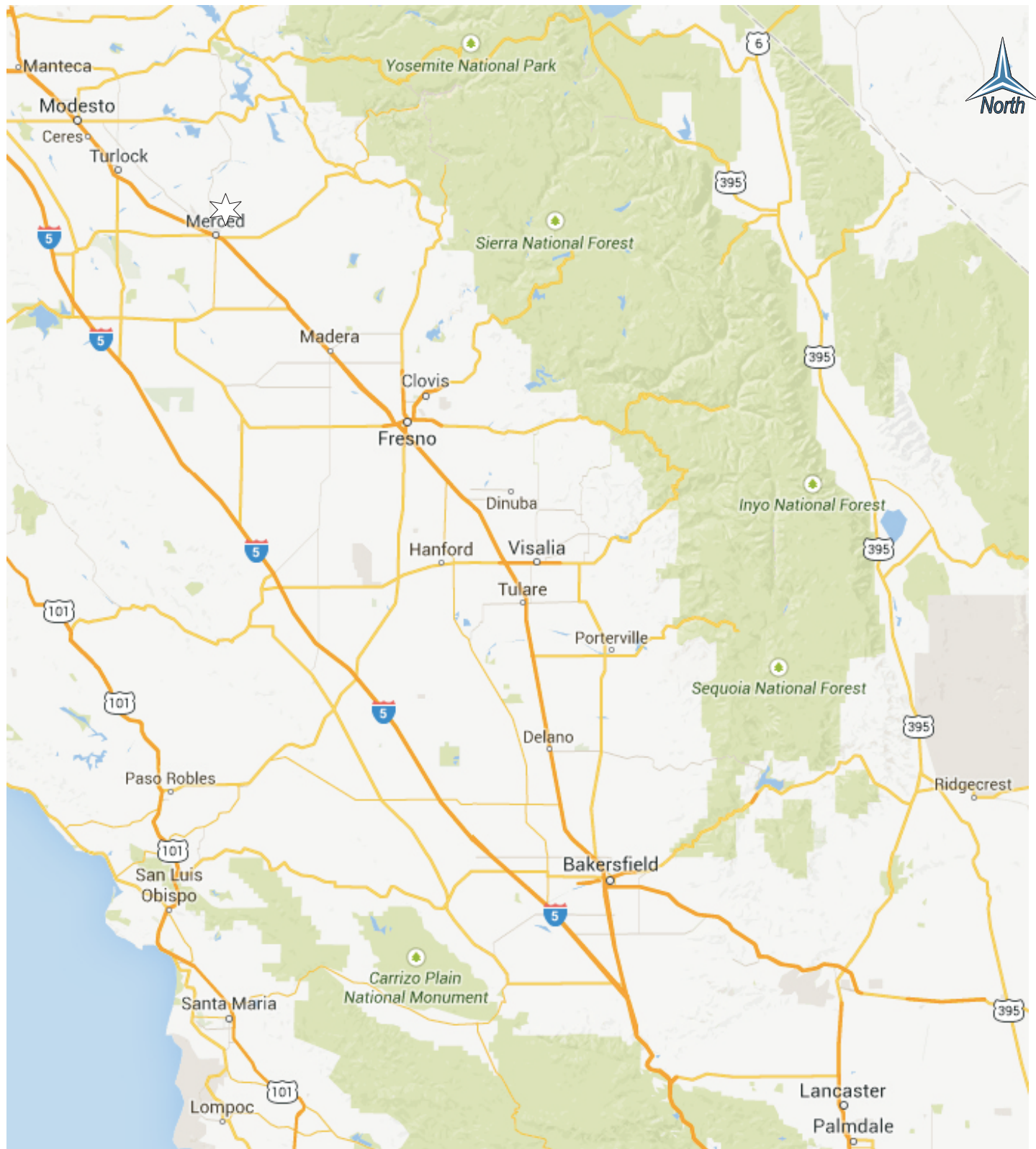
**Table 1-1**  
**Signalized Intersections Level of Service Definitions**  
**(Highway Capacity Manual)**

LEVEL OF SERVICE	DEFINITION	AVERAGE TOTAL DELAY (sec/veh)
<b>A</b>	Describes operations with very low delay. This level of service occurs when there is no conflicting traffic for a minor street.	<b>≤ 10.0</b>
<b>B</b>	Describes operations with moderately low delay. This level generally occurs with a small amount of conflicting traffic causing higher levels of average delay.	<b>&gt; 10.0 - 20.0</b>
<b>C</b>	Describes operations with average delays. These higher delays may result from a moderate amount of minor street traffic. Queues begin to get longer.	<b>&gt; 20.0 - 35.0</b>
<b>D</b>	Describes a crowded operation, with below average delays. At level D, the influence of congestion becomes more noticeable. Longer delays may result from shorter gaps on the mainline and an increase of minor street traffic. The queues of vehicles are increasing.	<b>&gt; 35.0 - 55.0</b>
<b>E</b>	Describes operations at or near capacity. This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor gaps for the minor street to cross and large queues.	<b>&gt; 55.0 - 80.0</b>
<b>F</b>	Describes operations that are at the failure point. This level, considered to be unacceptable to most drivers, often occurs with over- saturation, that is, when arrival flow rates exceed the capacity of the intersection. Insufficient gaps of suitable size exist to allow minor traffic to cross the intersection safely.	<b>&gt; 80.0</b>



**Table 1-2**  
**Unsignalized Intersections Level of Service Definitions**  
**(Highway Capacity Manual)**

LEVEL OF SERVICE	DEFINITION	AVERAGE TOTAL DELAY (sec/veh)
<b>A</b>	No delay for stop-controlled approaches.	<b>0 - 10.0</b>
<b>B</b>	Describes operations with minor delay.	<b>&gt; 10.0 - 15.0</b>
<b>C</b>	Describes operations with moderate delays.	<b>&gt; 15.0 - 25.0</b>
<b>D</b>	Describes operations with some delays.	<b>&gt; 25.0 - 35.0</b>
<b>E</b>	Describes operations with high delays and long queues.	<b>&gt; 35.0 - 50.0</b>
<b>F</b>	Describes operations with extreme congestion, with very high delays and long queues unacceptable to most drivers.	<b>&gt; 50.0</b>



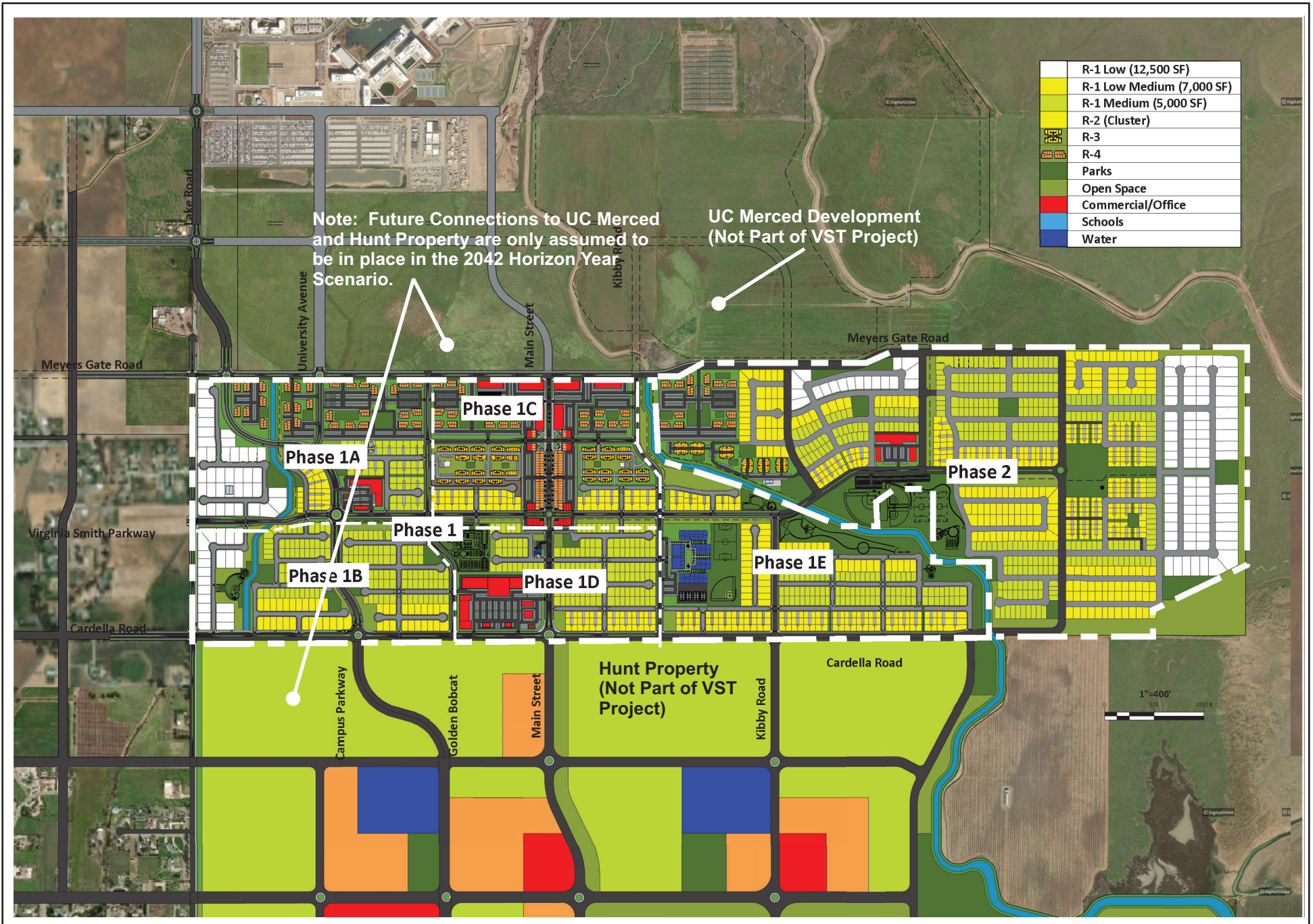
LEGEND

☆ Project Location



VST Specific Plan  
Project Site Plan

Figure  
1-2



## 2.0 Existing Conditions

### 2.1 Existing Traffic Counts and Roadway Geometrics

The analysis of existing traffic conditions provides a baseline for analysis of the traffic implications of the project. The baseline corresponds to traffic conditions as they existed in July 2021 when initial project submittals were made to Merced County. Since that time, construction has proceeded along Campus Parkway and new facilities are now completed that were closed to traffic in July 2021.

The existing traffic analysis was conducted for a study area of 23 intersections in the Merced area, as shown in Figure 2-1. This figure also includes two intersections (Campus Parkway/Yosemite Avenue and Campus Parkway/Olive Avenue) that were under construction at the time baseline conditions were defined in July 2021. Existing traffic counts were conducted as follows:

- ✓ Traffic counts for much of the study area were based on 2019 counts from a previous traffic study of the project site (Existing Conditions Assessment for the Virginia Smith Trust Property Planning Project, Fehr and Peers, July 5, 2019). These counts were increased by a factor of 0.75% per year to convert to 2021 conditions.
- ✓ Due to recent roadway construction along Campus Parkway between Yosemite Avenue and SR 99, traffic counts were conducted in 2021 for this portion of the study area in order to incorporate traffic conditions along new intersections that recently opened. Copies of traffic counts are included in Appendix B.

Figures 2-2, 2-3, and 2-4 show existing intersection lane geometry for the study areas as well as existing traffic counts. Figure 2-5 shows counts that were obtained from the previous study and those that were counted by VRPA. The intersection lane geometry was based on conditions in July 2021. Roadway construction continues in this area. Although the traffic counts and intersection lane were current as of July 2021, new roadway features and traffic patterns will soon emerge. The future traffic analysis scenario incorporates the proposed roadway construction along Campus Parkway.

### 2.2 Existing Functional Roadway Classification System

Functional classification is the process by which streets and highways are grouped into classes, or systems, according to the type of service they are intended to provide. Fundamental to this process is the recognition that individual streets and highways do not serve travel independently in any major way. Rather, most travel involves movement through a network of roads.

The current hierarchical system of roadways within the study area consists of the following four (4) basic classifications:

- ✓ **State Freeways and Highways** – provide for the ability to carry large traffic volumes at high speeds for long distances. Access points are fully controlled. Freeways connect points within the City/County and link the City/County to other parts of the State.
- ✓ **Arterials** – provide for mobility within the City/County, carrying through traffic on continuous routes and joining major traffic generators, freeways, and other arterials. Access to abutting private property and intersecting local streets shall generally be restricted.
- ✓ **Collectors** – provide for internal traffic movement within communities and connect local roads to arterials. Direct access to abutting private property shall generally be permitted.
- ✓ **Local Streets** – Roadways which provide direct access to abutting property and connect with other local roads, collectors, and arterials. Local roads are typically developed as two-lane undivided roadways. Access to abutting private property and intersecting streets shall be permitted.

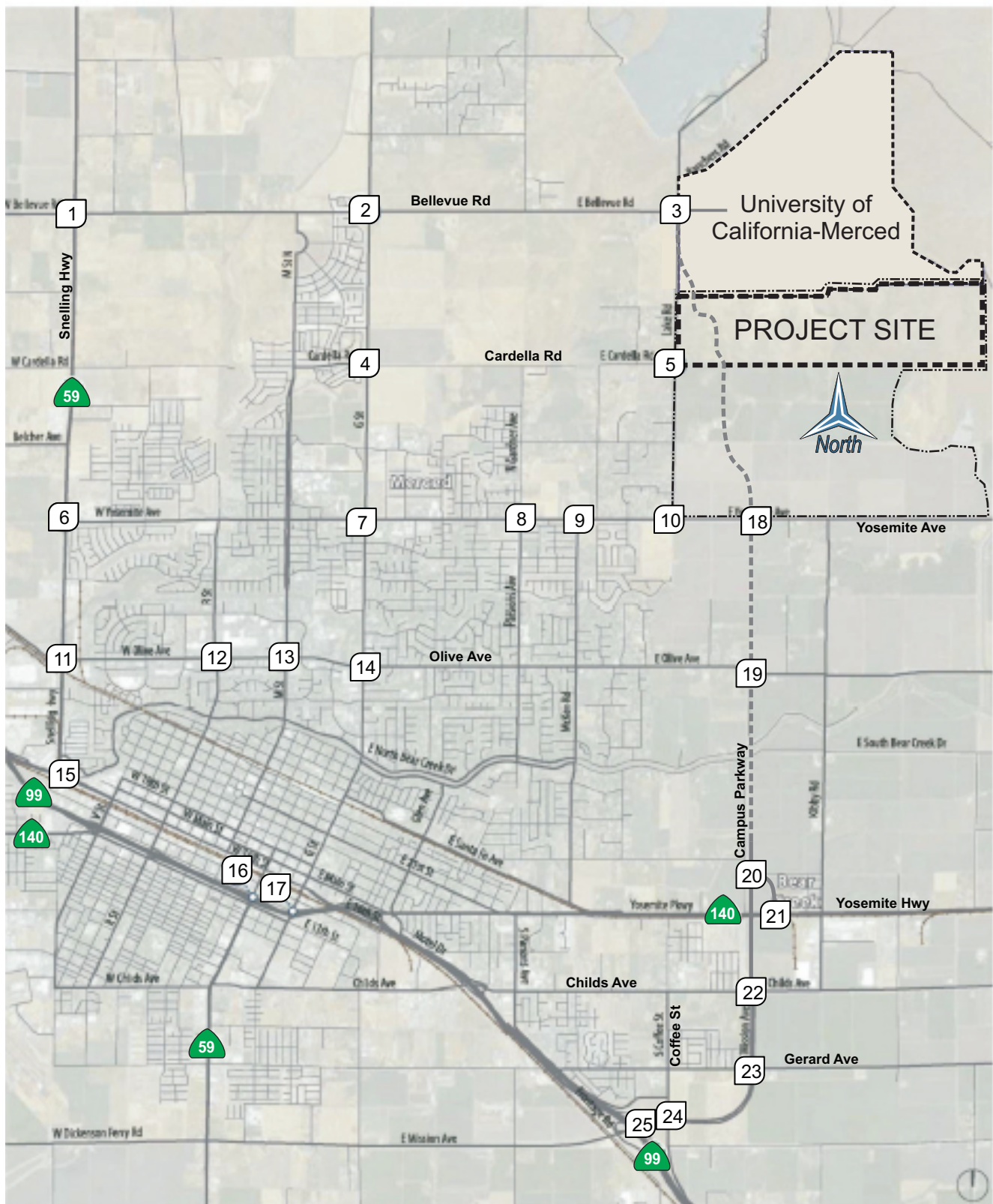
### 2.3 Intersection Analysis

Existing conditions at intersections in the study area is shown in Table 2-1. The intersection analysis was conducted based on Highway Capacity Manual procedures using the Synchro program. Copies of Synchro worksheets are included in Appendix C.

### 2.4 Roadway Analysis

Roadway segment analysis was conducted for key roadway segments along Bellevue Road, Lake Road, and Campus Parkway based on Average Daily Traffic (ADT). Existing ADT is shown in Figure 2-6 and the results of the capacity analysis is shown in Table 2-2. The roadway segment capacity analysis was conducted using the City of Merced's roadway segment capacity analysis table, that is included in the City's Circulation Element of the General Plan. Merced County does not have a similar table, but the City's table is considered to be applicable for both City and County roadways.



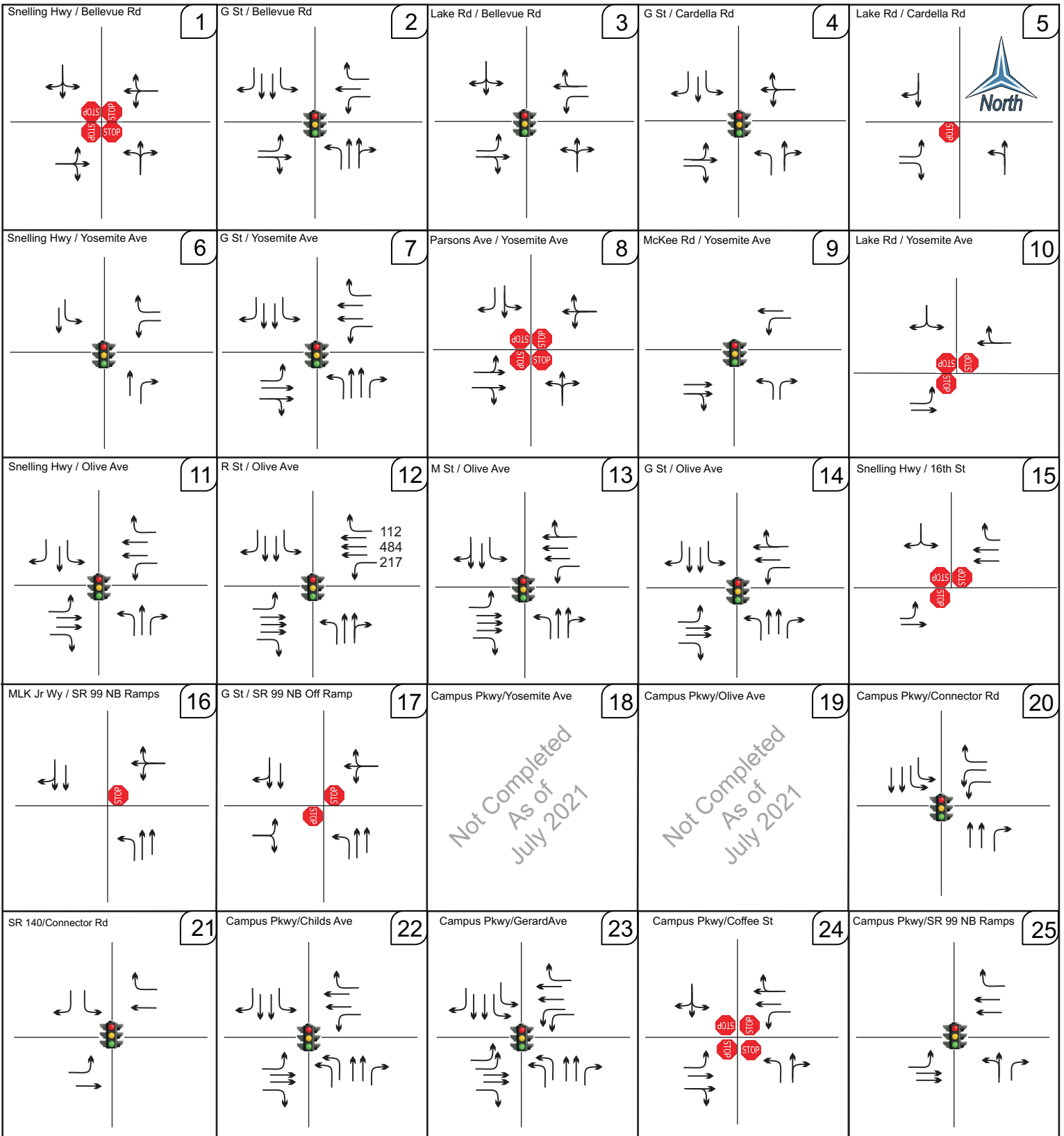


**LEGEND**

- Proposed Roadway
- Existing Roadway
- # Study Intersection
- Project Site
- UC Merced Site
- University Community Plan Area

# VST Specific Plan Existing (2021) Lane Geometry

Figure  
2-2



Not Completed  
As of  
July 2021

Not Completed  
As of  
July 2021

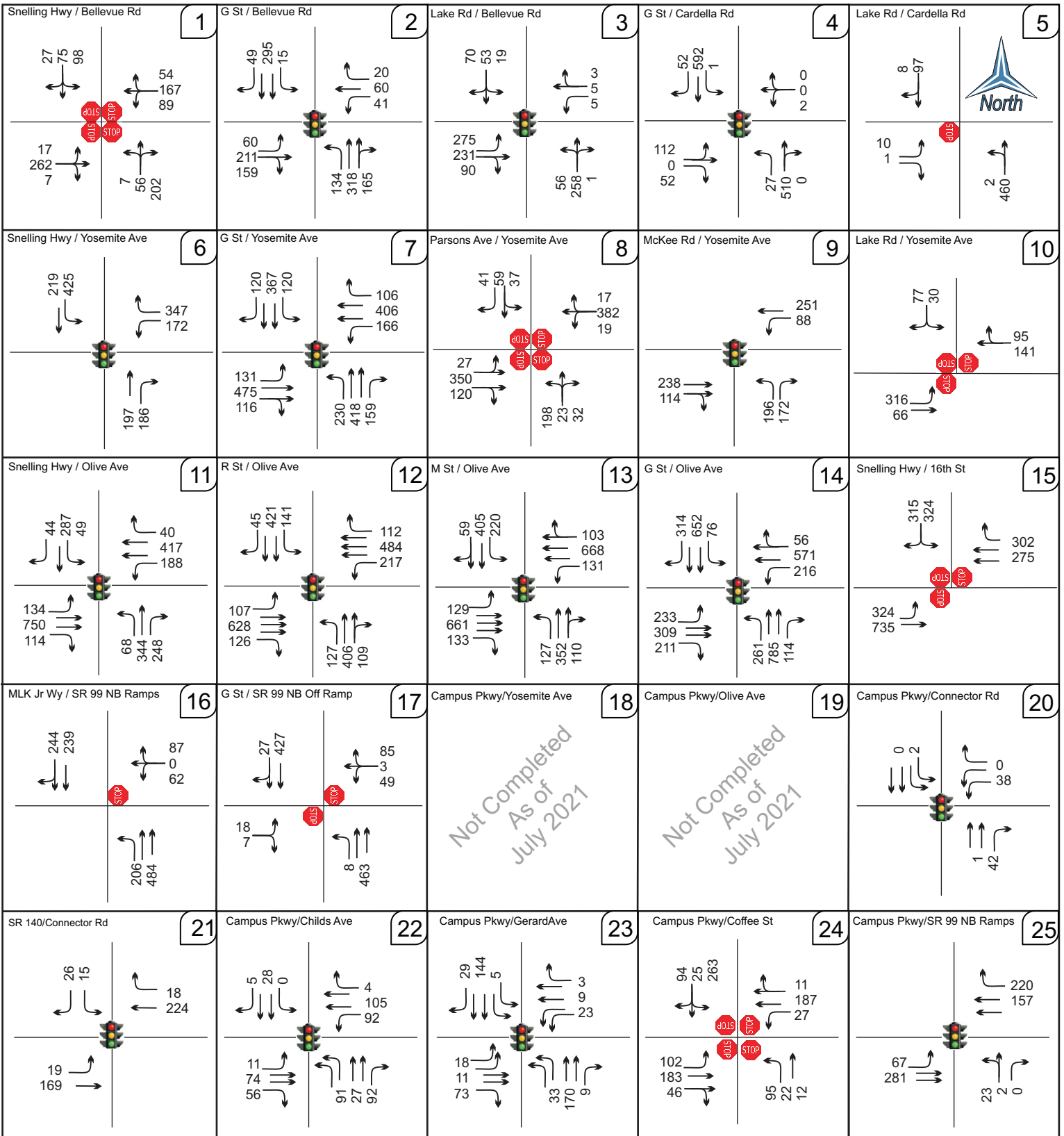
LEGEND				
#	Study Intersections			



# VST Specific Plan

## Existing (2021) AM Peak Hour Traffic

Figure 2-3



**LEGEND**

- # Study Intersections
- Traffic Signal
- Lane Geometry
- Stop Sign

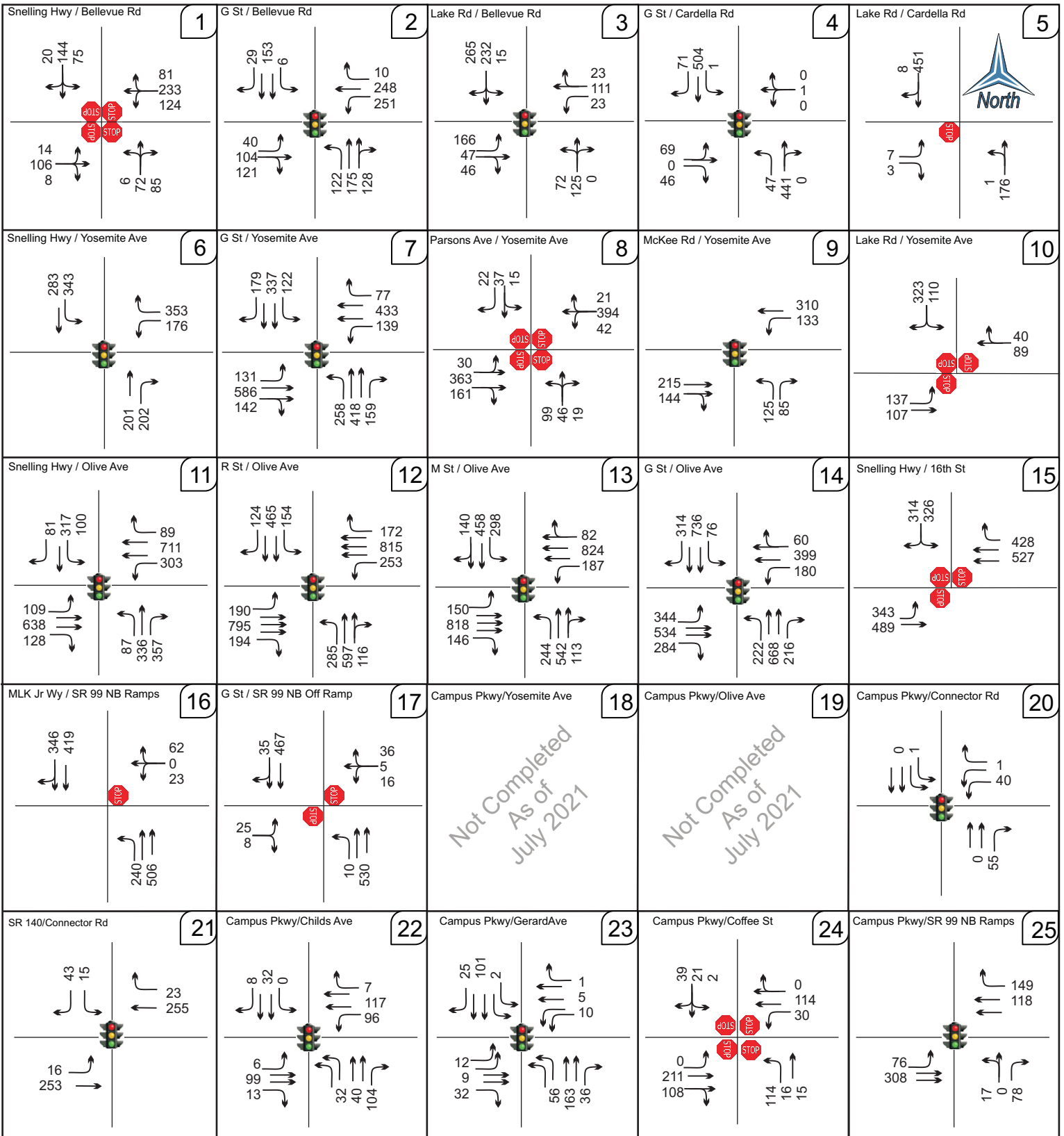




# VST Specific Plan

## Existing (2021) PM Peak Hour Traffic

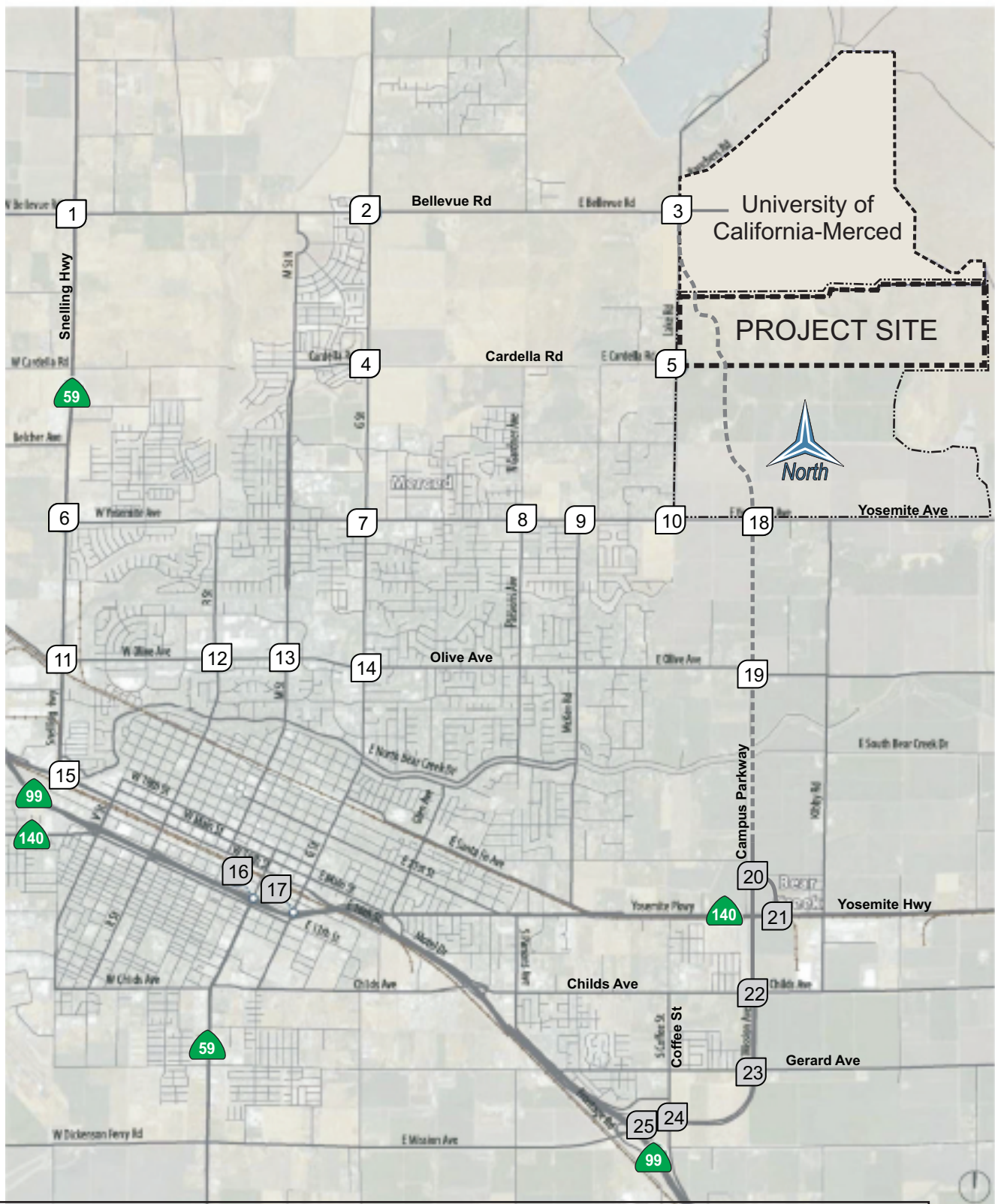
Figure 2-4











**LEGEND**

- # Study Intersections
- Traffic Signal
- Lane Geometry
- Stop Sign

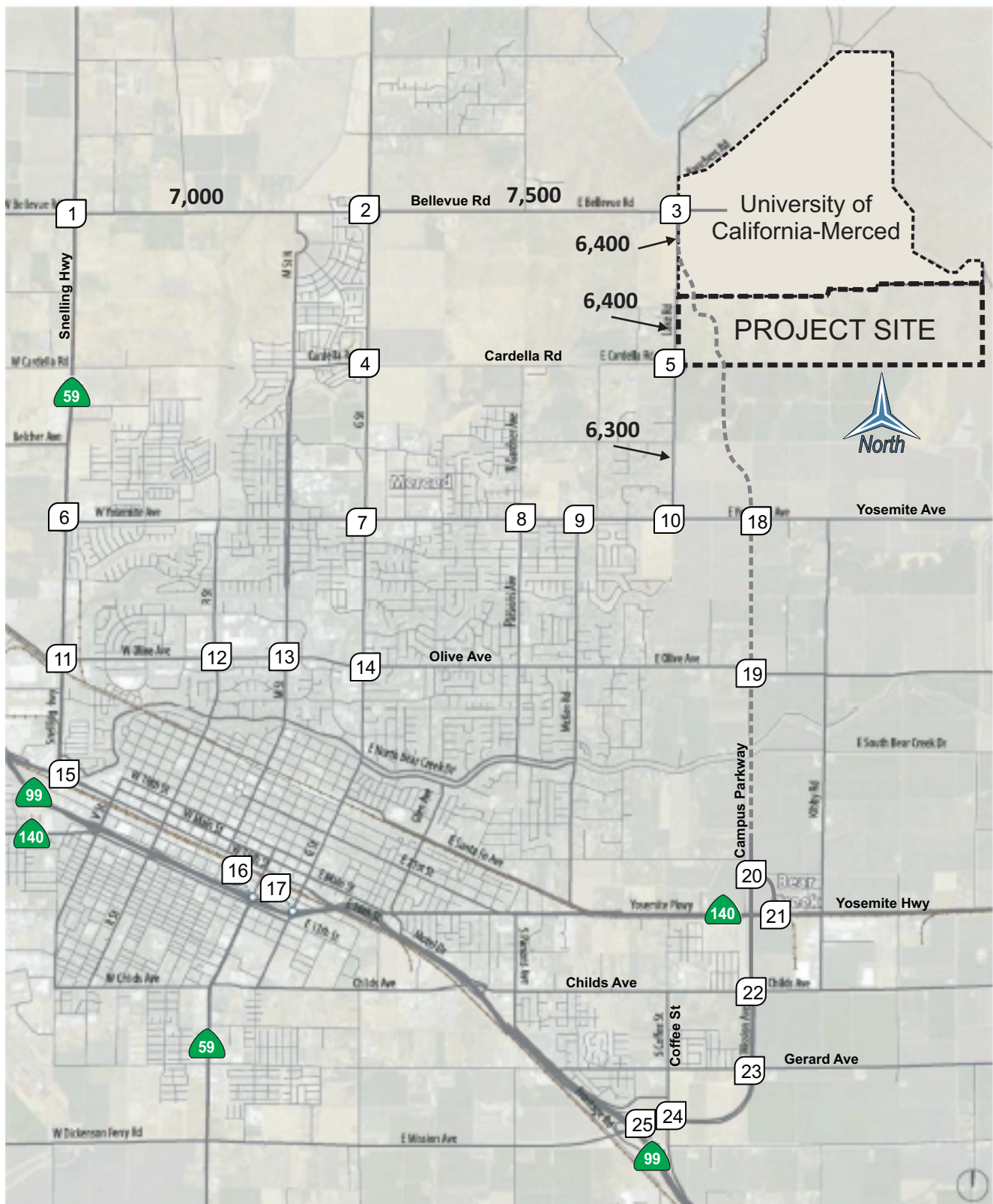









**LEGEND**

-  Project Site
-  Existing Roadway
-  Proposed Roadway
-  Counts Taken By VRPA Technologies
-  Study Intersection
-  Proposed Roadway
-  Counts Obtained From UC Merced LRDP
-  University Community Plan Area





**LEGEND**

	Project Site		Study Intersection		Average Daily Traffic
	Existing Roadway		Proposed Roadway		

**Table 2-1  
Existing (2021) Intersection Operations**

INTERSECTION	CONTROL	TARGET LOS	PEAK HOUR	EXISTING	
				DELAY	LOS
1. Snelling Highway / Bellevue Road	All-Way Stop Sign	D	AM	24.9	C
			PM	27.3	D
2. G Street / Bellevue Road	Signalized	D	AM	<b>63.8</b>	<b>E</b>
			PM	<b>&gt;80</b>	<b>F</b>
3. Lake Road / Bellevue Road	Signalized	D	AM	37.5	D
			PM	28.3	C
4. G Street / Cardella Road	Signalized	D	AM	19.5	B
			PM	18.4	B
5. Lake Road / Cardella Road	One-Way Stop Sign	D	AM	13.1	B
			PM	13.5	B
6. Snelling Highway / Yosemite Avenue	Signalized	D	AM	<b>68.9</b>	<b>E</b>
			PM	<b>67.4</b>	<b>E</b>
7. G Street / Yosemite Avenue	Signalized	D	AM	52.1	D
			PM	<b>63.2</b>	<b>E</b>
8. Gardner Avenue / Yosemite Avenue	All-Way Stop Sign	D	AM	32.1	D
			PM	26.7	D
9. McKee Road / Yosemite Avenue	Signalized	D	AM	17.7	B
			PM	19.5	B
10. Lake Road / Yosemite Avenue	All-Way Stop Sign	D	AM	12.3	B
			PM	16.9	C
11. Snelling Highway / Olive Avenue	Signalized	D	AM	47.9	D
			PM	<b>68.7</b>	<b>E</b>
12. R Street / Olive Avenue	Signalized	D	AM	49.6	D
			PM	<b>&gt;80</b>	<b>F</b>
13. M Street / Olive Avenue	Signalized	D	AM	48.1	D
			PM	<b>&gt;80</b>	<b>F</b>
14. G Street / Olive Avenue	Signalized	D	AM	<b>69.0</b>	<b>E</b>
			PM	<b>65.6</b>	<b>F</b>
15. Snelling Highway / 16th Street	All-Way Stop Sign	D	AM	<b>&gt;50</b>	<b>F</b>
			PM	<b>&gt;50</b>	<b>F</b>
16. Martin Luther King Jr / SR 99 NB Ramps	One-Way Stop Sign	D	AM	<b>38.5</b>	<b>E</b>
			PM	27.7	D
17. G Street / SR 99 NB Off-Ramp	Two-Way Stop Sign	D	AM	17.5	C
			PM	20.1	C
18. Campus Pkwy/ Yosemite Avenue	N/A	N/A	AM	N/A	
			PM		
19. G Street / Olive Avenue	N/A	N/A	AM	N/A	
			PM		
20. Campus Parkway / Connector Road	Signalized	D	AM	19.0	B
			PM	19.0	B
21. SR 140 / Connector Road	Signalized	D	AM	15.3	B
			PM	15.4	B
22. Campus Parkway / Childs Avenue	Signalized	D	AM	25.2	C
			PM	22.7	B
23. Campus Parkway / Gerard Avenue	Signalized	D	AM	17.7	B
			PM	15.4	B
24. Campus Parkway / Coffee Street	All-Way Stop Sign	D	AM	22.7	C
			PM	9.9	A
25. Sr 99 NB Ramps / Campus Parkway	Signalized	D	AM	16.6	B
			PM	15.0	B

DELAY is measured in seconds

N/A = Intersection was under construction but not yet open to traffic in this scenario

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded

For signalized and all way stop controlled intersections, delay results show the average for the entire intersection. For one-way and two-way stop controlled intersections, delay results show the delay for the worst movement.

**Table 2-2**  
**Existing (2021) Roadway Segment Analysis**

ROADWAY	LIMITS	NUMBER OF LANES	CLASSIFICATION	AVERAGE DAILY TRAFFIC	LEVEL OF SERVICE <sup>1</sup>
Bellevue Road	Snelling Hwy to G St	2	Major Arterial	7,000	C
	G St to Lake Road	2	Major Arterial	7,500	C
Lake Road	Campus Pkwy to Meyers Gate Road	2	Rural Collector	6,400	C
	Meyers Gate Road to Cardella Road	2	Rural Collector	6,400	C
	Cardella Road to Yosemite Ave	2	Rural Collector	6,300	C
Campus Parkway	Bellevue Road to Meyers Gate Road	N/A <sup>2</sup>	N/A <sup>2</sup>	N/A <sup>2</sup>	N/A <sup>2</sup>
	Meyers Gate Road to Cardella Road	N/A <sup>2</sup>	N/A <sup>2</sup>	N/A <sup>2</sup>	N/A <sup>2</sup>
	Cardella Road to Yosemite Ave	N/A <sup>2</sup>	N/A <sup>2</sup>	N/A <sup>2</sup>	N/A <sup>2</sup>

1. Roadway segment level of service provides an approximate level of service for planning purposes  
For detailed analysis and improvement recommendations, see intersection analysis.
2. Roadway segment does not exist in this scenario.

## 3.0 2030 Near Term Traffic Impacts

This chapter provides a summary of 2030 traffic impacts, corresponding to the implementation of Phase 1 of the Project.

The 2030 Near Term analysis included two roadway network scenarios. A scenario called “Without Campus Parkway” assumes that Campus Parkway is built from SR 99 to its current terminus at Yosemite Avenue and within the VST project site. The assumed roadway network for this scenario for is shown in Figure 3-1a. A second scenario called “With Campus Parkway” assumes that Campus Parkway is completed from SR 99 to Bellevue Road. The assumed roadway network for this scenario for is shown in Figure 3-1b.

A key conclusion of this chapter is that Phase 1 of the VST project can be accommodated without the extension of Campus Parkway north of Yosemite Avenue to the project site and without building Campus Parkway from the project site north to Bellevue Road, as long as the recommended intersection improvements along Lake Road are built.

### 3.1 Trip Generation Methodology

To assess the impacts that the Project may have on the surrounding roadway network, the first step is to determine Project trip generation. Project trip generation was determined using trip generation rates from the Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition), the ITE Trip Generation Handbook (3rd Edition), and engineering judgement. The considerations described above led to the recommended trip generation for weekday AM (7:00-9:00am) and PM (4:00-6:00pm) peak hours shown in Table 3-1 for Phase 1.

This analysis also considered the likely number of “internal” trips based on the diversity of land uses, and guidance from the Transportation Research Board’s National Cooperative Highway Research Program (NCHRP) Report 684: “Enhancing Internal Trip Capture Estimation for Mixed-Use Developments”, and the likely mode split for internal and external trips based on the proximity of major trip ends such as shopping and work. Additional information on the internal trip calculation is shown in the NCHRP 684 worksheets included in Appendix D. Based on this methodology, presented in Tables 3-1, there are 9,404 internal trips associated with Phase 1. The fraction of total trips that are internally captured (29%) is similar to those estimated in the Table 4.14-5 for the UCP project in the UCP EIR (32%).

### 3.2 2030 Near-Term Plus Project Conditions – Without Campus Parkway

For the scenario without the Campus Parkway Extension, intersection lane geometry is shown in Figures 3-2a and 3-2b. Project trip distribution, as shown in Figure 3-3, was based upon engineering judgement, prevailing traffic patterns in the study area, major routes, and population centers. A Near-Term Scenario was analyzed to include Year 2030 traffic, plus traffic generated

by the Project, plus traffic generated by approved and pending projects in the study area. Traffic conditions with the Project in the Year 2030 were estimated by applying a growth rate of 0.75% per year to the existing traffic volumes and incorporating traffic associated with the approved/pending projects in the study area. Intersection lane geometry for this scenario is shown in Figures 3-2a and 3-2b. The resulting traffic is shown in Figures 3-3 and 3-4.

### 3.3 Intersection Level of Service – Without Campus Parkway

Table 3-2 shows the level of service at study intersections considering the 2030 Near-Term Plus Project (Phase 1) scenario Without the Campus Parkway roadway extension. These tables show intersections that are expected to operate at level of service E or F, falling short of the desirable operating condition of level of service D or better. Recommended improvements to alleviate level of service deficiencies are provided below. In addition to the lane geometry improvements described below, signal phasing and timing adjustments may be needed as appropriate.

#### 1. Snelling Highway / Bellevue Road

Recommended improvements to achieve acceptable levels of service:

- o Install Traffic Signal
- o Widen the northbound approach to 1 left turn lane, 1 through lane, and 1 right turn lane (adding 1 left turn lane and 1 right turn lane)
- o Widen the southbound approach to 1 left turn lane, 1 through/right lane (adding 1 left turn lane)
- o Widen the eastbound approach to 1 left turn lane, 1 through/right lane (adding 1 left turn lane)
- o Widen the northbound approach to 1 left turn lane, 1 through lane, and 1 right turn lane (adding 1 left turn lane and 1 right turn lane)

The improvements identified above are sufficient to meet the applicable level of service standard.

#### 2. G Street / Bellevue Road

Recommended improvements to achieve acceptable levels of service:

- o Widen the northbound approach to 1 left turn lane, 2 through lanes, and 1 right turn lane (adding 1 right turn lane)
- o Widen the eastbound approach to 2 left turn lanes, 1 through lane, and 1 right turn lane (adding 1 left turn lane)

The improvements identified above are sufficient to meet the applicable level of service standard.

### **3. Lake Road / Bellevue Road**

Recommended improvements to achieve acceptable levels of service:

- o Widen the northbound approach to 1 left turn lane, 1 through lane, and one right turn lane (adding 1 left turn lane and one right turn lane)
- o Widen the southbound approach to 1 left turn lane, 2 through lanes, and 1 right turn lane (adding 1 left turn lane, 1 through lane, and 1 right turn lane)
- o Restripe the eastbound approach to 1 left turn lane, 1 through/right lane

The improvements identified above are sufficient to meet the applicable level of service standard.

### **4. G Street / Cardella Road**

No improvements are needed at this intersection.

### **5. Lake Road / Cardella Road**

At this location, improvements are recommended to accommodate adding an east leg to the intersection.

- o Install Traffic Signal
- o Widen the northbound approach to 1 left turn lane, 1 through lane, and 1 right turn lane (adding 1 right turn lane)(adding 1 left turn lane and 1 right turn lane)
- o Widen the southbound approach to 1 left turn lane and 1 through/right lane (adding 1 left turn lane)
- o Restripe the westbound approach to include 1 left turn lane and 1 through/right
- o Add an eastbound approach that includes to 1 left/through/right lane

The improvements identified above are sufficient to meet the applicable level of service standard.

### **6. Snelling Highway / Yosemite Avenue**

No improvements are needed at this intersection.

### **7. G Street / Yosemite Avenue**

Recommended improvements to achieve acceptable levels of service:



- o Widen the northbound approach to 2 left turn lanes, 2 through lanes, and 1 right turn lane (adding 1 left turn lane)
- o Widen the southbound approach to 2 left turn lanes, 2 lanes, and a right turn (adding 1 left turn lane)
- o Widen the eastbound approach to 1 left turn lane, 2 through lanes, and 1 right turn (adding 1 right turn lane)
- o Widen the westbound approach to 2 left turn lanes, 2 through lanes, and 1 right turn lane (adding 1 left turn lane)

The improvements identified above are sufficient to meet the applicable level of service standard.

#### **8. Gardner Avenue / Yosemite Avenue**

Recommended improvements to achieve acceptable levels of service:

- o Install Traffic Signal
- o Widen the northbound approach to 1 left turn lane and 1 through/right lane (adding 1 left turn lane)
- o Widen the eastbound approach to 1 left turn lane, 1 through lane, and 1 through/right lane (adding 1 left turn lane)
- o Widen the westbound approach to 1 left turn lane and 1 through/right turn lane (adding 1 left turn lane)

The improvements identified above are sufficient to meet the applicable level of service standard.

#### **9. McKee Road / Yosemite Avenue**

No improvements are needed at this intersection.

#### **10. Lake Road / Yosemite Avenue**

Recommended improvement to achieve acceptable levels of service:

- o Install traffic signal
- o Widen the southbound approach to 1 left turn lane and 1 right turn lane (adding 1 left turn lane)
- o Widen the westbound approach to 1 left turn lane and 1 through lane (adding 1 left turn lane)

The improvements identified above are sufficient to meet the applicable level of service standard.

### **11. Snelling Highway / Olive Avenue**

Recommended improvement to achieve acceptable levels of service:

- o Widen the northbound approach to 1 left turn lane, 2 through lanes, and 1 right turn lane (adding 1 through lane)
- o Widen the southbound approach to 1 left turn lane, 2 through lanes, and 1 right turn lane (adding 1 through lane)
- o Widen the westbound approach to 2 left turn lanes, 2 through lanes, and 1 right turn lane (adding 1 left turn lane)

The improvements identified above are sufficient to meet the applicable level of service standard.

### **12. R Street / Olive Avenue**

This intersection is expected to experience level of service D operating conditions in the AM peak hour and level of service E operating conditions in the PM peak hour in the 2030 Near Term scenario without Campus Parkway. Although improvements would be desirable to achieve level of service D or better conditions in the PM peak hour, right-of-way constraints existing on all four approaches to the intersection and improvements are not considered to be feasible.

### **13. M Street / Olive Avenue**

This intersection is expected to experience level of service D operating conditions in the AM peak hour and level of service F operating conditions in the PM peak hour in the 2030 Near Term scenario without Campus Parkway. Although improvements would be desirable to achieve level of service D or better conditions in the PM peak hour, right-of-way constraints existing on all four approaches to the intersection and improvements are not considered to be feasible.

### **14. G Street / Olive Avenue**

This intersection is expected to experience level of service F operating conditions in both the AM peak hour and PM peak hours in the 2030 Near Term scenario without Campus Parkway. Although improvements would be desirable to achieve level of service D or better conditions in the PM peak hour, right-of-way constraints existing on all four approaches to the intersection and improvements are not considered to be feasible.

**15. Snelling Highway / 16<sup>th</sup> Street**

Recommended improvements to achieve acceptable levels of service:

- o Install Traffic Signal
- o Widen the southbound approach to 1 left turn lane and 1 right turn lane (adding 1 right turn lane)

The improvements identified above are sufficient to meet the applicable level of service standard.

**16. Martin Luther King Jr / SR 99 NB Ramps**

Recommended improvement to achieve acceptable levels of service:

- o Install Traffic Signal

The improvement identified above is sufficient to meet the applicable level of service standard.

**17. G Street / SR 99 NB Off-Ramp**

Recommended improvement to achieve acceptable levels of service:

- o Install Traffic Signal
- o Restripe eastbound approach to include 1 left turn lane and 1 right turn lane

The improvement identified above is sufficient to meet the applicable level of service standard.

**18. Campus Parkway / Yosemite Avenue**

No improvements are needed at this intersection.

**19. Campus Parkway / Olive Avenue**

No improvements are needed at this intersection.

**20. Campus Parkway / Connector Road**

No improvements are needed at this intersection.

**21. SR 140 / Connector Road**

No improvements are needed at this intersection.

**22. Campus Parkway / Childs Avenue**

No improvements are needed at this intersection.

**23. Campus Parkway / Gerard Avenue**

No improvements are needed at this intersection.

**24. Campus Parkway / Coffee Street**

No improvements are needed at this intersection.

**25. SR 99 NB Ramps / Campus Parkway**

No improvements are needed at this intersection.

### 3.4 Roadway Segment Level of Service – Without Campus Parkway

Figure 3-6 shows traffic levels and Table 3-3a shows the level of service for roadway segments considering the 2030 Near Term scenario without the Campus Parkway roadway extension. The table indicates that Bellevue Road will operate at level of service C with the existing two-lane configuration. The intersection analysis described in Section 3.3 confirms this conclusion if the recommended intersection improvements are made at the intersections of Bellevue Road with Snelling Highway, G Street, and Lake Road. Table 3-3a shows level of service E and F conditions along Lake Road with the existing two-lane configuration. However, the intersection analysis described in Section 3.3 indicates that level of service D or better conditions can be achieved if the recommended intersection improvements are made at the Lake Road intersections with Bellevue Road and Yosemite Avenue. The more detailed intersection analysis is considered to supersede the results of the more general roadway segment analysis and the conclusion is that Lake Road will operate adequately as a two-lane facility with intersection improvements in the 2030 Near Term scenario without an extension of Campus Parkway north of Yosemite Avenue to the project site and without building Campus Parkway from the project site north to Bellevue Road.

### 3.5 2030 Near-Term Plus Project Conditions – With Campus Parkway

For the scenario with the Campus Parkway Extension, intersection lane geometry was shown in Figure 3-2 and project trip distribution is shown in Figure 3-7. The resulting traffic is shown in Figures 3-8 and 3-9.

### 3.6 Intersection Level of Service – With Campus Parkway

Intersection improvement recommendations for this scenario are the same as for the scenario without Campus Parkway except at Intersection 10 (Lake Road and Yosemite Avenue). A separate left turn lane is not needed at this intersection if the Campus Parkway extension is built.

### 3.7 Roadway Segment Level of Service – With Campus Parkway

Figure 3-10 shows traffic levels and Table 3-3b shows the level of service for roadway segments considering the 2030 Near Term scenario with the Campus Parkway roadway extension. All roadway segments are expected to operate at level of service C or better in this scenario, although certain intersection improvements have been recommended as described in Sections 3.3 and 3.6.

### 3.8 Internal Intersections

VRPA evaluated seven (7) internal roadway intersection configurations considering the external/internal vehicular trips associated with the Project, as shown in Figures 3-1 through 3-10 and Table 3-2. The proposed roadway configurations will achieve acceptable levels of service.

#### **A. Lake Road / Meyers Gate Road**

- o Traffic Control: Traffic Signal
- o Northbound approach: 1 left turn lane and 1 through lane with a shared right
- o Southbound approach: 1 left turn lane and 1 through lane with a shared right
- o Eastbound approach: 1 left turn lane and 1 through lane with a shared right
- o Westbound approach: 1 left turn lane and 1 through lane with a shared right

The roadway configuration identified above is sufficient to meet the applicable level of service standard.

#### **B. Campus Parkway / Meyers Gate Road**

- o Traffic Control: Two-Lane Roundabout

The roadway configuration identified above is sufficient to meet the applicable level of service standard.

#### **C. Lake Road / Virginia Smith Parkway**

- o Traffic Control: Traffic Signal
- o Northbound approach: 1 left turn lane and 1 through lane with a shared right
- o Southbound approach: 1 left turn lane and 1 through lane with a shared right

- o Eastbound approach: 1 left turn lane and 1 through lane with a shared right
- o Westbound approach: 1 left turn lane and 1 through lane with a shared right

The roadway configuration identified above is sufficient to meet the applicable level of service standard.

**D. Campus Parkway / Virginia Smith Parkway**

- o Traffic Control: Two-Lane Roundabout

The roadway configuration identified is sufficient to meet the applicable level of service standard.

**E. Virginia Smith Parkway / Golden Bobcat Drive**

- o Traffic Control: Two-Way Stop
- o Northbound approach: 1 left turn lane and 1 through lane with a shared right
- o Southbound approach: 1 left turn lane and 1 through lane with a shared right
- o Eastbound approach: 1 left turn lane and 1 through lane with a shared right
- o Westbound approach: 1 left turn lane and 1 through lane with a shared right

The roadway configuration identified above is sufficient to meet the applicable level of service standard.

**F. Virginia Smith Parkway / Main Street**

- o Traffic Control: Single Lane Roundabout

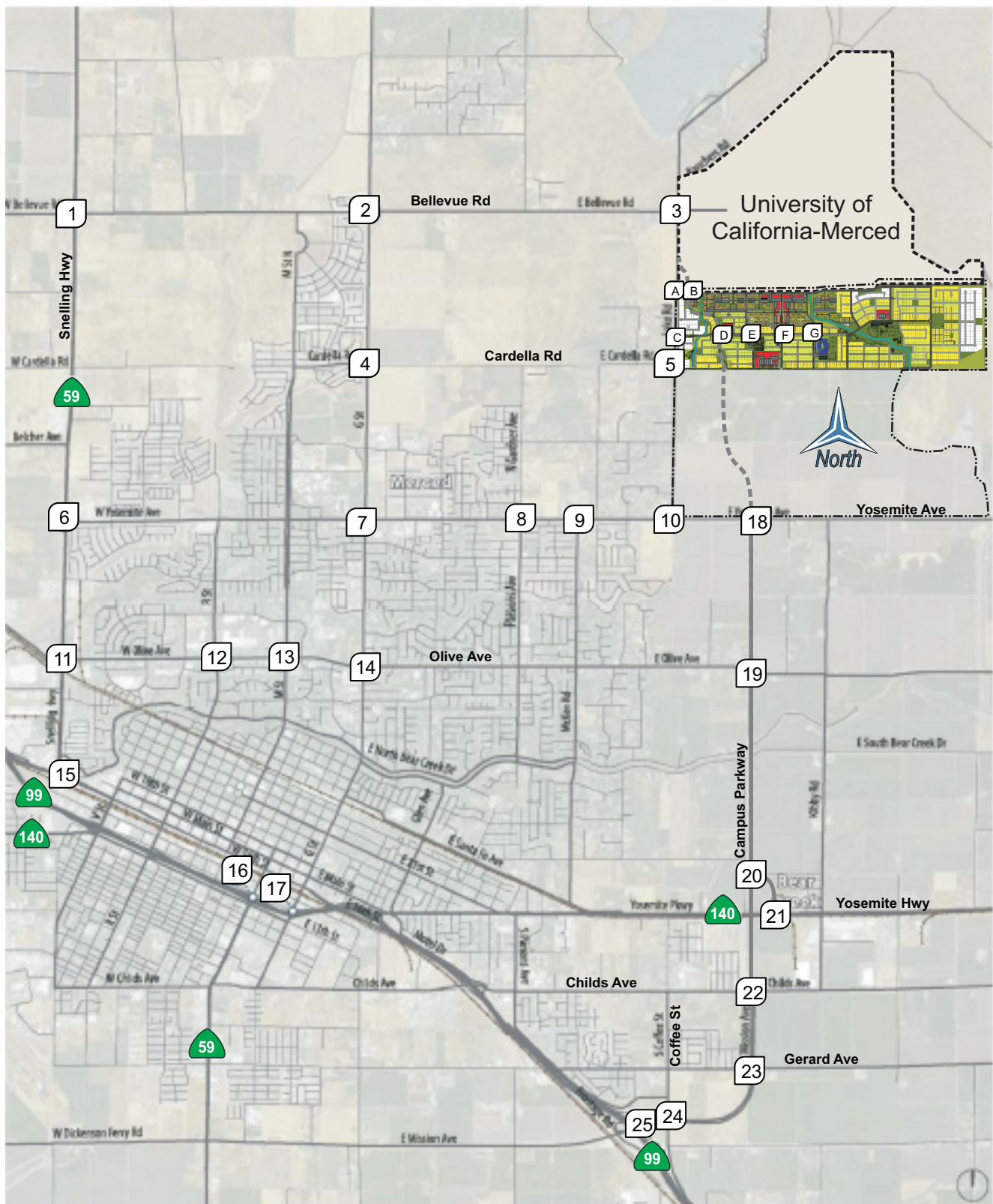
The roadway configuration identified above is sufficient to meet the applicable level of service standard.

**G. Virginia Smith Parkway / Fourth Street**



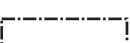


- o Traffic Control: Two-Way Stop
- o Northbound approach: 1 left turn lane and 1 through lane with a shared right
- o Southbound approach: 1 left turn lane and 1 through lane with a shared right
- o Eastbound approach: 1 left turn lane and 1 through lane with a shared right
- o Westbound approach: 1 left turn lane and 1 through lane with a shared right

The roadway configuration identified above is sufficient to meet the applicable level of service standard.





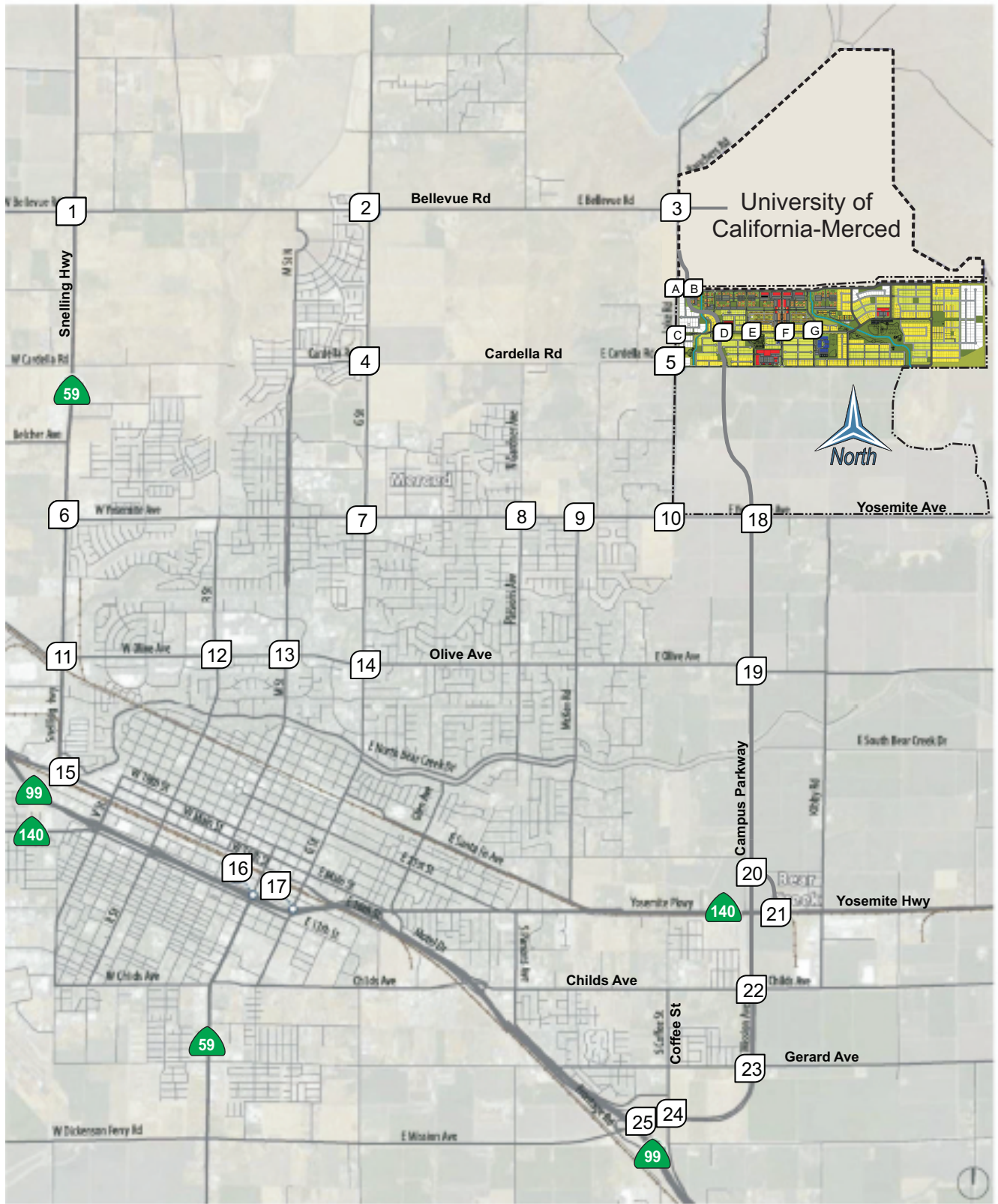
**LEGEND**

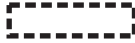

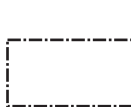

	Project Site		Study Intersection		University Community Plan Area
	Existing or Planned Roadway		Future Roadway Not In Place In This Scenario		



VST Specific Plan  
 2030 Near Term Traffic Analysis Study Area - With Campus Parkway

Figure  
 3-1b



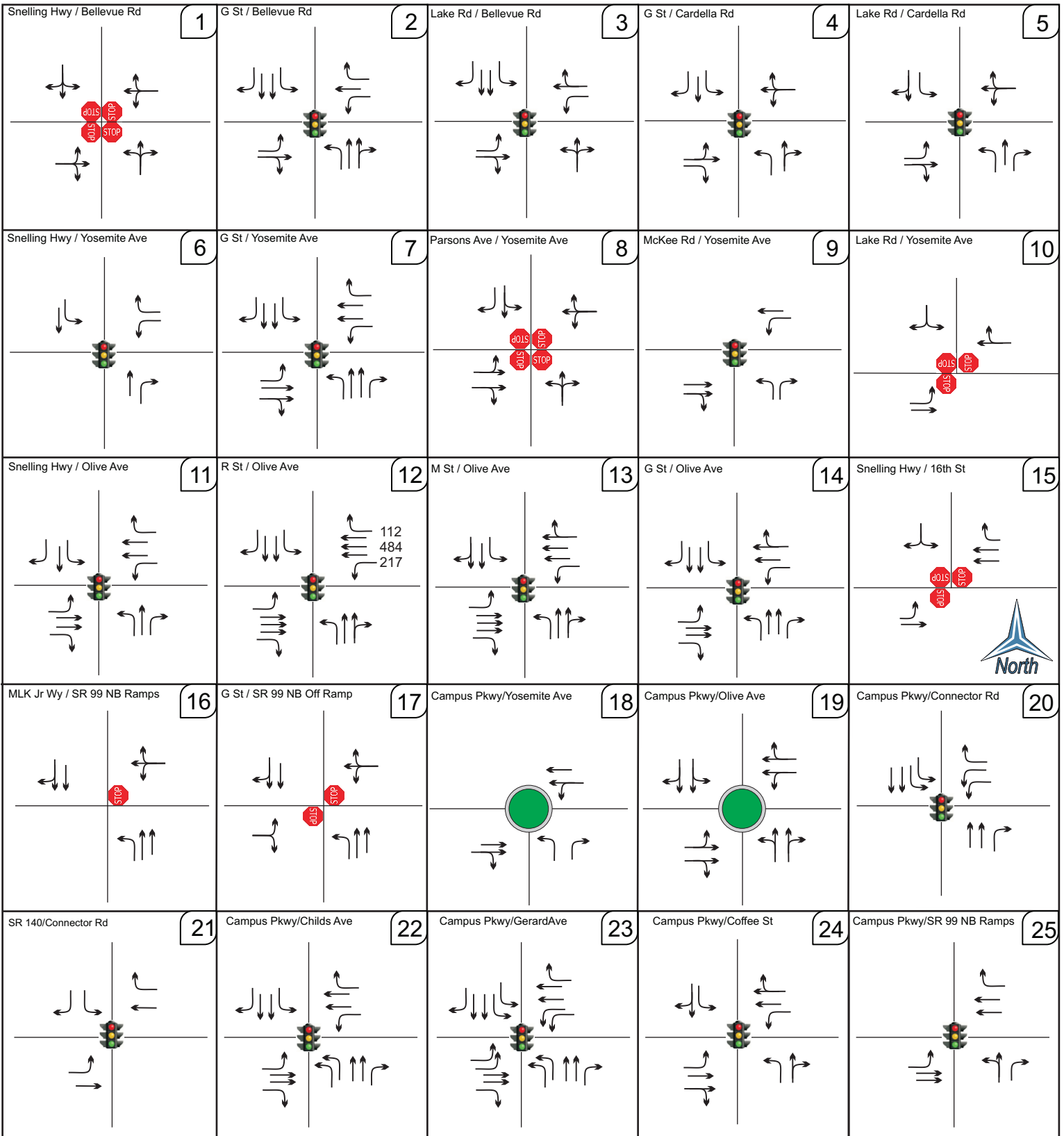
LEGEND					
	Project Site		Study Intersection		University Community Plan Area
	Existing or Planned Roadway				





# VST Specific Plan 2030 Near Term Lane Geometry - Without Campus Parkway

Figure  
3-2a



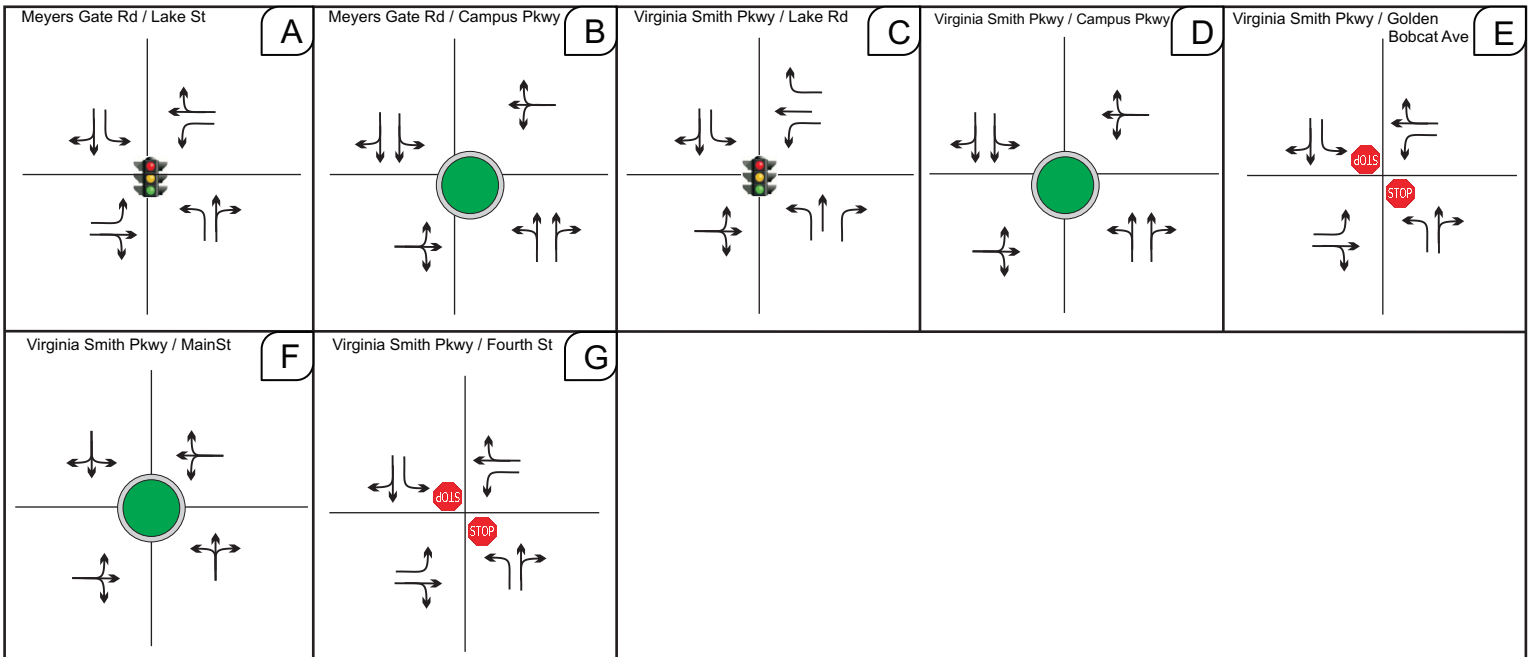
**LEGEND**

- # Study Intersections
- Traffic Signal
- Lane Geometry
- Stop Sign



# VST Specific Plan 2030 Near Term Lane Geometry - Without Campus Parkway

Figure  
3-2b



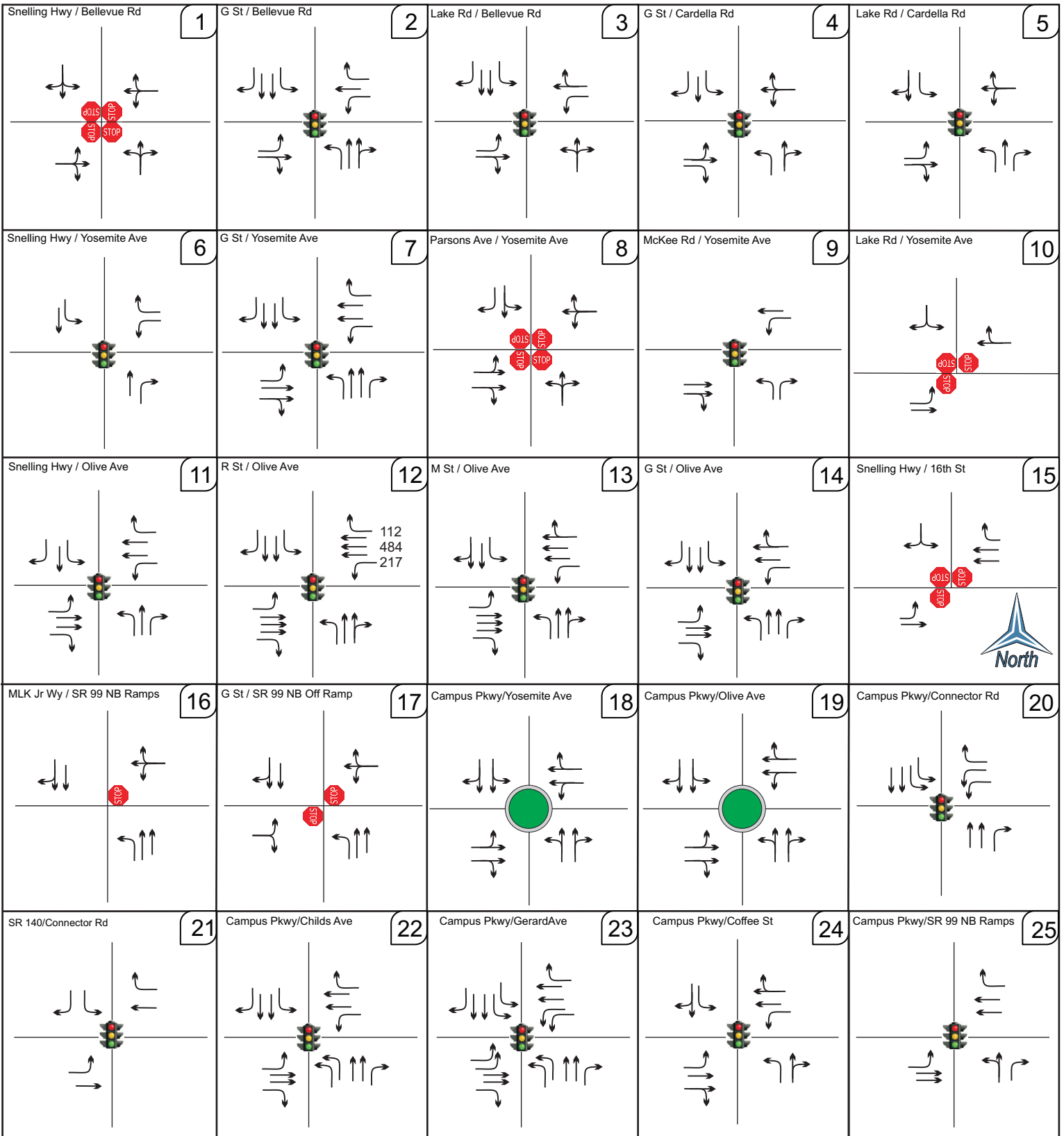
**LEGEND**

- # Study Intersections
- Traffic Signal
- Lane Geometry
- Stop Sign



# VST Specific Plan 2030 Near Term Lane Geometry - With Campus Parkway

Figure  
3-2c



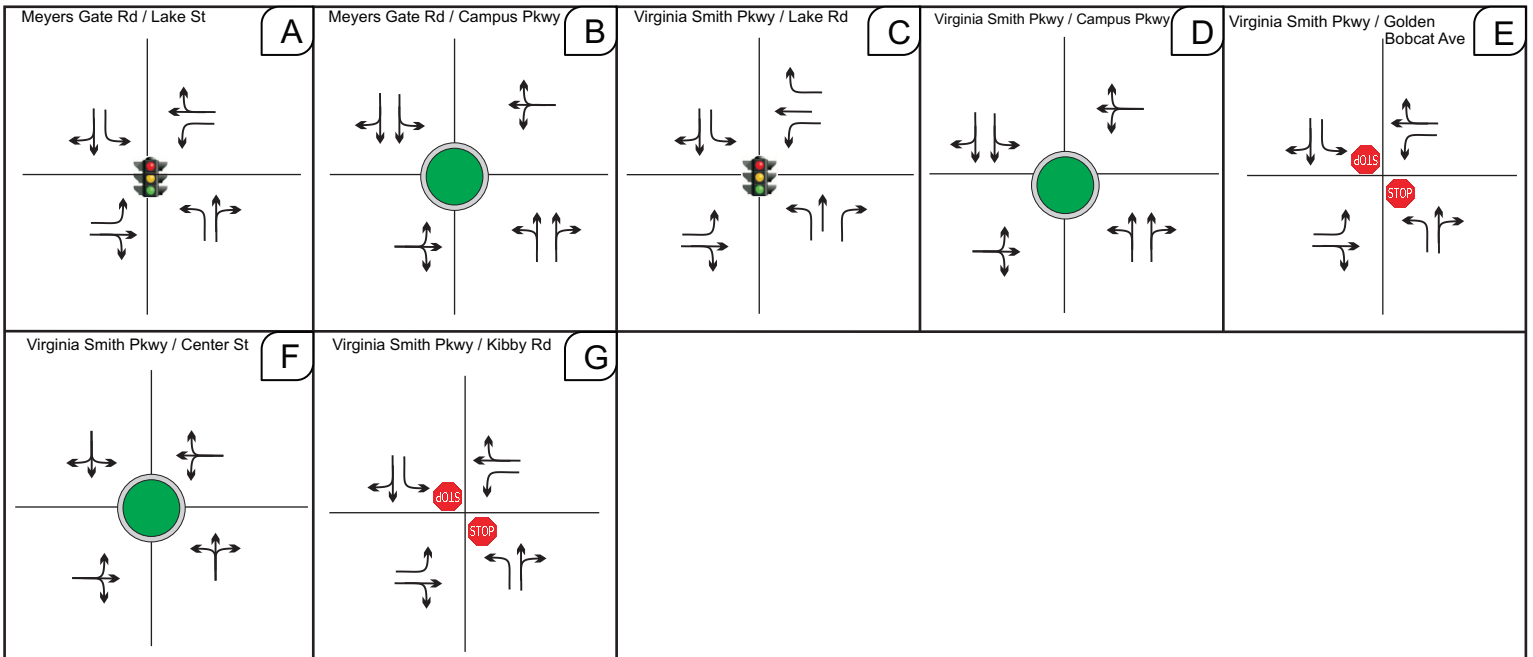
## LEGEND

- # Study Intersections
- Traffic Signal
- Lane Geometry
- Stop Sign



# VST Specific Plan 2030 Near Term Lane Geometry - With Campus Parkway

Figure  
3-2d

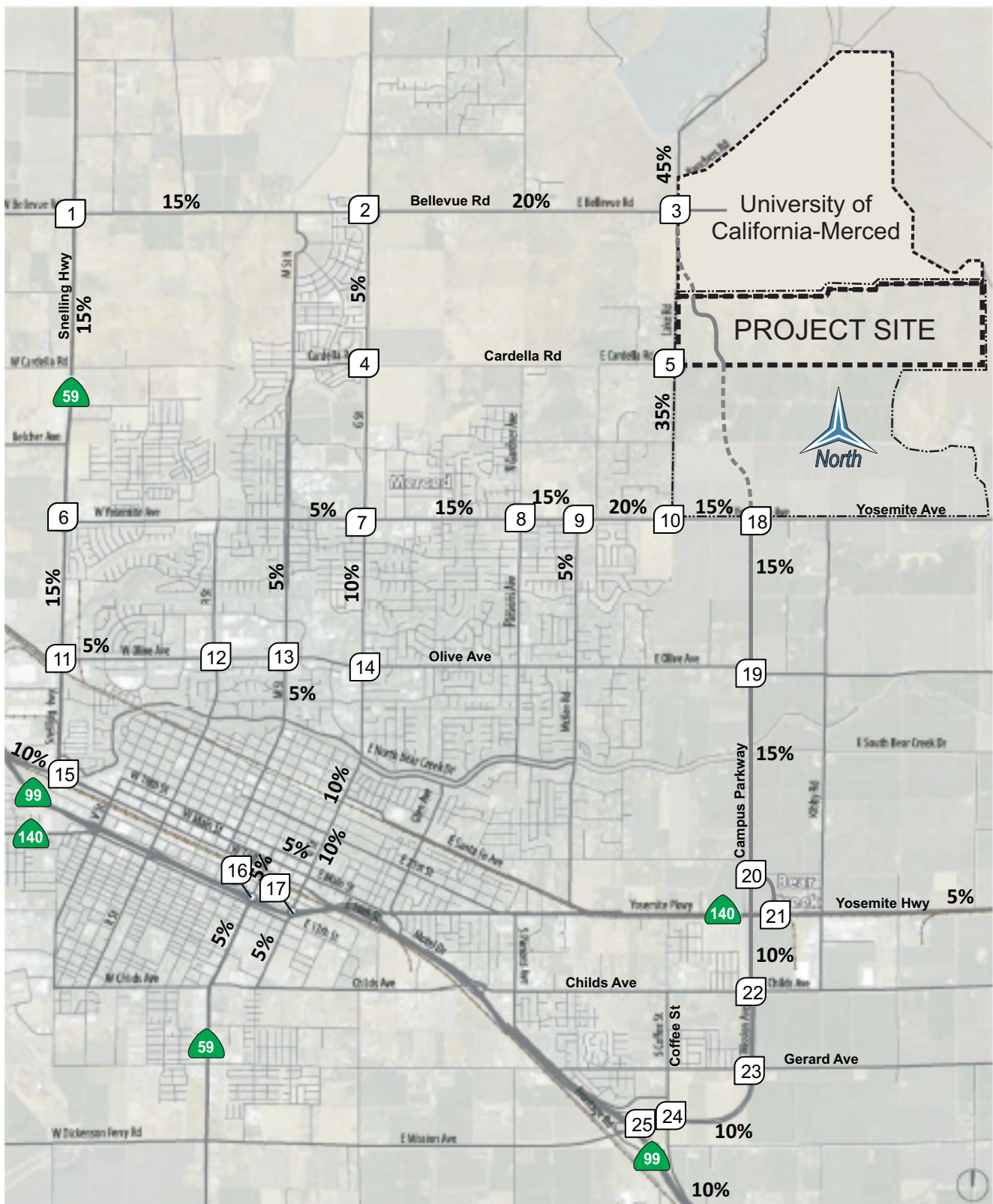


## LEGEND

- # Study Intersections
- Traffic Signal
- Lane Geometry
- Stop Sign

# VST Specific Plan 2030 Near Term Trip Distribution - Without Campus Parkway

Figure  
3-3



**LEGEND**



Project Site



Study Intersection

XX% Trip Distribution



Existing or  
Planned Roadway



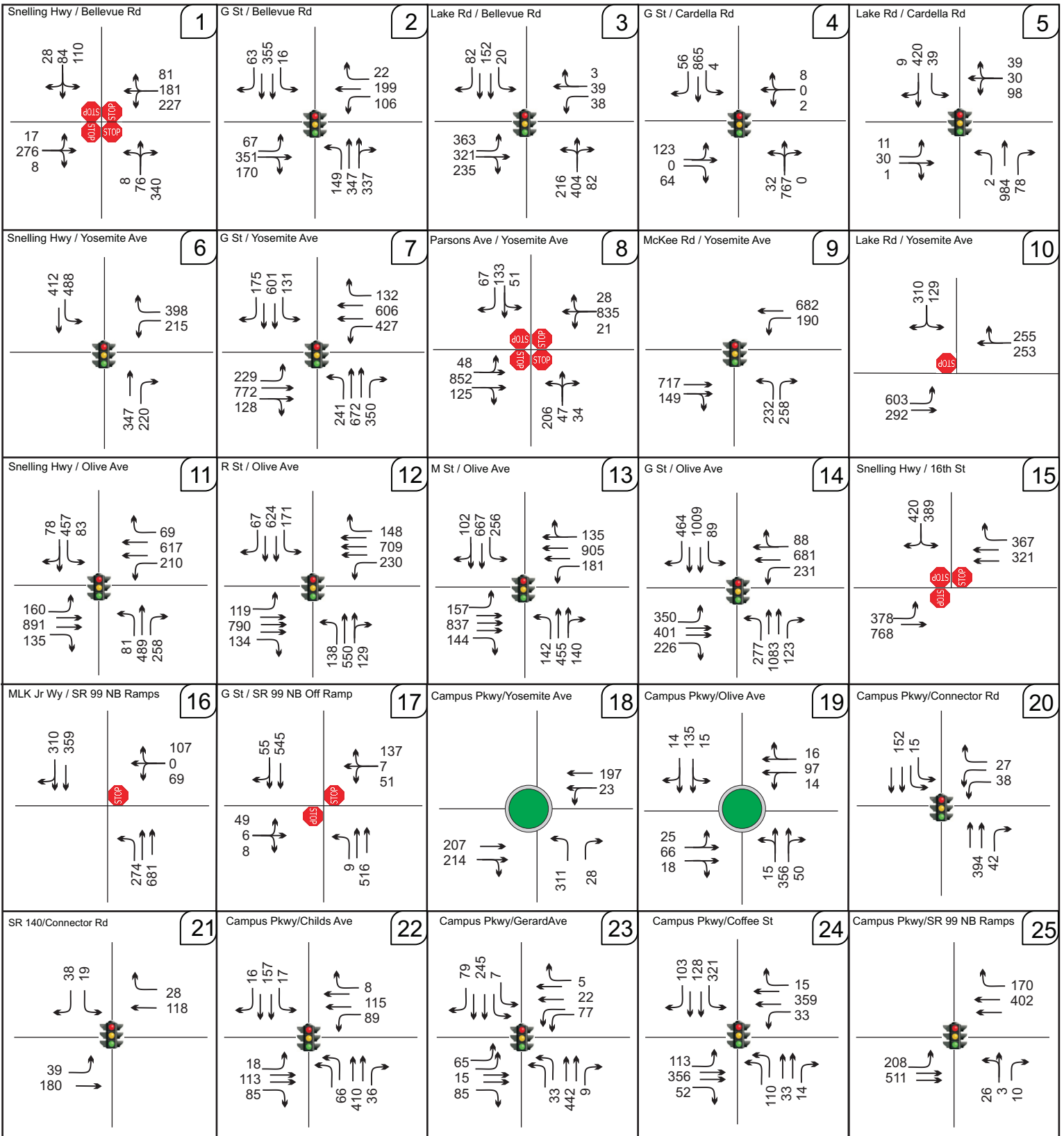
Future Roadway Not  
In Place In This Scenario



University  
Community  
Plan Area



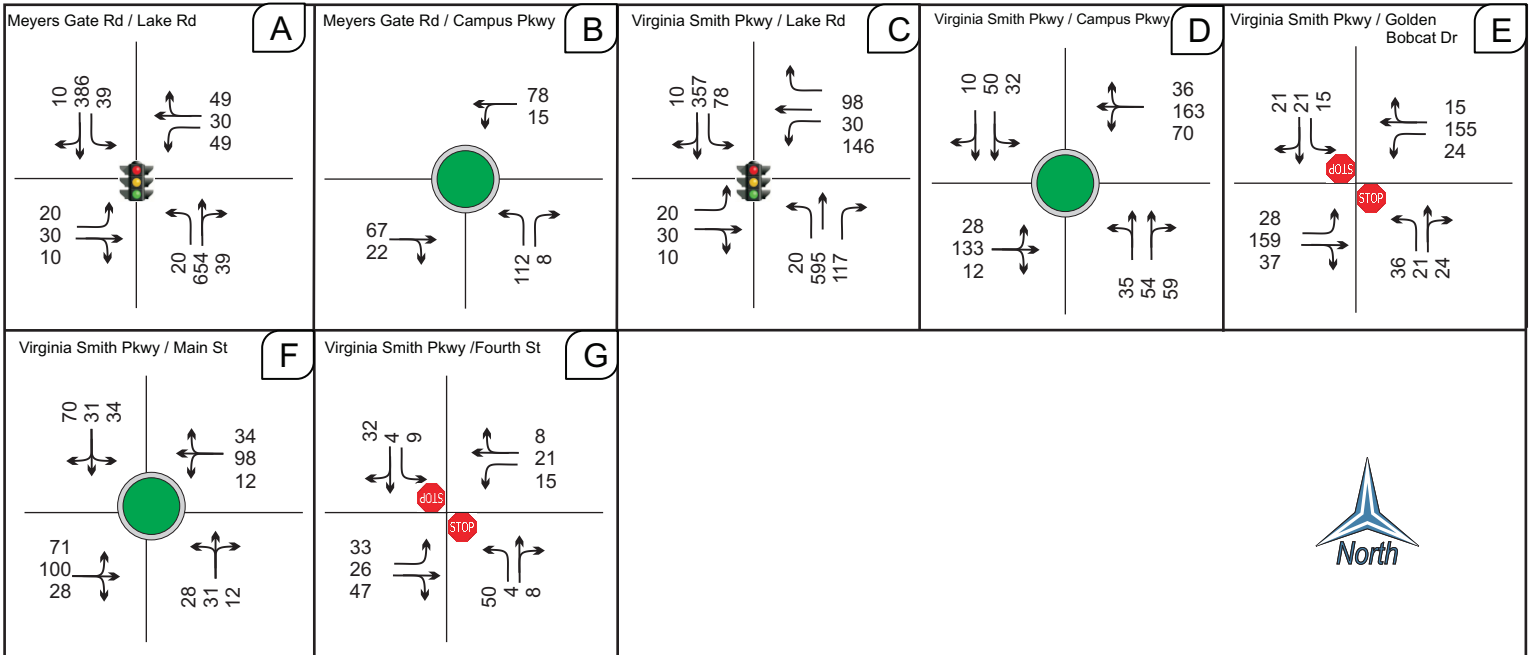




LEGEND

- # Study Intersections
- Traffic Signal
- Lane Geometry
- Stop Sign





LEGEND

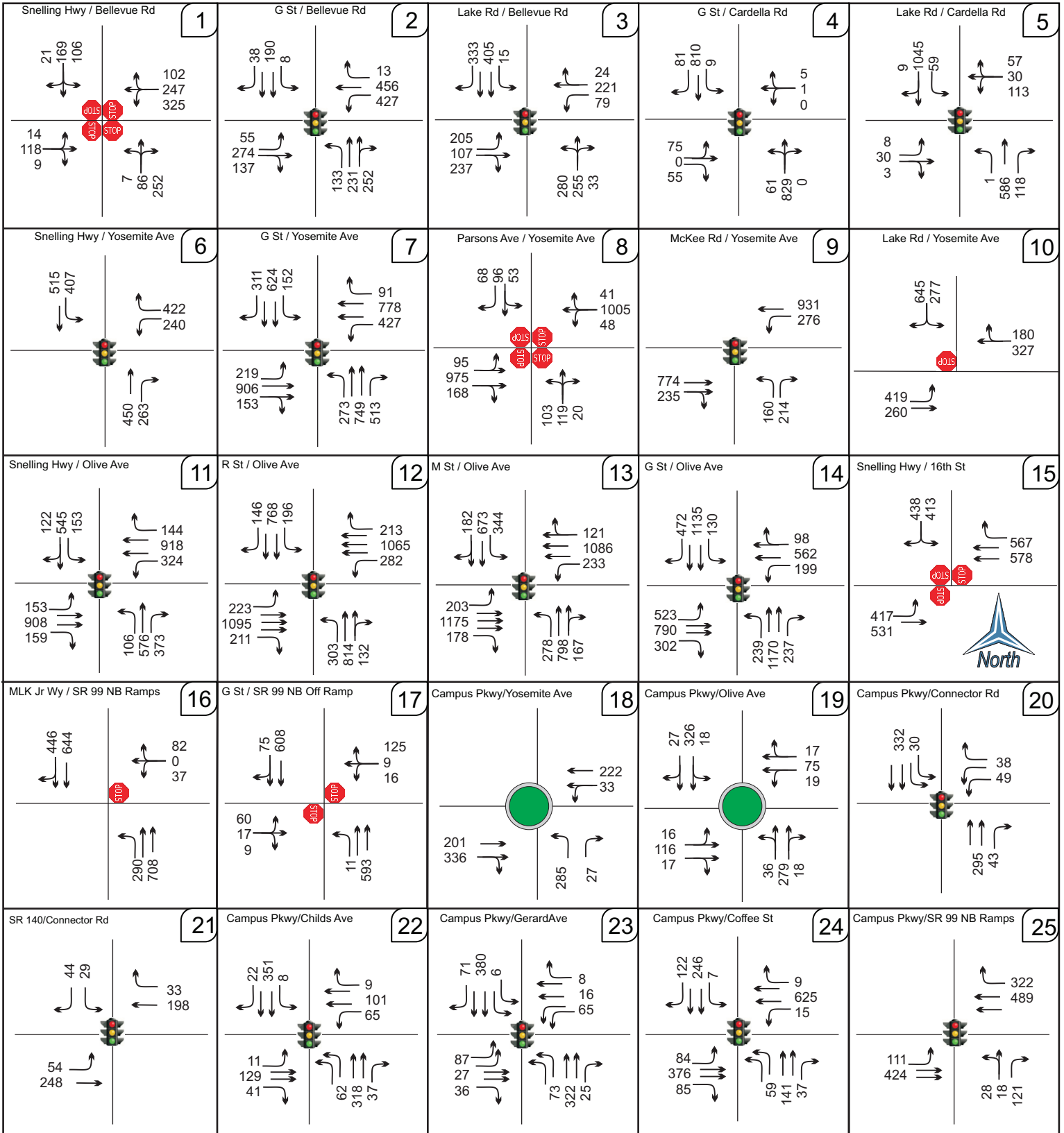
- # Study Intersections
- Traffic Signal
- Lane Geometry
- Stop Sign



# VST Specific Plan

## 2030 Near Term Traffic With Project - PM Peak Hour - Without Campus Parkway

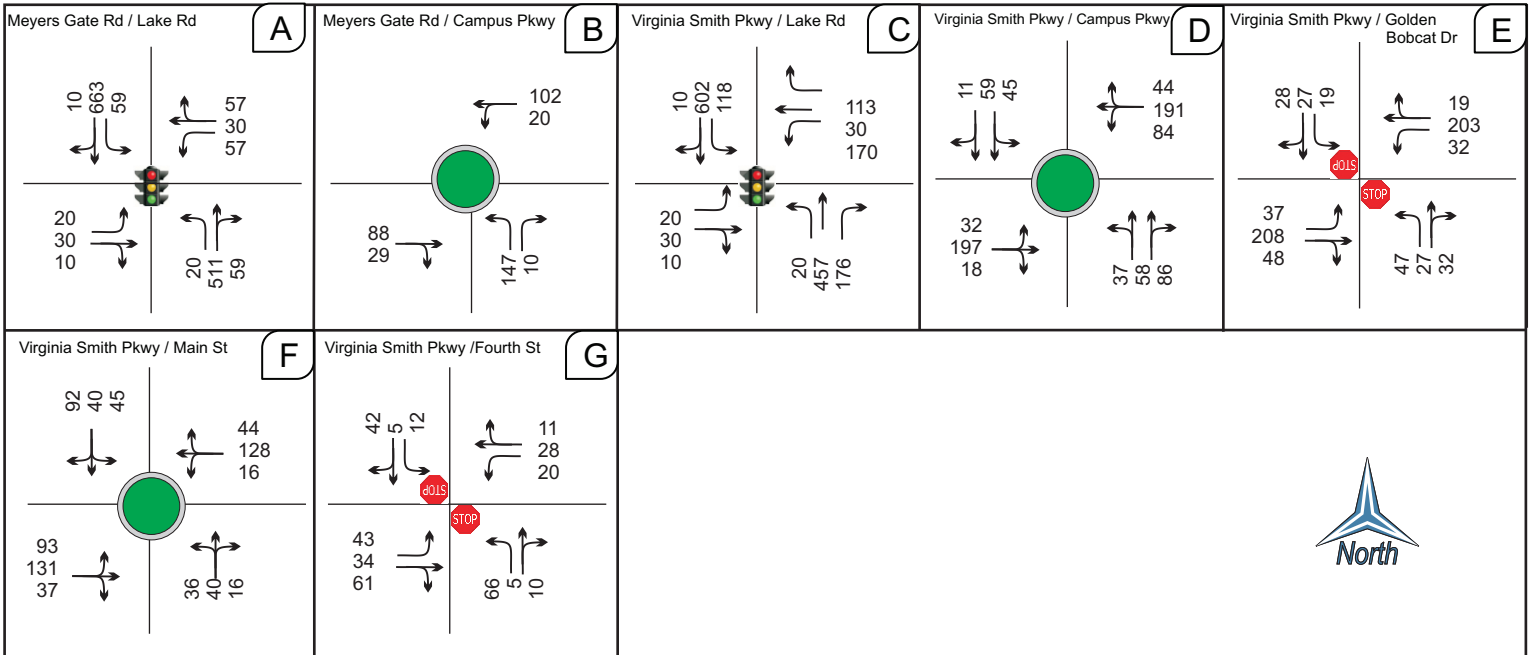
Figure 3-5a



### LEGEND

- # Study Intersections
-  Traffic Signal
-  Lane Geometry
-  Stop Sign

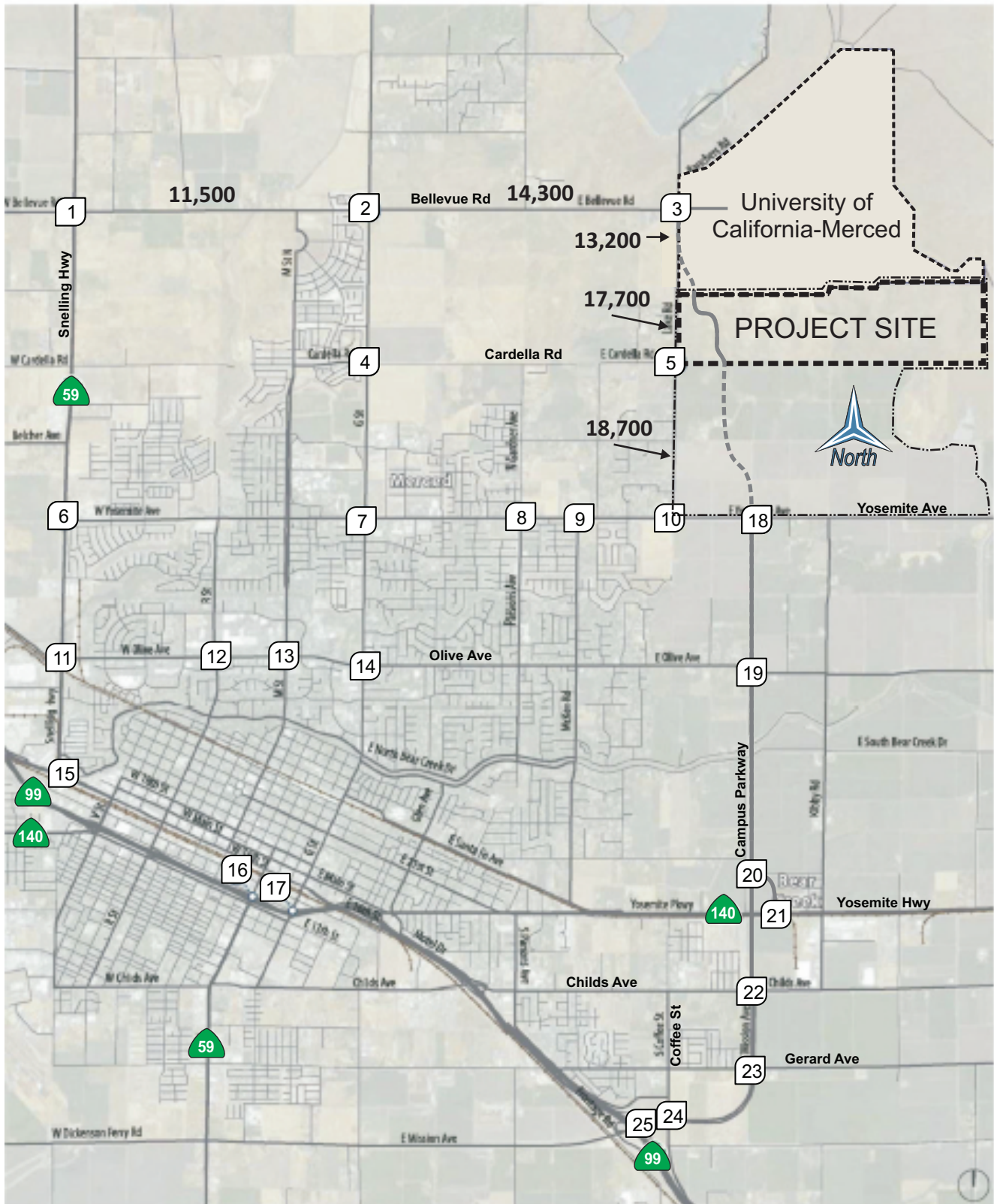








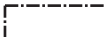
LEGEND

- # Study Intersections
- Traffic Signal
- Lane Geometry
- Stop Sign





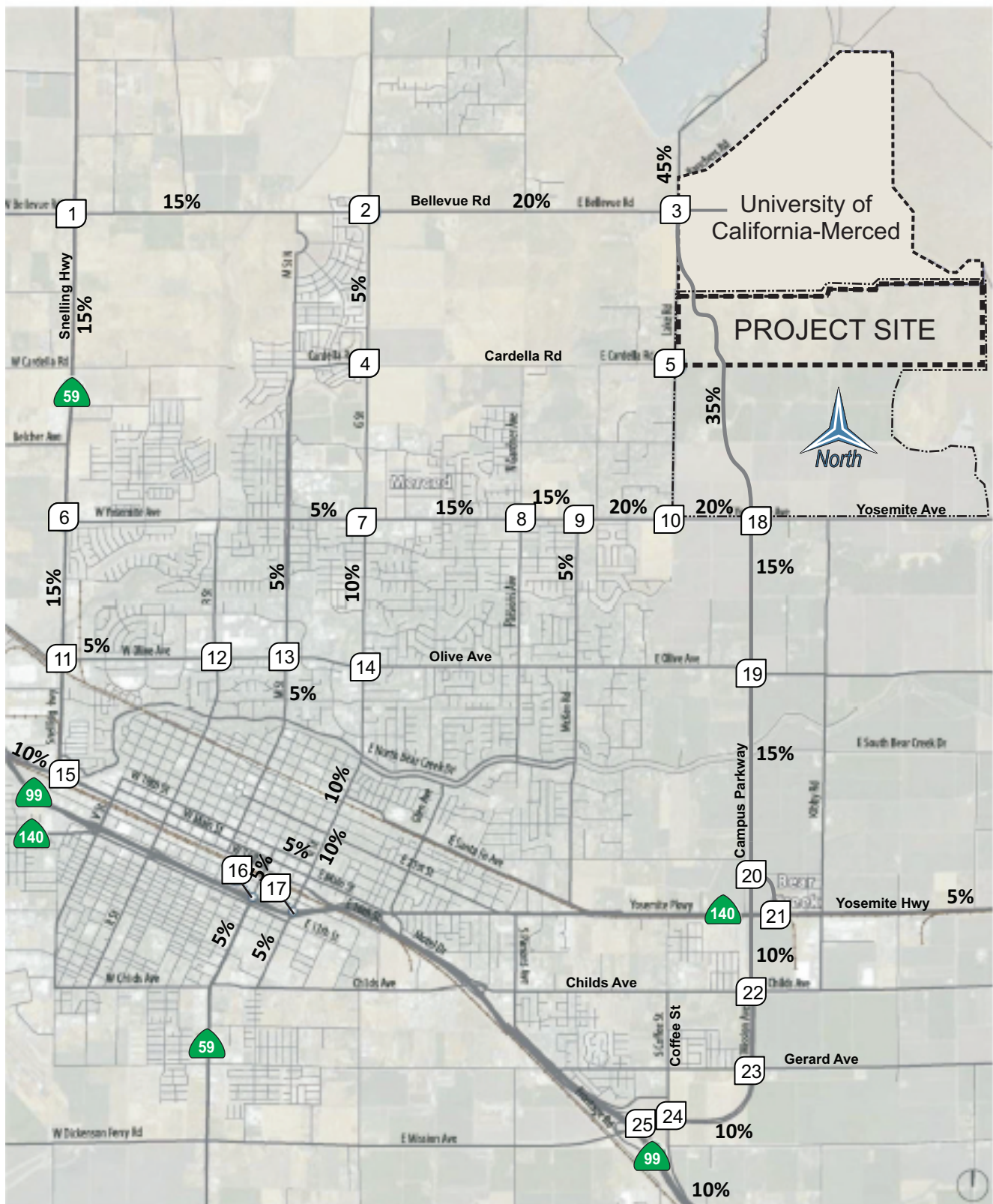
LEGEND

	Project Site		Study Intersection	X,XXX	Average Daily Traffic
	Existing or Planned Roadway		Future Roadway Not In Place In This Scenario		University Community Plan Area



# VST Specific Plan 2030 Near Term Trip Distribution - With Campus Parkway

Figure  
3-7



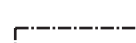
**LEGEND**



Project Site



Study Intersection



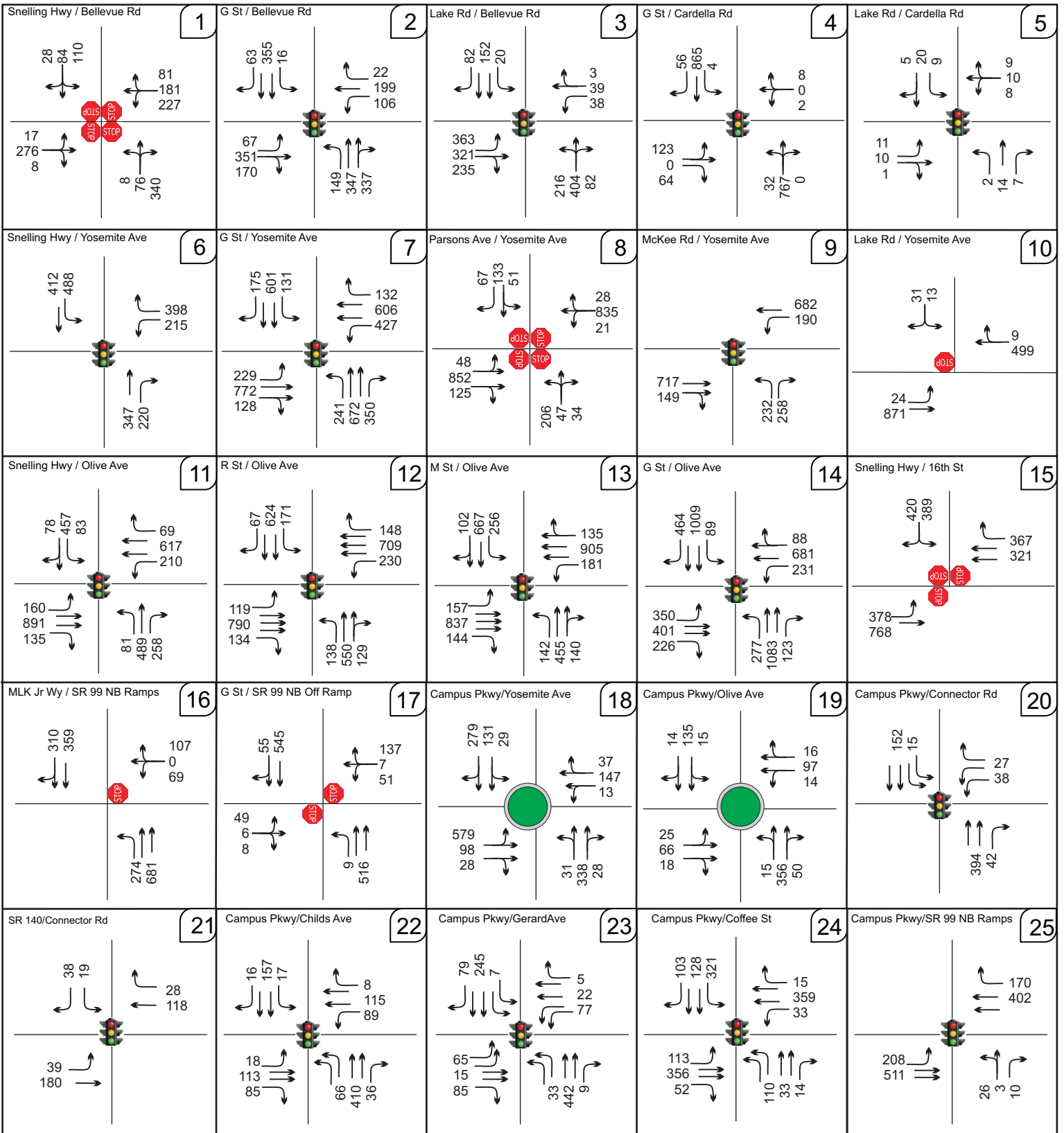
University  
Community  
Plan Area



Existing or  
Planned Roadway

XX% Trip Distribution





LEGEND

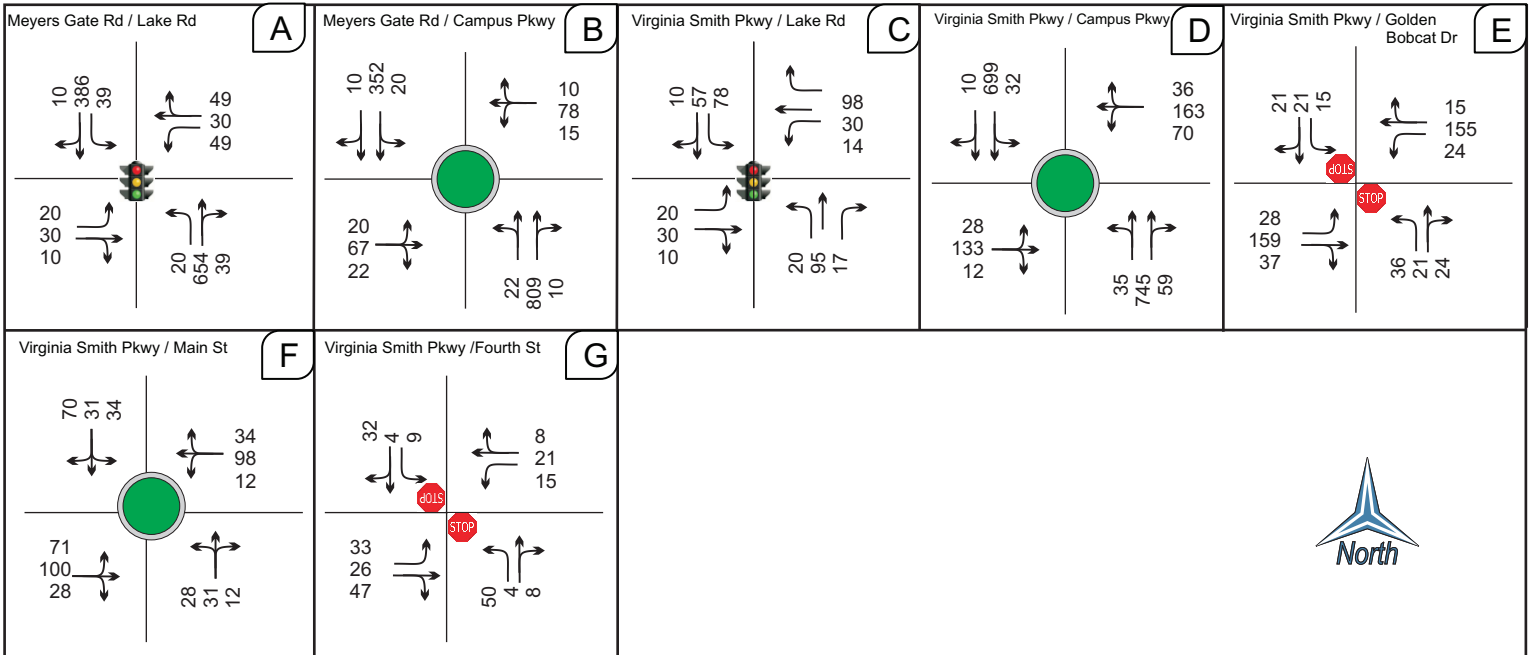
- # Study Intersections
- Traffic Signal
- Lane Geometry
- Stop Sign



# VST Specific Plan

## 2030 Near Term Traffic With Project - AM Peak Hour - With Campus Parkway

Figure 3-8b



**LEGEND**

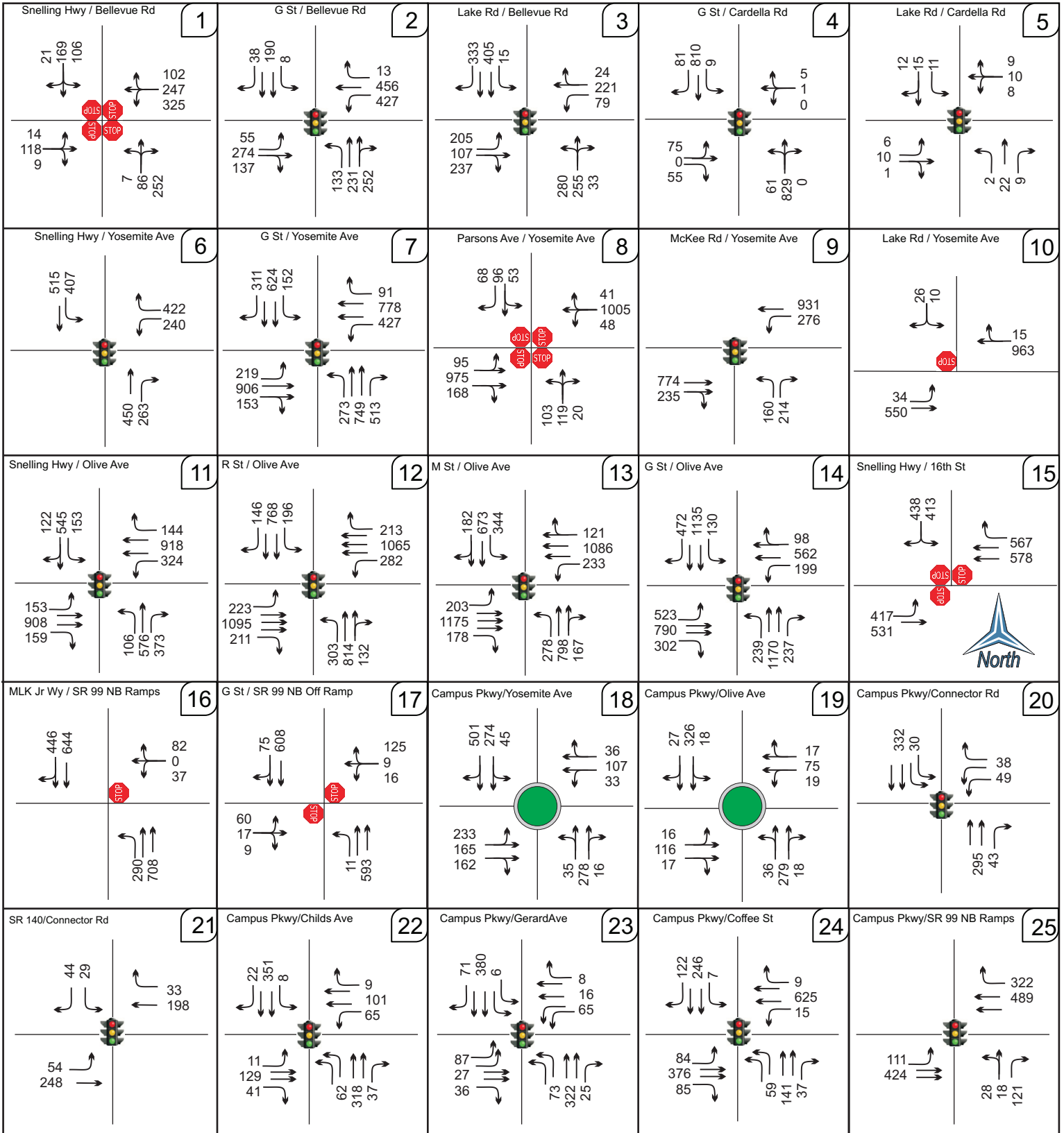
Study Intersections	Traffic Signal	Lane Geometry	Stop Sign
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# VST Specific Plan

## 2030 Near Term Traffic With Project - PM Peak Hour - With Campus Parkway

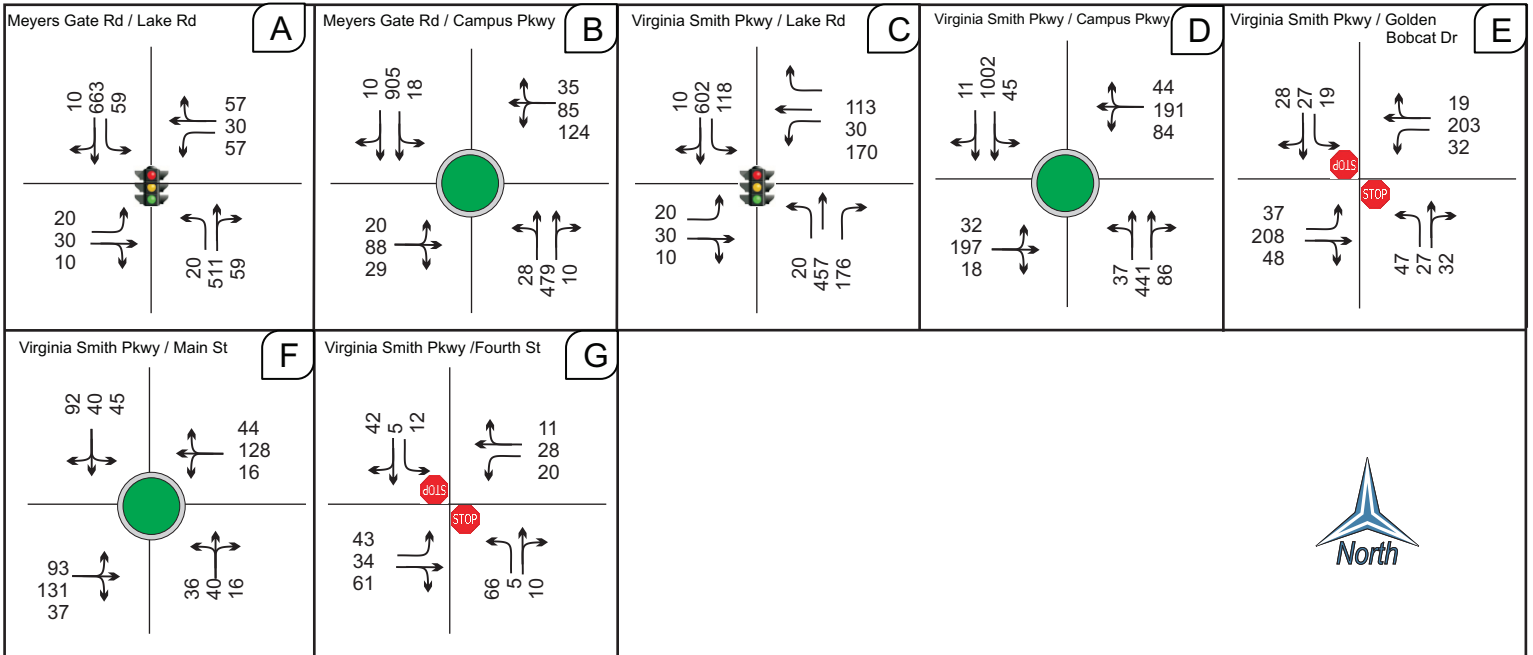
Figure 3-9a



**LEGEND**

- # Study Intersections
- Traffic Signal
- Lane Geometry
- Stop Sign



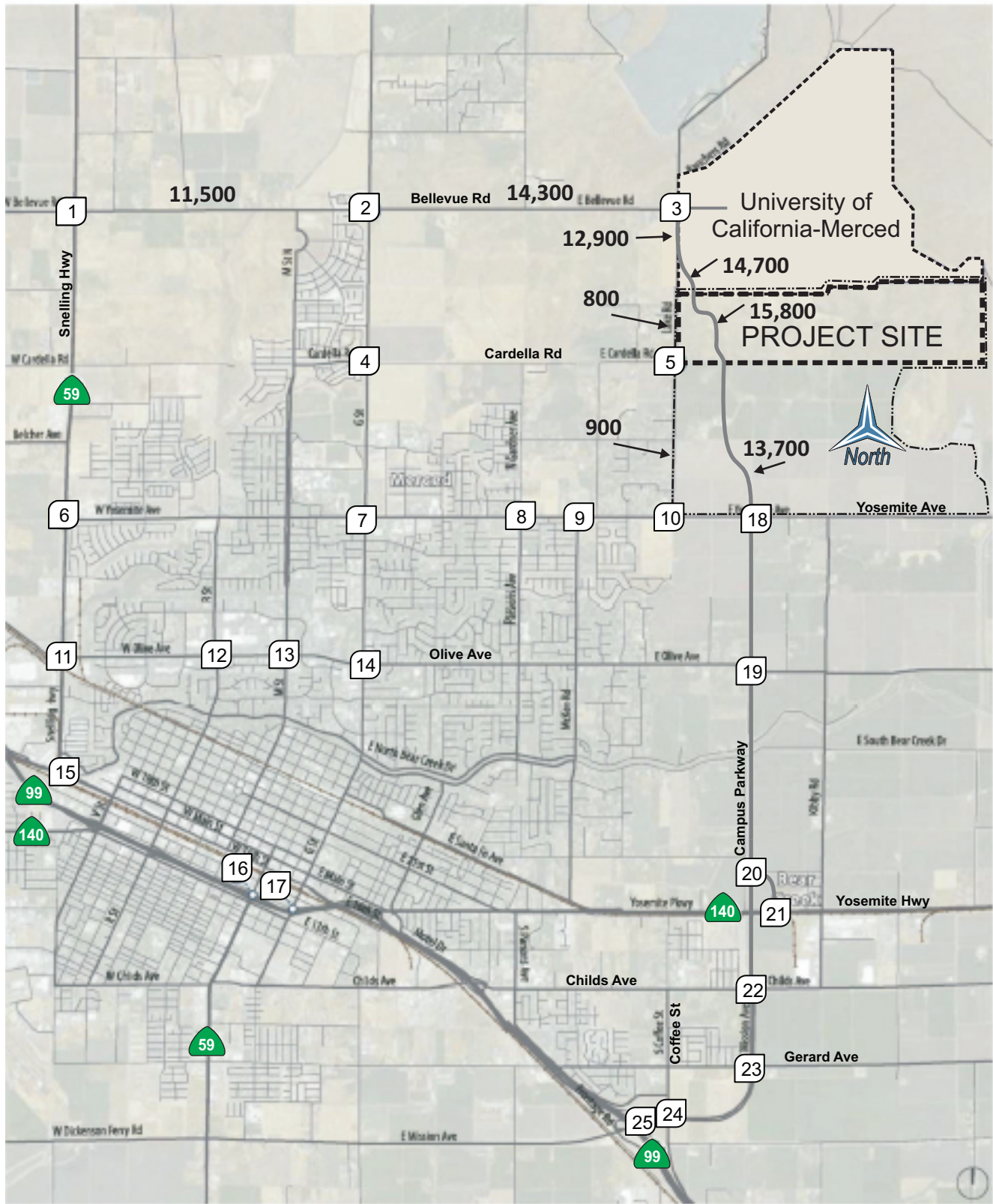


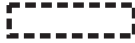

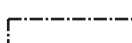


LEGEND

- # Study Intersections
- Traffic Signal
- Lane Geometry
- Stop Sign







LEGEND					
	Project Site		Study Intersection		University Community Plan Area
	Existing or Planned Roadway		XX% Trip Distribution		





**Table 3-1  
Phase 1 Project Trip Generation**

LAND USE	Quantity	DAILY TRIP ENDS	(ADT)	WEEKDAY AM PEAK HOUR					WEEKDAY PM PEAK HOUR				
		RATE	VOLUME	RATE	IN:OUT SPLIT	VOLUME			RATE	IN:OUT SPLIT	VOLUME		
						IN	OUT	TOTAL			IN	OUT	TOTAL
R-1 Residential (220)	674 D.U.	7.32	4,934	0.43	23:77	67	225	292	0.48	63:37	203	120	323
R-4 Student Residential (225)	692 D.U.	4.12	2,851	0.17	28:72	33	85	118	0.31	52:48	112	103	215
R-2, R-3, & R-4 Market (220)	1,085 D.U.	7.32	7,942	0.43	23:77	106	354	460	0.45	63:37	311	182	493
Town Center Mixed Use (231)	108 D.U.	3.44	372	0.30	28:72	9	23	32	0.36	70:30	27	12	39
Retail Mixed (875)	307,500 s.f	22.88	7,036	0.58	64:36	114	64	178	1.95	50:50	300	300	600
NC/Retail and Community Commercial (875)	225,000 s.f	22.88	5,148	0.58	64:36	84	47	131	1.95	50:50	219	220	439
Hotel/Office (710)	275,000 s.f	9.74	2,679	1.16	86:14	274	45	319	1.08	16:84	48	250	298
Elementary School (520)	600 Students	1.89	1,134	0.67	54:46	217	185	402	0.17	48:52	49	53	102
Parks (411)	35.86 acres	3.12	112	0.02	59:41	0	1	1	0.7	55:45	14	11	25
<b>SUBTOTAL TRIP GENERATION</b>			<b>32,208</b>			<b>904</b>	<b>1,029</b>	<b>1,933</b>			<b>1,283</b>	<b>1,251</b>	<b>2534</b>
<b>Internal Trips (NCHRP Internal Trip Capture Estimation Tool) <sup>1</sup></b>			<b>9,404</b>			<b>304</b>	<b>278</b>	<b>582</b>			<b>379</b>	<b>381</b>	<b>760</b>
<b>Bike Trips (20%)</b>			<b>4,561</b>			<b>120</b>	<b>150</b>	<b>270</b>			<b>181</b>	<b>174</b>	<b>355</b>
<b>Pedestrian Trips (10%)</b>			<b>2,280</b>			<b>60</b>	<b>75</b>	<b>135</b>			<b>90</b>	<b>87</b>	<b>177</b>
<b>Transit Trips (5%)</b>			<b>1,140</b>			<b>30</b>	<b>38</b>	<b>68</b>			<b>45</b>	<b>44</b>	<b>89</b>
<b>TOTAL EXTERNAL TRIP GENERATION</b>			<b>14,823</b>			<b>390</b>	<b>488</b>	<b>878</b>			<b>588</b>	<b>566</b>	<b>1,153</b>

Source: Generation factors from ITE Trip Generation Manual, 10th Edition.

Trip ends are one-way traffic movements, entering or leaving.

The numbers in parenthesis are ITE land use codes.

1. Daily internal trip capture rate basued upon PM peak results from the NCHRP Internal Trip Capture Estimation Tool. 90% of trips associated with the elementary school were assumed to be internal trips since the school will serve residents of the VST site. 100% of Park trips are internal trips.

**Table 3-2  
Near Term (2030) Intersection Operations**

INTERSECTION	CONTROL	TARGET LOS	PEAK HOUR	NEAR TERM WITH PROJECT WITHOUT CAMPUS PKWY		NEAR TERM WITH PROJECT WITH CAMPUS PKWY	
				DELAY	LOS	DELAY	LOS
1. Snelling Highway / Bellevue Road	All-Way Stop Sign	D	AM	>50	F	>50	F
			PM	>50	F	>50	F
2. G Street / Bellevue Road	Signalized	D	AM	51.4	D	51.4	D
			PM	79.7	E	79.7	E
3. Lake Road / Bellevue Road	Signalized	D	AM	62.0	E	56.1	E
			PM	>80	F	65.1	E
4. G Street / Cardella Road	Signalized	D	AM	30.7	C	30.7	C
			PM	16.1	B	16.1	B
5. Lake Road / Cardella Road	One-Way Stop Sign	D	AM	9.7	A	5.0	A
			PM	15.1	B	4.7	A
6. Snelling Highway / Yosemite Avenue	Signalized	D	AM	70.8	E	70.8	E
			PM	75.1	E	75.1	E
7. G Street / Yosemite Avenue	Signalized	D	AM	>80	F	>80	F
			PM	>80	F	>80	F
8. Gardner Avenue / Yosemite Avenue	All-Way Stop Sign	D	AM	>50	F	>50	F
			PM	>50	F	>50	F
9. McKee Road / Yosemite Avenue	Signalized	D	AM	29.1	C	29.1	C
			PM	38.0	D	38.0	D
10. Lake Road / Yosemite Avenue	All-Way Stop Sign	D	AM	>50	F	>50	F
			PM	>50	F	>50	F
11. Snelling Highway / Olive Avenue	Signalized	D	AM	55.7	E	55.7	E
			PM	>80	F	>80	F
12. R Street / Olive Avenue	Signalized	D	AM	44.0	D	44.0	D
			PM	75.5	E	75.5	E
13. M Street / Olive Avenue	Signalized	D	AM	49.1	D	49.1	D
			PM	>80	F	>80	F
14. G Street / Olive Avenue	Signalized	D	AM	>80	F	>80	F
			PM	>80	F	>80	F
15. Snelling Highway / 16th Street	All-Way Stop Sign	D	AM	>50	F	>50	F
			PM	>50	F	>50	F
16. Martin Luther King Jr / SR 99 NB Ramps	One-Way Stop Sign	D	AM	>50	F	>50	F
			PM	>50	F	>50	F
17. G Street / SR 99 NB Off-Ramp	Two-Way Stop Sign	D	AM	32.5	D	32.5	D
			PM	>50	F	>50	F
18. Campus Pkwy/ Yosemite Avenue	Roundabout	D	AM	5.4	A	8.6	A
			PM	5.6	A	7.6	A
19. Campus Pkwy/ Olive Avenue	Roundabout	D	AM	4.4	A	4.4	A
			PM	5.1	A	5.1	A
20. Campus Parkway / Connector Road	Signalized	D	AM	6.8	A	6.8	A
			PM	6.8	A	6.8	A
21. SR 140 / Connector Road	Signalized	D	AM	14.7	B	14.7	B
			PM	14.9	B	14.9	B
22. Campus Parkway / Childs Avenue	Signalized	D	AM	21.0	C	21.0	C
			PM	19.1	B	19.1	B
23. Campus Parkway / Gerard Avenue	Signalized	D	AM	18.9	B	18.9	B
			PM	23.8	C	23.8	C
24. Campus Parkway / Coffee Street	All-Way Stop Sign	D	AM	49.4	D	49.4	D
			PM	34.2	C	34.2	C
25. SR 99 NB Ramps / Campus Parkway	Signalized	D	AM	45.1	D	45.1	D
			PM	36.1	D	36.1	D

DELAY is measured in seconds

N/A = Intersection was under construction but not yet open to traffic in this scenario

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded

For signalized and all way stop controlled intersections, delay results show the average for the entire intersection. For one-way and two-way stop controlled intersections, delay results show the delay for the worst movement.

**Table 3-2 (cont.)**  
**Near Term (2030) Intersection Operations**

INTERSECTION	CONTROL	TARGET LOS	PEAK HOUR	NEAR TERM WITH PROJECT WITHOUT CAMPUS PKWY		NEAR TERM WITH PROJECT WITH CAMPUS PKWY	
				DELAY	LOS	DELAY	LOS
A. Meyers Gate Road / Lake Street	Signalized	D	AM	16.8	B	16.8	B
			PM	16.7	B	17.0	B
B. Meyers Gate Road / Campus Parkway	Roundabout	D	AM	3.6	A	6.2	A
			PM	3.9	A	7.9	A
C. Virginia Smith Parkway / Lake Road	Signalized	D	AM	18.1	B	18.1	B
			PM	22.6	B	19.2	B
D. Virginia Smith Parkway / Campus Parkway	Roundabout	D	AM	4.1	A	8.1	A
			PM	4.6	A	11.1	B
E. Virginia Smith Parkway / Golden Bobcat	Two-Way Stop Controlled	D	AM	13.5	B	13.5	B
			PM	16.6	C	16.6	C
F. Virginia Smith Parkway / Main Street	Roundabout	D	AM	4.3	A	4.3	A
			PM	4.9	A	4.9	A
G. Virginia Smith Parkway /Fourth Street	Two-Way Stop Controlled	D	AM	10.9	B	9.8	A
			PM	15.6	C	10.2	B

DELAY is measured in seconds

N/A = Intersection was under construction but not yet open to traffic in this scenario

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded

For signalized and all way stop controlled intersections, delay results show the average for the entire intersection. For one-way and two-way stop controlled intersections, delay results show the delay for the worst movement.

**Table 3-3a**  
**Near Term (2030) Roadway Segment Analysis**  
**Without Campus Parkway**

ROADWAY	LIMITS	NUMBER OF LANES (EXISTING)	CLASSIFICATION	AVERAGE DAILY TRAFFIC	LEVEL OF SERVICE <sup>1</sup>
Bellevue Road	Snelling Hwy to G St	2	Major Arterial	11,500	C
	G St to Lake Road	2	Major Arterial	14,300	C
Lake Road	Bellevue Road to Meyers Gate Road	2	Rural Collector	13,200	E
	Meyers Gate Road to Cardella Road	2	Rural Collector	17,700	F
	Cardella Road to Yosemite Ave	2	Rural Collector	18,700	F
Campus Parkway	Bellevue Road to Meyers Gate Road	N/A <sup>2</sup>	N/A <sup>2</sup>	N/A <sup>2</sup>	N/A <sup>2</sup>
	Meyers Gate Road to Cardella Road	N/A <sup>2</sup>	N/A <sup>2</sup>	N/A <sup>2</sup>	N/A <sup>2</sup>
	Cardella Road to Yosemite Ave	N/A <sup>2</sup>	N/A <sup>2</sup>	N/A <sup>2</sup>	N/A <sup>2</sup>

1. Roadway segment level of service provides an approximate level of service for planning purposes  
For detailed analysis and improvement recommendations, see intersection analysis.

2. Roadway segment does not exist in this scenario.

**Table 3-3b**  
**Near Term (2030) Roadway Segment Analysis**  
**With Campus Parkway**

ROADWAY	LIMITS	NUMBER OF LANES (EXISTING OR PLANNED)	CLASSIFICATION	AVERAGE DAILY TRAFFIC	LEVEL OF SERVICE <sup>1</sup>
Bellevue Road	Snelling Hwy to G St	2	Major Arterial	11,500	C
	G St to Lake Road	2	Major Arterial	14,300	C
Lake Road	Bellevue Road to Meyers Gate Road	2	Rural Collector	N/A <sup>2</sup>	N/A <sup>2</sup>
	Meyers Gate Road to Cardella Road	2	Rural Collector	800	C
	Cardella Road to Yosemite Ave	2	Rural Collector	900	C
Campus Parkway	Bellevue Road to Meyers Gate Road	4	County Expressway	14,700	C
	Meyers Gate Road to Cardella Road	4	County Expressway	15,800	C
	Cardella Road to Yosemite Ave	4	County Expressway	13,700	C

1. Roadway segment level of service provides an approximate level of service for planning purposes

For detailed analysis and improvement recommendations, see intersection analysis.

2. Roadway segment does not exist in this scenario.

**Table 3-4  
Near Term (2030) Intersection Operations - With Recommended Improvements**

INTERSECTION	CONTROL	TARGET LOS	PEAK HOUR	NEAR TERM WITH PROJECT WITHOUT CAMPUS PKWY		NEAR TERM WITH PROJECT WITH CAMPUS PKWY	
				DELAY	LOS	DELAY	LOS
1. Snelling Highway / Bellevue Road	All-Way Stop Sign	D	AM	38.4	D	34.1	C
			PM	31.9	C	31.9	C
2. G Street / Bellevue Road	Signalized	D	AM	52.8	D	52.8	D
			PM	53.5	D	53.5	D
3. Lake Road / Bellevue Road	Signalized	D	AM	45.6	D	45.2	D
			PM	50.0	D	50.0	D
4. G Street / Cardella Road	Signalized	D	AM	29.1	C	29.1	C
			PM	16.1	B	16.1	B
5. Lake Road / Cardella Road	One-Way Stop Sign	D	AM	14.2	B	5.0	A
			PM	51.1	D	4.7	A
6. Snelling Highway / Yosemite Avenue	Signalized	D	AM	30.7	C	30.7	C
			PM	29.5	C	29.5	C
7. G Street / Yosemite Avenue	Signalized	D	AM	37.8	D	37.8	D
			PM	48.5	D	48.5	D
8. Gardner Avenue / Yosemite Avenue	All-Way Stop Sign	D	AM	31.4	C	31.4	C
			PM	34.4	C	34.4	C
9. McKee Road / Yosemite Avenue	Signalized	D	AM	32.9	C	32.9	C
			PM	38.0	D	38.0	D
10. Lake Road / Yosemite Avenue	All-Way Stop Sign	D	AM	48.8	D	6.2	A
			PM	33.0	C	9.3	A
11. Snelling Highway / Olive Avenue	Signalized	D	AM	38.8	D	39.3	C
			PM	45.8	D	46.5	D
12. R Street / Olive Avenue	Signalized	D	AM	43.3	D	42.7	D
			PM	<b>67.8</b>	<b>E</b>	<b>67.5</b>	<b>E</b>
13. M Street / Olive Avenue	Signalized	D	AM	48.6	D	48.6	D
			PM	<b>&gt;80</b>	<b>F</b>	<b>&gt;80</b>	<b>F</b>
14. G Street / Olive Avenue	Signalized	D	AM	<b>&gt;80</b>	<b>F</b>	<b>&gt;80</b>	<b>F</b>
			PM	<b>&gt;80</b>	<b>F</b>	<b>&gt;80</b>	<b>F</b>
15. Snelling Highway / 16th Street	All-Way Stop Sign	D	AM	22.2	C	22.2	C
			PM	30.5	C	30.5	C
16. Martin Luther King Jr / SR 99 NB Ramps	One-Way Stop Sign	D	AM	14.1	B	14.1	B
			PM	18.0	B	18.0	B
17. G Street / SR 99 NB Off-Ramp	Two-Way Stop Sign	D	AM	6.4	A	6.4	A
			PM	6.7	A	6.7	A
18. Campus Pkwy/ Yosemite Avenue	Roundabout	D	AM	6.6	A	8.6	A
			PM	5.3	A	7.6	A
19. Campus Pkwy/ Olive Avenue	Roundabout	D	AM	4.4	A	4.4	A
			PM	5.4	A	5.1	A
20. Campus Parkway / Connector Road	Signalized	D	AM	6.8	A	6.8	A
			PM	6.8	A	6.8	A
21. SR 140 / Connector Road	Signalized	D	AM	14.8	B	14.8	B
			PM	16.0	B	14.8	B
22. Campus Parkway / Childs Avenue	Signalized	D	AM	21.0	C	21.0	C
			PM	19.1	B	19.1	B
23. Campus Parkway / Gerard Avenue	Signalized	D	AM	18.9	B	18.9	B
			PM	23.8	C	23.8	C
24. Campus Parkway / Coffee Street	All-Way Stop Sign	D	AM	35.7	D	49.4	D
			PM	34.2	C	34.2	C
25. SR 99 NB Ramps / Campus Parkway	Signalized	D	AM	25.2	C	45.1	D
			PM	36.1	D	36.1	D

DELAY is measured in seconds

N/A = Intersection was under construction but not yet open to traffic in this scenario

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded

For signalized and all way stop controlled intersections, delay results show the average for the entire intersection. For one-way and two-way stop controlled intersections, delay results show the delay for the worst movement.



**Table 3-4 (cont.)**

**Near Term (2030) Intersection Operations - With Recommended Improvements**

INTERSECTION	CONTROL	TARGET LOS	PEAK HOUR	NEAR TERM WITH PROJECT WITHOUT CAMPUS PKWY		NEAR TERM WITH PROJECT WITH CAMPUS PKWY	
				DELAY	LOS	DELAY	LOS
A. Meyers Gate Road / Lake Street	Signalized	D	AM	16.8	B	16.8	B
			PM	17.0	B	17.0	B
B. Meyers Gate Road / Campus Parkway	Roundabout	D	AM	4.4	A	6.2	A
			PM	3.7	A	7.9	A
C. Virginia Smith Parkway / Lake Road	Signalized	D	AM	20.3.	C	12.0	B
			PM	19.2	B	19.2	B
D. Virginia Smith Parkway / Campus Parkway	Roundabout	D	AM	4.1	A	4.1	A
			PM	4.7	B	10.7	B
E. Virginia Smith Parkway / Golden Bobcat	Two-Way Stop Controlled	D	AM	13.5	B	13.5	B
			PM	16.6	C	16.6	C
F. Virginia Smith Parkway / Main Street	Roundabout	D	AM	4.3	A	4.3	A
			PM	4.9	A	4.9	A
G. Virginia Smith Parkway /Fourth Street	Two-Way Stop Controlled	D	AM	10.9	B	10.9	B
			PM	11.8	B	10.2	B

DELAY is measured in seconds

N/A = Intersection was under construction but not yet open to traffic in this scenario

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded

For signalized and all way stop controlled intersections, delay results show the average for the entire intersection. For one-way and two-way stop controlled intersections, delay results show the delay for the worst movement.

## 4.0 2042 Horizon Year Traffic Impacts

This chapter provides an assessment of the vehicle trips the Project is expected to generate and the influence of Project traffic on the surrounding street system for 2042 Horizon Year conditions. The Year 2042 was selected for analysis since it corresponds to the horizon year of the adopted Merced County Association of Governments (MCAG) Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS).

### 4.1 Project Trip Generation – Buildout

To assess the impacts that the Project may have on the surrounding roadway network, the first step is to determine Project trip generation. The methodology/assumptions memorandum (Appendix A) includes a detailed trip generation analysis of full buildout of the Project resulting in the trip generation shown in Table 4-1.

### 4.2 Trip Distribution

The traffic analysis study area for 2042 Horizon Year conditions is shown in Figure 4-1. The lane geometry for this scenario is the same as for 2030 Near Term conditions with the Campus Parkway extension as shown previously in Figure 3-2b. Project trip distribution for 2042 Horizon Year conditions as shown in Figure 4-2 was determined using analysis of the existing and proposed roadway network as well existing and forecasted future traffic conditions. The 2042 Horizon Year scenario assumes an extension of Campus Parkway from SR 99 to its current terminus at Yosemite Avenue and then north to Bellevue Road through the Project site. The trip distribution for the 2042 Horizon scenario reflects this roadway extension.

### 4.3 Approved/Pending Project Traffic

Traffic expected to be generated by approved and pending projects in Merced County and the City of Merced near the Project site were incorporated into the 2042 Horizon Year traffic forecasts. This process can be described as follows:

- ✓ Traffic generated by a large number of approved and pending projects was incorporated into the 2030 Near Term traffic analysis that was used as a starting point for the 2042 Horizon Year traffic analysis.
- ✓ Contact was made with Merced County and the City of Merced to gather current information on approved and pending projects. These projects were reviewed to determine any projects that had not been incorporated into the 2030 Near Term traffic analysis. Three major projects were identified, the UC Merced Long Range Development Plan (LRDP), the Hunt project located immediately to the south of the VST project site,

and the University Vista project located north of Bellevue Road and west of Lake Road. Traffic expected to be generated by these projects is shown in Appendix E.

#### 4.4 Horizon Year (2042) Traffic Conditions With Project

Horizon Year (2042) traffic with the project was calculated as follows:

- ✓ 2030 Near Term traffic was used as the starting point for the calculations.
- ✓ 2030 Near Term traffic was increased by a factor of 0.75% to account for traffic growth between 2030 and 2042.
- ✓ Traffic along Lake Road/Campus Parkway was rerouted to account for the extension of Campus Parkway from SR 140 (Central Yosemite Highway) to Bellevue Road, expected to occur between 2030 and 2042.
- ✓ Traffic from projects described in Section 4.3 were added.
- ✓ Traffic growth at the Project site between Phase 1 and buildout conditions was added.

The resulting 2042 Horizon Year traffic with the project is shown in Figures 4-3 and 4-4.

Intersection capacity analysis for this scenario is shown in Table 4-2.

#### 4.5 Recommended Improvements

This section documents the intersection improvements recommended in Section 3.3 that were recommended for the 2030 Near Term scenario and then describes additional intersection improvements that are recommended for the 2042 Horizon Year Scenario.

##### 1. Snelling Highway / Bellevue Road

Improvements recommended for the 2030 Near Term scenario included the following:

- o Install Traffic Signal
- o Widen the northbound approach to 1 left turn lane, 1 through lane, and 1 right turn lane (adding 1 left turn lane and 1 right turn lane)
- o Widen the southbound approach to 1 left turn lane, 1 through/right lane (adding 1 left turn lane)
- o Widen the eastbound approach to 1 left turn lane, 1 through/right lane (adding 1 left turn lane)
- o Widen the northbound approach to 1 left turn lane, 1 through lane, and 1 right turn lane (adding 1 left turn lane and 1 right turn lane)

Additional improvements for the 2042 Horizon Year scenario include the following:

- o Widen the northbound approach to 1 left turn lane, 1 through lane, and 2 right turn lanes (adding 1 right turn lane)

The improvements identified above are sufficient to meet the applicable level of service standard.

## **2. G Street / Bellevue Road**

Improvements recommended for the 2030 Near Term scenario included the following:

- o Widen the northbound approach to 1 left turn lane, 2 through lanes, and 1 right turn lane (adding 1 right turn lane)
- o Widen the eastbound approach to 2 left turn lanes, 1 through lane, and 1 right turn lane (adding 1 left turn lane)

Additional improvements for the 2042 Horizon Year scenario include the following:

- o Widen the eastbound approach to 1 left turn lane, 2 through lanes, and 1 right turn lanes (adding 1 through lane and 1 right turn lane)

The improvements identified above are sufficient to meet the applicable level of service standard.

## **3. Lake Road / Bellevue Road**

Improvements recommended for the 2030 Near Term scenario included the following:

- o Widen the northbound approach to 1 left turn lane, 1 through lane, and one right turn lane (adding 1 left turn lane and one right turn lane)
- o Widen the southbound approach to 1 left turn lane, 2 through lanes, and 1 right turn lane (adding 1 left turn lane, 1 through lane, and 1 right turn lane)
- o Restripe the eastbound approach to 1 left turn lane, 1 through/right lane

Additional improvements for the 2042 Horizon Year scenario include the following:

- o Widen the northbound approach to 2 left turn lanes, 2 through lane, and 1 through/right turn lanes (adding 1 left lane and changing 1 right turn lane to a right/through lane)
- o Widen the eastbound approach to 1 left turn lane, 1 through lane, and 1 right turn lanes (adding 1 through lane)

The improvements identified above are sufficient to meet the applicable level of service standard.

#### **4. G Street / Cardella Road**

No improvements were needed at this intersection for the 2030 Near Term scenario.

Improvements for the 2042 Horizon Year scenario include the following:

- o Widen the northbound approach to 1 left turn lanes, 1 through lane, and 1 through/right turn lanes (adding 1 through lane)
- o Widen the southbound approach to 1 left turn lanes, 2 through lanes, and 1 right turn lanes (adding 1 through lane)
- o Widen the eastbound approach to 1 left turn lane, 1 through lane, and 1 through/right turn lanes (adding 1 through lane)

The improvements identified above are sufficient to meet the applicable level of service standard.

#### **5. Lake Road / Cardella Road**

At this location, improvements are recommended to accommodate adding an east leg to the intersection for the 2030 Near Term scenario. No additional improvements are needed for the 2042 Horizon Year scenario.

#### **6. Snelling Highway / Yosemite Avenue**

No improvements were needed at this intersection for the 2030 Near Term scenario.

Improvements for the 2042 Horizon Year scenario include the following:

- o Widen the northbound approach to 2 through lanes, and 1 right turn lane (adding 1 through lane)
- o Widen the southbound approach to 2 left turn lanes and 2 through lanes (adding 1 left turn lane and 1 through lane)
- o Widen the westbound approach to 2 left turn lanes and 1 right turn lanes (adding 1 left turn lane)

The improvements identified above are sufficient to meet the applicable level of service standard.



## **7. G Street / Yosemite Avenue**

Improvements recommended for the 2030 Near Term scenario included the following:

- o Widen the northbound approach to 2 left turn lanes, 2 through lanes, and 1 right turn lane (adding 1 left turn lane)
- o Widen the southbound approach to 2 left turn lanes, 2 lanes, and a right turn (adding 1 left turn lane)
- o Widen the eastbound approach to 1 left turn lane, 2 through lanes, and 1 right turn (adding 1 right turn lane)
- o Widen the westbound approach to 2 left turn lanes, 2 through lanes, and 1 right turn lane (adding 1 left turn lane)

Additional improvements for the 2042 Horizon Year scenario include the following:

- o Widen the eastbound approach to 2 left turn lanes, 2 through lanes, and 1 right turn lane (adding 1 left turn lane)

The improvements identified above are not sufficient to meet the applicable level of service standard. However, there is insufficient right-of-way available to widen the intersection beyond the number of lanes identified above.

## **8. Gardner Avenue / Yosemite Avenue**

Improvements recommended for the 2030 Near Term scenario included the following:

- o Install Traffic Signal
- o Widen the northbound approach to 1 left turn lane and 1 through/right lane (adding 1 left turn lane)
- o Widen the eastbound approach to 1 left turn lane, 1 through lane, and 1 through/right lane (adding 1 left turn lane)
- o Widen the westbound approach to 1 left turn lane and 1 through/right turn lane (adding 1 left turn lane)

Additional improvements for the 2042 Horizon Year scenario include the following:

- o Widen the westbound approach to 1 left turn lane, 1 through lanes, and 1 through/right turn lane (adding 1 through lane)

The improvements identified above are sufficient to meet the applicable level of service standard.

### **9. McKee Road / Yosemite Avenue**

No improvements were needed at this intersection for the 2030 Near Term scenario.

Improvements for the 2042 Horizon Year scenario include the following:

- o Widen the eastbound approach to 2 through lanes and 1 right turn lanes (adding 1 right turn lane)
- o Widen the westbound approach to 2 left turn lanes and 2 through lanes and 1 right turn lanes (adding 1 left turn lane and 1 through lane)

The improvements identified above are sufficient to meet the applicable level of service standard.

### **10. Lake Road / Yosemite Avenue**

Improvements recommended for the 2030 Near Term scenario included the following:

- o Install traffic signal
- o Widen the eastbound approach to 1 left turn lane and 2 through lanes (adding 1 through lane)
- o Widen the westbound approach to 2 through lanes and 1 right turn lane (adding 1 through land 1 right turn lane)

The improvements identified above are sufficient to meet the applicable level of service standard.

### **11. Snelling Highway / Olive Avenue**

Improvements recommended for the 2030 Near Term scenario included the following:

- o Widen the northbound approach to 1 left turn lane, 2 through lanes, and 1 right turn lane (adding 1 through lane)
- o Widen the southbound approach to 1 left turn lane, 2 through lanes, and 1 right turn lane (adding 1 through lane)
- o Widen the westbound approach to 2 left turn lanes, 2 through lanes, and 1 right turn lane (adding 1 left turn lane)

Additional improvements recommended for the 2042 Horizon Year scenario included the following:

- o Widen the northbound approach to 2 left turn lanes, 2 through lanes, and 1 right turn lane (adding 1 left turn lane)

- o Widen the southbound approach to 2 left turn lanes, 2 through lanes, and 1 right turn lane (adding 1 left turn lane)
- o Widen the eastbound approach to 2 left turn lanes, 2 through lanes, and 1 right turn lane (adding 1 left turn lane)

The improvements identified above are sufficient to meet the applicable level of service standard.

### **12. R Street / Olive Avenue**

For the 2030 Near Term scenario, no improvements were recommended at this intersection due to right-of-way constraints.

This intersection is expected to experience level of service E operating conditions in the AM peak hour and level of service F operating conditions in the PM peak hour in the 2042 Horizon Year scenario without Campus Parkway. Although improvements would be desirable to achieve level of service D or better conditions in the PM peak hour, right-of-way constraints existing on all four approaches to the intersection and improvements are not considered to be feasible.

### **13. M Street / Olive Avenue**

For the 2030 Near Term scenario, no improvements were recommended at this intersection due to right-of-way constraints.

This intersection is expected to experience level of service E operating conditions in the AM peak hour and level of service F operating conditions in the PM peak hour in the 2042 Horizon Year scenario without Campus Parkway. Although improvements would be desirable to achieve level of service D or better conditions in the PM peak hour, right-of-way constraints existing on all four approaches to the intersection and improvements are not considered to be feasible.

### **14. G Street / Olive Avenue**

For the 2030 Near Term scenario, no improvements were recommended at this intersection due to right-of-way constraints.

This intersection is expected to experience level of service F operating conditions in both the AM peak hour and PM peak hours in the 2042 Horizon Year scenario without Campus Parkway. Although improvements would be desirable to achieve level of service D or better conditions in the PM peak hour, right-of-way constraints existing on all four approaches to the intersection and improvements are not considered to be feasible.

### **15. Snelling Highway / 16<sup>th</sup> Street**

Improvements recommended for the 2030 Near Term scenario included the following:

- o Install Traffic Signal
- o Widen the southbound approach to 1 left turn lane and 1 right turn lane (adding 1 right turn lane)

Additional improvements recommended for the 2042 Horizon Year scenario include the following:

- o Widen the southbound approach to 1 left turn lane and 1 right turn lane (adding 1 right turn lane)

The improvements identified above are sufficient to meet the applicable level of service standard.

### **16. Martin Luther King Jr / SR 99 NB Ramps**

Improvements recommended for the 2030 Near Term scenario included the following:

- o Install Traffic Signal

This improvement is also sufficient to meet the applicable level of service standard for the 2042 Horizon Year scenario.

### **17. G Street / SR 99 NB Off-Ramp**

Improvements recommended for the 2030 Near Term scenario included the following:

- o Install Traffic Signal
- o Restripe eastbound approach to include 1 left turn lane and 1 right turn lane

This improvement is also sufficient to meet the applicable level of service standard for the 2042 Horizon Year scenario.

### **18. Campus Parkway / Yosemite Avenue**

No improvements are needed at this intersection in the 2030 Near Term scenario.

For the 2042 Horizon Year scenario, the capacity analysis indicates level of service F conditions in both the AM and PM peak hours. Although the target level of service is not expected to be met, widening beyond a two-lane roundabout is considered to be problematic. Instead,

monitoring is recommended to determine whether future traffic levels exceed the capacity of the roundabout. It is expected that traffic impact studies will be conducted for future development projects such as University Vista, the Hunt Property and any expansion of UC Merced beyond the current LRDP and that these traffic studies will provide an opportunity for continued monitoring of this intersection.

#### **19. Campus Parkway / Olive Avenue**

No improvements are needed at this intersection in the 2030 Near Term scenario.

For the 2042 Horizon Year scenario, the capacity analysis indicates level of service F conditions in the AM peak hour. Although the target level of service is not expected to be met, widening beyond a two-lane roundabout is considered to be problematic. Instead, monitoring is recommended to determine whether future traffic levels exceed the capacity of the roundabout.

#### **20. Campus Parkway / Connector Road**

No improvements are needed at this intersection in the 2030 Near Term scenario and none are needed in the 2042 Horizon Year scenario.

#### **21. SR 140 / Connector Road**

No improvements are needed at this intersection in the 2030 Near Term scenario and none are needed in the 2042 Horizon Year scenario.

#### **22. Campus Parkway / Childs Avenue**

No improvements are needed at this intersection in the 2030 Near Term scenario and none are needed in the 2042 Horizon Year scenario.

#### **23. Campus Parkway / Gerard Avenue**

No improvements are needed at this intersection in the 2030 Near Term scenario and none are needed in the 2042 Horizon Year scenario.

#### **24. Campus Parkway / Coffee Street**

No improvements are needed at this intersection in the 2030 Near Term scenario and none are needed in the 2042 Horizon Year scenario.

## **25. SR 99 NB Ramps / Campus Parkway**

No improvements are needed at this intersection in the 2030 Near Term scenario and none are needed in the 2042 Horizon Year scenario.

A project fair share calculation for 2042 Horizon Year conditions is shown in Table 4-4. Capacity analysis results with the recommended roadway improvements are shown in Table 4-5.

### **4.6 Roadway Segment Level of Service**

Figure 4-5 shows traffic levels and Table 4-3 shows the level of service for roadway segments considering the 2042 Horizon Year scenario. The table assumes that Bellevue Road will be widened to four lanes by 2042 and that Campus Parkway will be built to four lanes from its current terminus at Yosemite Avenue to Bellevue Road.

Bellevue Road is shown to operate at level of service C from Snelling Highway to G Street and level of service E from G Street to Lake Road with the assumed four-lane configuration. The intersection analysis described in Section 4.3 indicates that level of service D or better conditions can be achieved along Bellevue Road from Snelling Highway to Lake Road as long as the recommended improvements are made at the Bellevue Road intersections at Snelling Highway, G Street, and Lake Road. The more detailed intersection analysis is considered to supersede the results of the more general roadway segment analysis

Table 3-3a shows that level of service C conditions are expected along Lake Road with a two-lane configuration. It should be noted that traffic calming features are expected to be installed on Lake Road to discourage through traffic and encourage traffic to use Campus Parkway instead. Lake Road is expected to be terminated between Bellevue Road and Meyers Gate Road when Campus Parkway is connected to Bellevue Road. Level of service C conditions are also expected along Campus Parkway with a four-lane configuration between Yosemite Avenue and Bellevue Road. As noted in Section 4.5, the potential for future traffic congestion has been identified at the intersection of Campus Parkway and Yosemite Avenue.

### **4.7 Internal Intersections**

VRPA evaluated seven (7) internal roadway intersection configurations considering the external/internal vehicular trips associated with the Project. The proposed roadway configurations are the same as those recommended for the 2030 Near Term scenario and they are repeated here for reference. They will achieve acceptable levels of service.

#### **A. Lake Road / Meyers Gate Road**

o Traffic Control: Traffic Signal



- o Northbound approach: 1 left turn lane and 1 through lane with a shared right
- o Southbound approach: 1 left turn lane and 1 through lane with a shared right
- o Eastbound approach: 1 left turn lane and 1 through lane with a shared right
- o Westbound approach: 1 left turn lane and 1 through lane with a shared right

The roadway configuration identified above is sufficient to meet the applicable level of service standard.

#### **B. Campus Parkway / Meyers Gate Road**

- o Traffic Control: Two-Lane Roundabout

The roadway configuration identified above is sufficient to meet the applicable level of service standard.

#### **C. Lake Road / Virginia Smith Parkway**

- o Traffic Control: Traffic Signal
- o Northbound approach: 1 left turn lane and 1 through lane with a shared right
- o Southbound approach: 1 left turn lane and 1 through lane with a shared right
- o Eastbound approach: 1 left turn lane and 1 through lane with a shared right
- o Westbound approach: 1 left turn lane and 1 through lane with a shared right

The roadway configuration identified above is sufficient to meet the applicable level of service standard.

#### **D. Campus Parkway / Virginia Smith Parkway**

- o Traffic Control: Two-Lane Roundabout

The roadway configuration identified above is sufficient to meet the applicable level of service standard.

#### **E. Virginia Smith Parkway / Golden Bobcat Drive**

- o Traffic Control: Two-Way Stop (North-South Street #2)
- o Northbound approach: 1 left turn lane and 1 through lane with a shared right
- o Southbound approach: 1 left turn lane and 1 through lane with a shared right
- o Eastbound approach: 1 left turn lane and 1 through lane with a shared right
- o Westbound approach: 1 left turn lane and 1 through lane with a shared right

The roadway configuration identified above is sufficient to meet the applicable level of service standard.

#### **F. Virginia Smith Parkway / Main Street**

o Traffic Control: Single Lane Roundabout

The roadway configuration identified above is sufficient to meet the applicable level of service standard.

#### **G. Virginia Smith Parkway / Fourth Street**

- o Traffic Control: Two-Way Stop (North-South Street #4)
- o Northbound approach: 1 left turn lane and 1 through lane with a shared right
- o Southbound approach: 1 left turn lane and 1 through lane with a shared right
- o Eastbound approach: 1 left turn lane and 1 through lane with a shared right
- o Westbound approach: 1 left turn lane and 1 through lane with a shared right

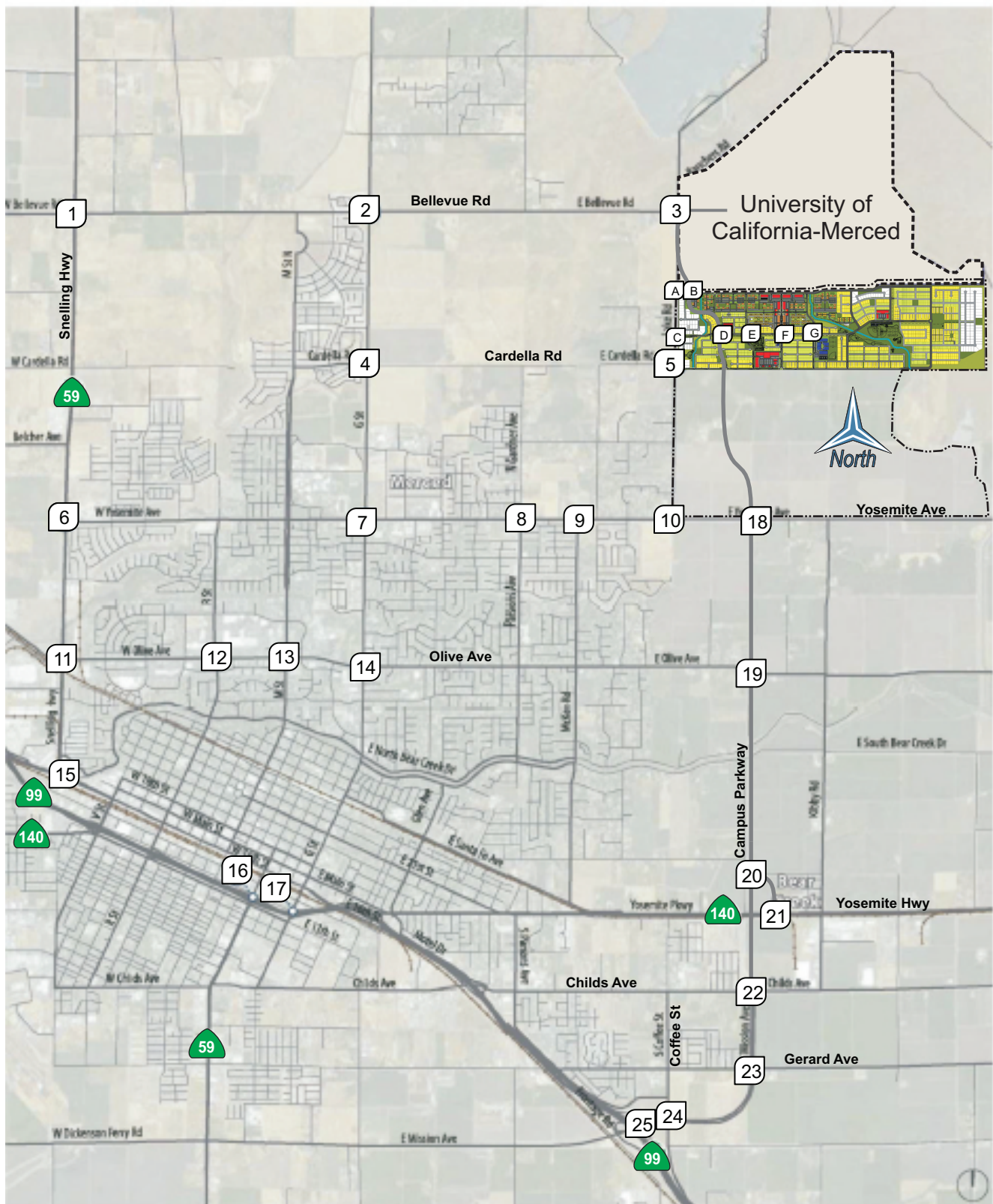
The roadway configuration identified above is sufficient to meet the applicable level of service standard.

### **4.8 Meyers Gate Road/Lake Road/Campus Parkway Queueing Analysis**

Due to the relatively close intersection spacing planned for Meyers Gate Road/Lake Road and Meyers Gate Road/Campus Parkway, a queueing analysis was conducted for 2042 Horizon Year conditions. Queueing lengths were determined using rate of one foot of vehicle storage per vehicle per hour per lane. The results are shown in Table 4-6. Based on the results, there is the potential for queues in the eastbound direction approaching Meyers Gate Road/Campus Parkway to extend into the Meyers Gate Road/Lake Road intersection in the AM and PM peak hours. Monitoring of this situation is recommended. If undesirable queues develop in the future, they could be alleviated through the installation of a two-lane eastbound approach to the Meyers Gate Road/Campus Parkway intersection. The results indicate that there is no queueing potential in the westbound direction along Meyers Gate Road.

# VST Specific Plan 2042 Horizon Year Traffic Analysis Study Area

Figure  
4-1



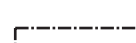
**LEGEND**



Project Site



Study Intersection



University  
Community  
Plan Area



Existing or  
Planned Roadway

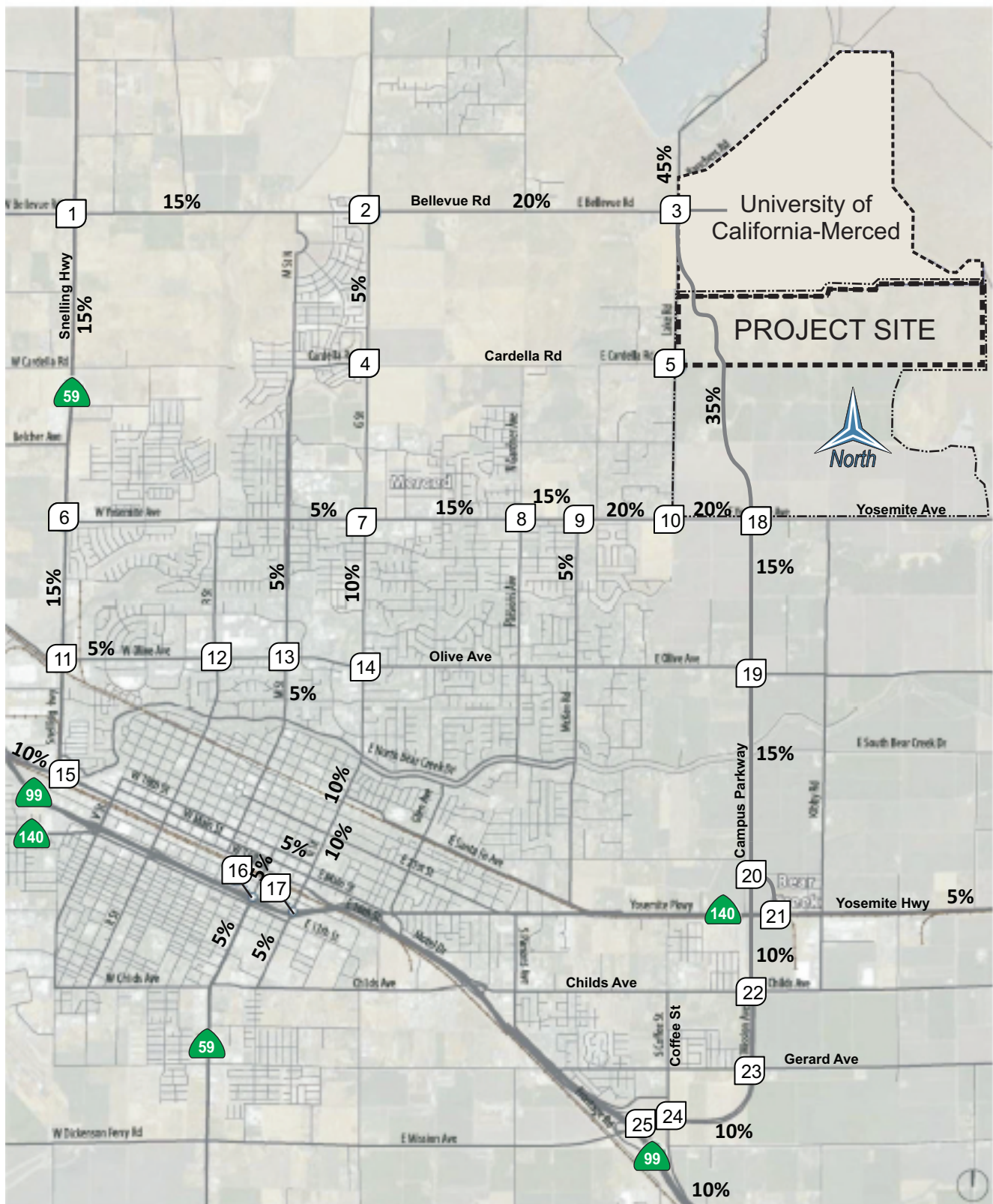
XX% Trip Distribution





# VST Specific Plan 2042 Horizon Year Trip Distribution

Figure  
4-2



**LEGEND**



Project Site



Study Intersection



University  
Community  
Plan Area



Existing or  
Planned Roadway



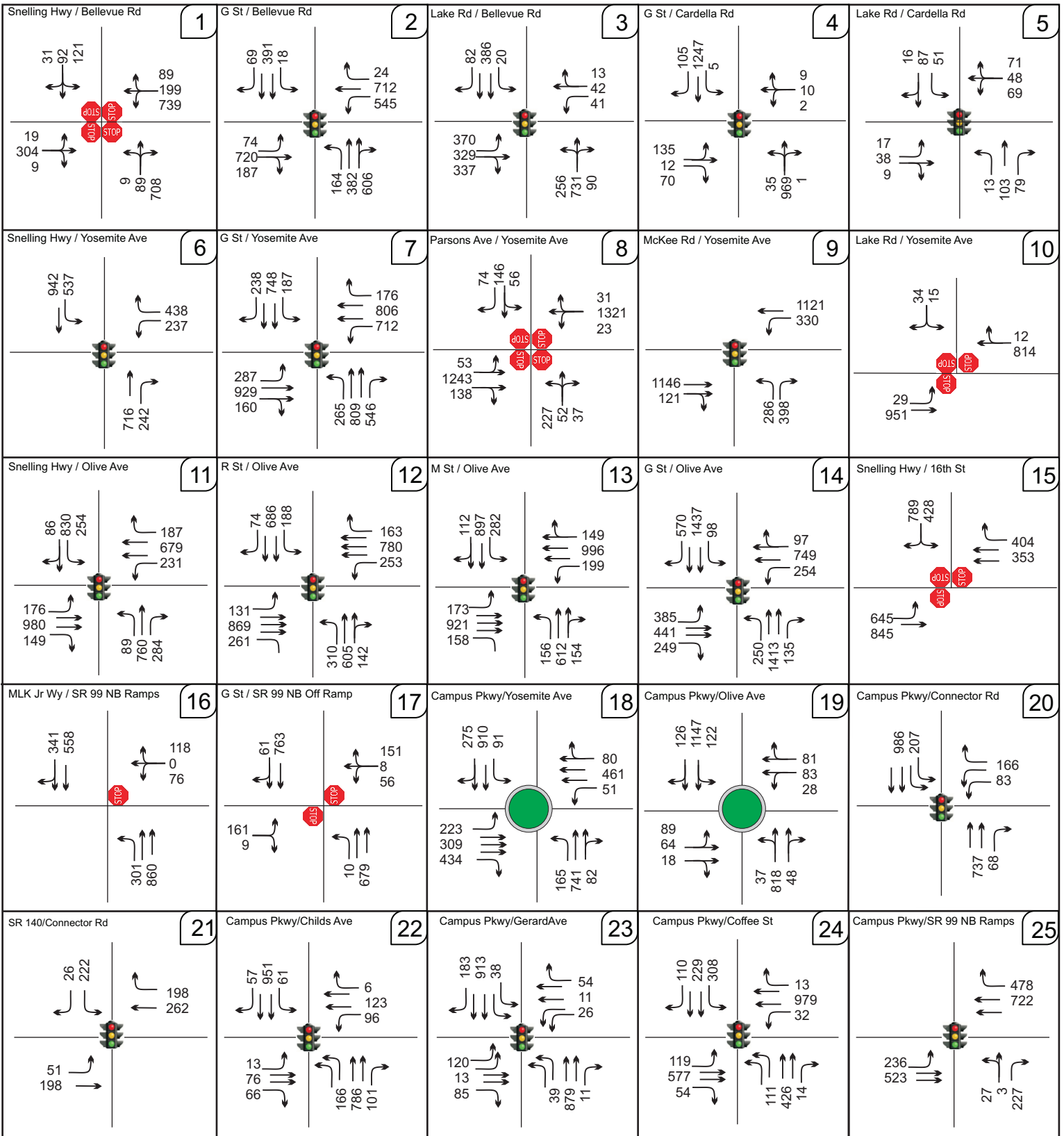
XX% Trip Distribution



# VST Specific Plan

## Horizon Year (2042) Traffic With Project- AM Peak Hour

Figure 4-3a



### LEGEND

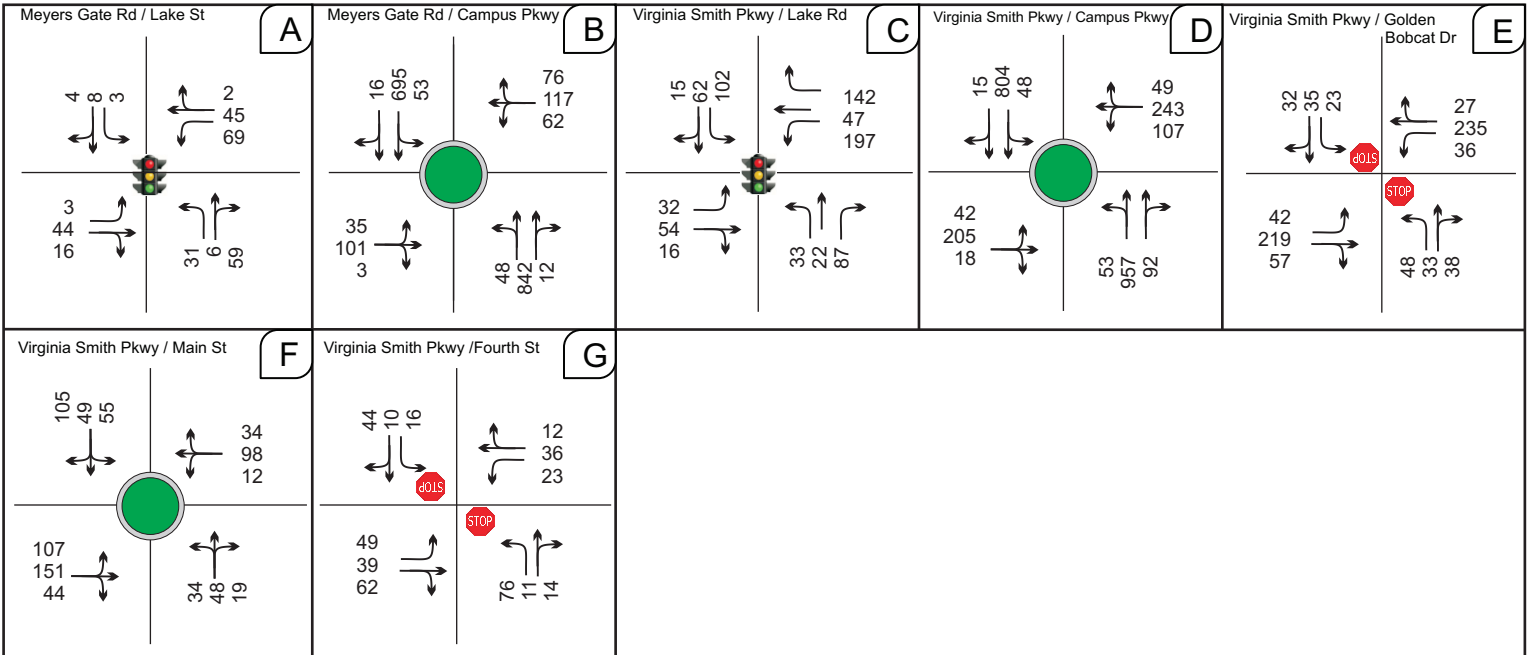
- # Study Intersections
- Traffic Signal
- Lane Geometry
- Stop Sign



# VST Specific Plan

## Horizon Year (2042) Traffic With Project - AM Peak Hour

Figure 4-3b



**LEGEND**

- # Study Intersections
- Traffic Signal
- Lane Geometry
- Stop Sign

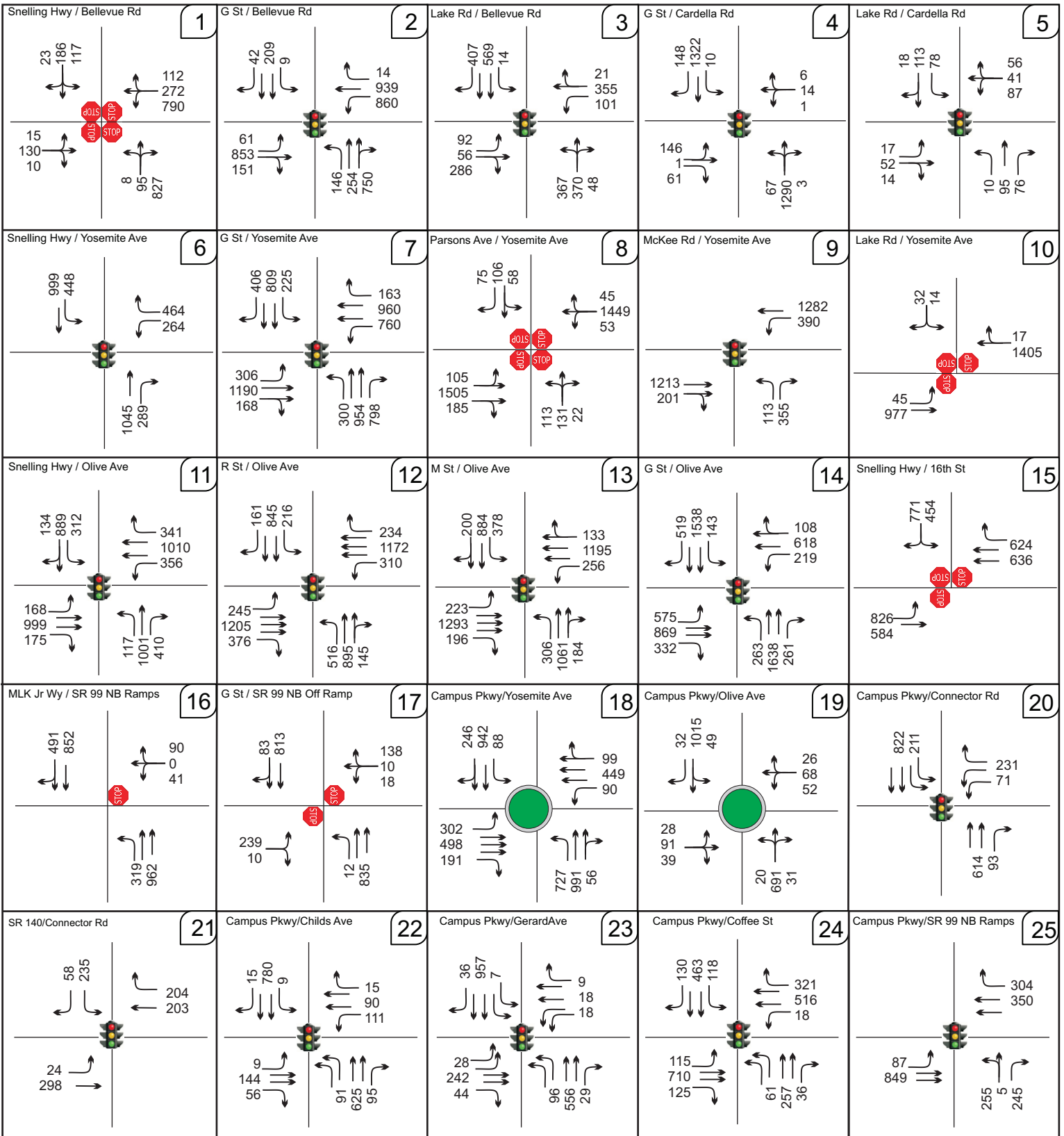




# VST Specific Plan

## Horizon Year (2042) Traffic With Project - PM Peak Hour

Figure 4-4a



### LEGEND

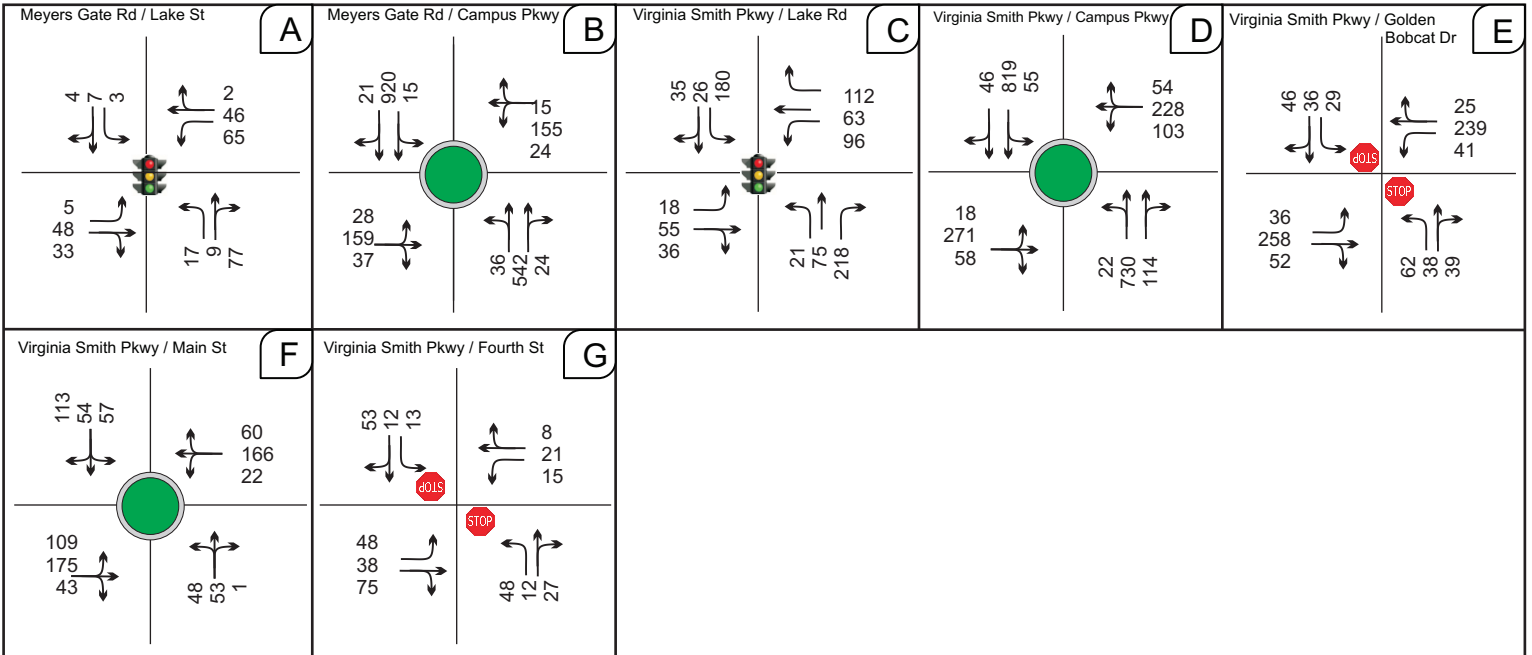
- # Study Intersections
- Traffic Signal
- Lane Geometry
- Stop Sign



# VST Specific Plan

## Horizon Year (2042) Traffic With Project - PM Peak Hour

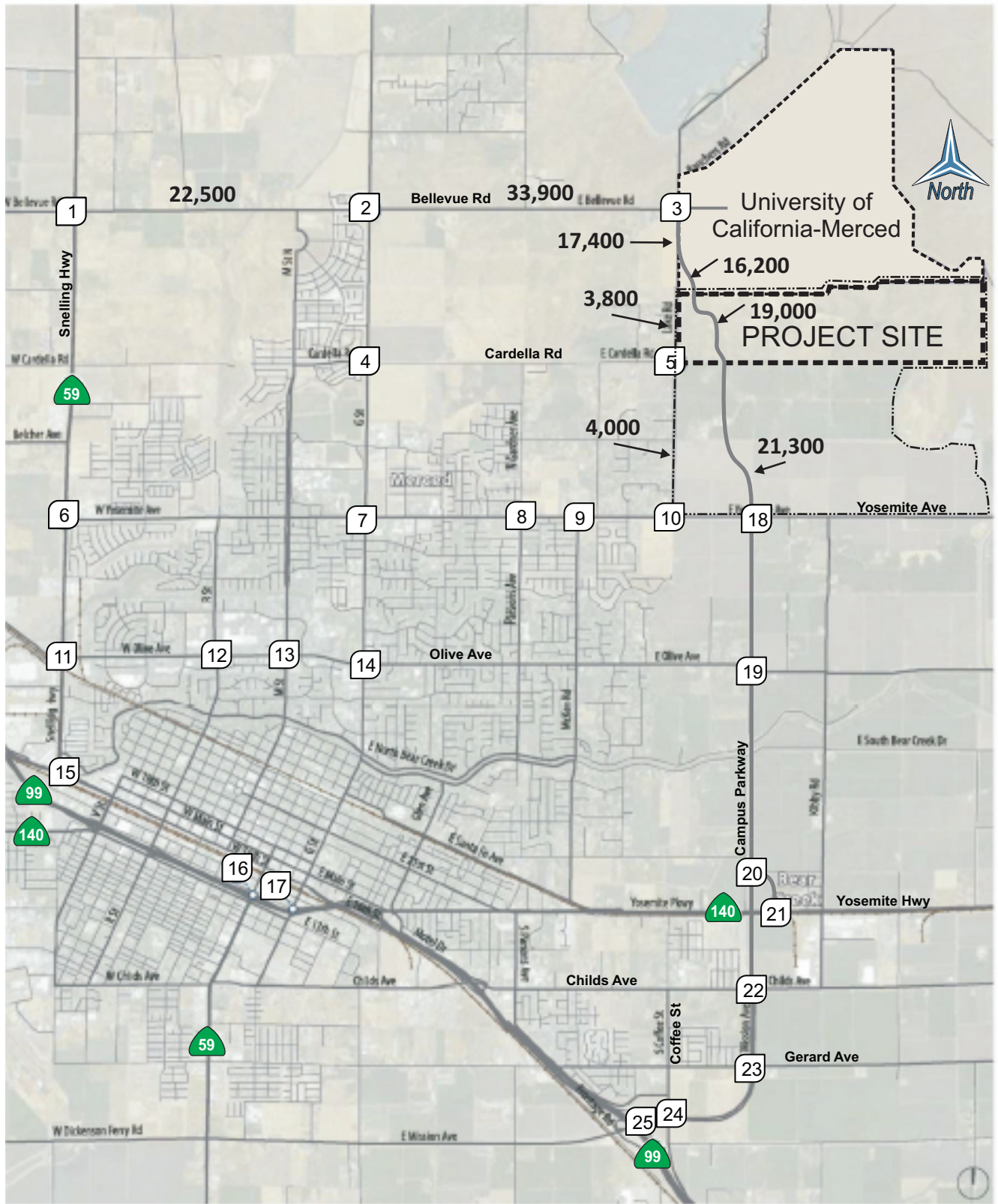
Figure 4-4b

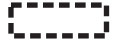





**LEGEND**

- # Study Intersections
- Traffic Signal
- Lane Geometry
- Stop Sign





LEGEND					
	Project Site		Study Intersection		University Community Plan Area
	Existing or Planned Roadway	X,XXX	Average Daily Traffic		



**TABLE 4-1  
Project Trip Generation - Buildout**

LAND USE	Quantity	DAILY TRIP ENDS		WEEKDAY AM PEAK HOUR					WEEKDAY PM PEAK HOUR				
		RATE	VOLUME	RATE	IN:OUT SPLIT	VOLUME			RATE	IN:OUT SPLIT	VOLUME		
						IN	OUT	TOTAL			IN	OUT	TOTAL
R-1 Residential (220)	1,298 D.U.	7.32	9,502	0.42	23:77	125	420	545	0.45	63:37	365	214	579
R-4 Student Residential (225)	894 D.U.	4.12	3,684	0.17	28:72	43	109	152	0.31	52:48	145	133	278
R-2, R-3, & R-4 Market (220)	1,617 D.U.	7.32	11,837	0.42	23:77	155	517	672	0.44	63:37	444	260	704
Town Center Mixed Use (231)	108 D.U.	3.44	372	0.30	28:72	9	23	32	0.36	70:30	27	12	39
Retail Mixed (875)	307,500 s.f	22.88	7,036	0.58	64:36	114	64	178	1.95	50:50	300	300	600
NC/Retail and Community Commercial (875)	279,500 s.f	22.88	6,395	0.58	64:36	104	59	163	1.95	50:50	273	273	546
Hotel/Office (710)	275,000 s.f	9.74	2,679	1.16	86:14	274	45	319	1.08	16:84	48	250	298
Elementary School (520)	600 Students	1.89	1,134	0.67	54:46	217	185	402	0.17	48:52	49	53	102
Parks (411)	67.74 acres	1.95	132	0.02	59:41	1	1	2	0.40	55:45	15	12	27
<b>SUBTOTAL TRIP GENERATION</b>			<b>42,771</b>			<b>1,042</b>	<b>1,423</b>	<b>2,465</b>			<b>1,666</b>	<b>1,507</b>	<b>3173</b>
<b>Internal Trips (NCHRP Internal Trip Capture Estimation Tool) <sup>1</sup></b>			<b>11,498</b>			<b>350</b>	<b>318</b>	<b>668</b>			<b>426</b>	<b>427</b>	<b>853</b>
<b>Internal Bike Trips (20%)</b>			<b>2,300</b>			<b>70</b>	<b>64</b>	<b>134</b>			<b>85</b>	<b>85</b>	<b>171</b>
<b>Internal Pedestrian Trips (10%)</b>			<b>1,150</b>			<b>35</b>	<b>32</b>	<b>67</b>			<b>43</b>	<b>43</b>	<b>85</b>
<b>Internal Vehicle Trips (70%)</b>			<b>8,049</b>			<b>245</b>	<b>223</b>	<b>468</b>			<b>298</b>	<b>299</b>	<b>597</b>
<b>Bike Trips (20%)</b>			<b>6,255</b>			<b>138</b>	<b>221</b>	<b>359</b>			<b>248</b>	<b>216</b>	<b>464</b>
<b>Pedestrian Trips (10%)</b>			<b>3,127</b>			<b>69</b>	<b>111</b>	<b>180</b>			<b>124</b>	<b>108</b>	<b>232</b>
<b>Transit Trips (5%)</b>			<b>1,564</b>			<b>35</b>	<b>55</b>	<b>90</b>			<b>62</b>	<b>54</b>	<b>116</b>
<b>TOTAL EXTERNAL VEHICLE TRIP GENERATION</b>			<b>20,327</b>			<b>450</b>	<b>718</b>	<b>1,168</b>			<b>806</b>	<b>702</b>	<b>1,508</b>
<b>Pass-By Trips (5%)</b>			<b>1,016</b>			<b>22</b>	<b>36</b>	<b>58</b>			<b>40</b>	<b>35</b>	<b>75</b>
<b>TOTAL EXTERNAL TRIP GENERATION</b>			<b>19,311</b>			<b>428</b>	<b>682</b>	<b>1,110</b>			<b>766</b>	<b>667</b>	<b>1,433</b>

Source: Generation factors from ITE Trip Generation Manual, 10th Edition.

Trip ends are one-way traffic movements, entering or leaving.

The numbers in parenthesis are ITE land use codes.

1. Daily internal trip capture rate basued upon PM peak results from the NCHRP Internal Trip Capture Estimation Tool. 90% of trips associated with the elementary school were assumed to be internal trips since the school will serve residents of the VST site. 100% of Park trips are internal trips.

**Table 4-2**  
**2042 Horizon Year Intersection Operations**

INTERSECTION	CONTROL	TARGET LOS	PEAK HOUR	HORIZON YEAR WITH PROJECT	
				DELAY	LOS
1. Snelling Highway / Bellevue Road	All-Way Stop Sign	C	AM	>50	F
			PM	>50	F
2. G Street / Bellevue Road	Signalized	D	AM	>80	F
			PM	>80	F
3. Lake Road / Bellevue Road	Signalized	D	AM	>80	F
			PM	>80	F
4. G Street / Cardella Road	Signalized	D	AM	55.4	E
			PM	>80	F
5. Lake Road / Cardella Road	One-Way Stop Sign	D	AM	5.7	A
			PM	5.8	A
6. Snelling Highway / Yosemite Avenue	Signalized	C	AM	>80	F
			PM	>80	F
7. G Street / Yosemite Avenue	Signalized	D	AM	>80	F
			PM	>80	F
8. Gardner Avenue / Yosemite Avenue	All-Way Stop Sign	D	AM	>50	F
			PM	>50	F
9. McKee Road / Yosemite Avenue	Signalized	D	AM	>80	F
			PM	>80	F
10. Lake Road / Yosemite Avenue	All-Way Stop Sign	D	AM	>50	F
			PM	>50	F
11. Snelling Highway / Olive Avenue	Signalized	C	AM	>80	F
			PM	>80	F
12. R Street / Olive Avenue	Signalized	D	AM	64.0	E
			PM	>80	F
13. M Street / Olive Avenue	Signalized	D	AM	57.9	E
			PM	>80	F
14. G Street / Olive Avenue	Signalized	D	AM	>80	F
			PM	>80	F
15. Snelling Highway / 16th Street	All-Way Stop Sign	C	AM	>50	F
			PM	>50	F
16. Martin Luther King Jr / SR 99 NB Ramps	One-Way Stop Sign	C	AM	>50	F
			PM	>50	F
17. G Street / SR 99 NB Off-Ramp	Two-Way Stop Sign	C	AM	>50	F
			PM	>50	F
18. Campus Pkwy/ Yosemite Avenue	Roundabout	D	AM	>50	F
			PM	>50	F
19. Campus Pkwy/ Olive Avenue	Roundabout	D	AM	>50	F
			PM	29.1	D
20. Campus Parkway / Connector Road	Signalized	D	AM	10.3	B
			PM	9.9	A
21. SR 140 / Connector Road	Signalized	D	AM	17.3	B
			PM	15.8	B
22. Campus Parkway / Childs Avenue	Signalized	D	AM	23.7	C
			PM	21.6	C
23. Campus Parkway / Gerard Avenue	Signalized	D	AM	20.3	C
			PM	20.2	C
24. Campus Parkway / Coffee Street	All-Way Stop Sign	C	AM	40.8	D
			PM	34.7	C
25. Sr 99 NB Ramps / Campus Parkway	Signalized	D	AM	35.3	D
			PM	36.6	D

DELAY is measured in seconds

N/A = Intersection was under construction but not yet open to traffic in this scenario

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded

For signalized and all way stop controlled intersections, delay results show the average for the entire intersection. For one-way and two-way stop controlled intersections, delay results show the delay for the worst movement.

**Table 4-2 (cont.)**  
**2042 Horizon Year Intersection Operations**

INTERSECTION	CONTROL	TARGET LOS	PEAK HOUR	HORIZON YEAR WITH PROJECT	
				DELAY	LOS
A. Meyers Gate Road / Lake Street	Signalized	D	AM	14.0	B
			PM	13.8	B
B. Meyers Gate Road / Campus Parkway	Roundabout	D	AM	18.0	C
			PM	20.4	C
C. Virginia Smith Parkway / Lake Road	Signalized	D	AM	15.3	B
			PM	17.6	B
D. Virginia Smith Parkway / Campus Parkway	Roundabout	D	AM	<b>50.0</b>	<b>E</b>
			PM	19.9	C
E. Virginia Smith Parkway / Golden Bobcat	Two-Way Stop Controlled	D	AM	18.7	C
			PM	22.0	C
F. Virginia Smith Parkway / Main Street	Roundabout	D	AM	5.2	A
			PM	5.9	A
G. Virginia Smith Parkway /Fourth Street	Two-Way Stop Controlled	D	AM	12.4	B
			PM	11.2	B

DELAY is measured in seconds

N/A = Intersection was under construction but not yet open to traffic in this scenario

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded

For signalized and all way stop controlled intersections, delay results show the average for the entire intersection. For one-way and two-way stop controlled intersections, delay results show the delay for the worst movement.



**Table 4-3**

**2042 Horizon Year Roadway Segment Analysis**

ROADWAY	LIMITS	NUMBER OF LANES (PLANNED)	CLASSIFICATION	AVERAGE DAILY TRAFFIC	LEVEL OF SERVICE <sup>1</sup>
Bellevue Road	Snelling Hwy to G St	4	Major Arterial	22,500	C
	G St to Lake Road	4	Major Arterial	33,900	E
Lake Road	Bellevue Road to Meyers Gate Road	2	Rural Collector	N/A <sup>2</sup>	N/A <sup>2</sup>
	Meyers Gate Road to Cardella Road	2	Rural Collector	3,800	C
	Cardella Road to Yosemite Ave	2	Rural Collector	4,000	C
Campus Parkway	Bellevue Road to Meyers Gate Road	4	County Expressway	16,200	C
	Meyers Gate Road to Cardella Road	4	County Expressway	19,000	C
	Cardella Road to Yosemite Ave	4	County Expressway	21,300	C

1. Roadway segment level of service provides an approximate level of service for planning purposes

For detailed analysis and improvement recommendations, see intersection analysis.

2. Roadway segment does not exist in this scenario.

**Table 4-4**  
**Project Fair Share Calculation - 2042 PM Peak Hour Traffic**

INTERSECTION	TOTAL TRAFFIC	EXISTING TRAFFIC	TRAFFIC INCREASE	PROJECT TRAFFIC	PROJECT FAIR SHARE (% OF TRAFFIC GROWTH)
1. Snelling Highway / Bellevue Road	2585	968	1617	215	13.3%
2. G Street / Bellevue Road	4288	1387	2901	287	9.9%
3. Lake Road / Bellevue Road	2686	1125	1561	932	59.7%
4. G Street / Cardella Road	3069	1180	1889	72	3.8%
5. Lake Road / Cardella Road	657	646	11	0	0.0%
6. Snelling Highway / Yosemite Avenue	3509	1558	1951	215	11.0%
7. G Street / Yosemite Avenue	7069	2981	4088	215	5.3%
8. Gardner Avenue / Yosemite Avenue	3847	1249	2598	215	8.3%
9. McKee Road / Yosemite Avenue	3554	1012	2542	287	11.3%
10. Lake Road / Yosemite Avenue	2490	806	1684	287	17.0%
11. Snelling Highway / Olive Avenue	5912	3256	2656	215	8.1%
12. R Street / Olive Avenue	6320	4160	2160	72	3.3%
13. M Street / Olive Avenue	6309	4002	2307	72	3.1%
14. G Street / Olive Avenue	7083	4033	3050	143	4.7%
15. Snelling Highway / 16th Street	3895	2427	1468	143	9.8%
16. Martin Luther King Jr / SR 99 NB Ramps	2755	1596	1159	72	6.2%
17. G Street / SR 99 NB Off-Ramp	2158	1132	1026	72	7.0%
18. Campus Pkwy/ Yosemite Avenue	4679	0	4679	501	10.7%
19. G Street / Olive Avenue	2142	0	2142	214	10.0%
20. Campus Parkway / Connector Road	2042	97	1945	234	12.0%
21. SR 140 / Connector Road	1022	605	417	68	16.2%
22. Campus Parkway / Childs Avenue	2040	554	1486	167	11.2%
23. Campus Parkway / Gerard Avenue	2040	452	1588	167	10.5%
24. Campus Parkway / Coffee Street	2870	670	2200	167	7.6%
25. Sr 99 NB Ramps / Campus Parkway	2095	746	1349	167	12.3%
A. Meyers Gate Road / Lake Street	316	0	316	0	0.0%
B. Meyers Gate Road / Campus Parkway	1976	0	1976	919	46.5%
C. Virginia Smith Parkway / Lake Road	935	0	935	0	0.0%
D. Virginia Smith Parkway / Campus Parkway	2518	0	2518	1674	66.5%
E. Virginia Smith Parkway / Golden Bobcat	901	0	901	901	100.0%
F. Virginia Smith Parkway / Center Street	901	0	901	901	100.0%
G. Virginia Smith Parkway /Kibby Road	370	0	370	370	100.0%

**Table 4-5**  
**2042 Horizon Year Intersection Operations**  
**With Recommended Improvements**

INTERSECTION	CONTROL	TARGET LOS	PEAK HOUR	HORIZON YEAR 2042 WITH PROJECT WITH RECOMMENDED IMPROVEMENTS	
				DELAY	LOS
1. Snelling Highway / Bellevue Road	Signalized	C	AM	32.4	C
			PM	22.6	C
2. G Street / Bellevue Road	Signalized	D	AM	42.4	D
			PM	51.2	D
3. Lake Road / Bellevue Road	Signalized	D	AM	22.9	C
			PM	25	C
4. G Street / Cardella Road	Signalized	D	AM	15.7	B
			PM	15.7	B
5. Lake Road / Cardella Road	Signalized	D	AM	5.7	A
			PM	5.8	A
6. Snelling Highway / Yosemite Avenue	Signalized	C	AM	22.7	C
			PM	25.4	C
7. G Street / Yosemite Avenue	Signalized	D	AM	<b>64.4</b>	<b>E</b>
			PM	<b>&gt;80</b>	<b>F</b>
8. Gardner Avenue / Yosemite Avenue	Signalized	D	AM	17.9	B
			PM	15	B
9. McKee Road / Yosemite Avenue	Signalized	D	AM	31.7	C
			PM	30.9	C
10. Lake Road / Yosemite Avenue	Signalized	D	AM	5.6	A
			PM	5.1	A
11. Snelling Highway / Olive Avenue	Signalized	C	AM	53.6	D
			PM	<b>61.9</b>	<b>E</b>
12. R Street / Olive Avenue	Signalized	D	AM	<b>63.1</b>	<b>E</b>
			PM	<b>&gt;80</b>	<b>F</b>
13. M Street / Olive Avenue	Signalized	D	AM	<b>57.5</b>	<b>E</b>
			PM	<b>&gt;80</b>	<b>F</b>
14. G Street / Olive Avenue	Signalized	D	AM	<b>&gt;80</b>	<b>F</b>
			PM	<b>&gt;80</b>	<b>F</b>
15. Snelling Highway / 16th Street	Signalized	C	AM	7.8	A
			PM	15.8	B
16. Martin Luther King Jr / SR 99 NB Ramps	One-Way Stop Sign	C	AM	18.4	B
			PM	22.5	C
17. G Street / SR 99 NB Off-Ramp	Two-Way Stop Sign	C	AM	9.3	A
			PM	10.8	A
18. Campus Pkwy/ Yosemite Avenue	Roundabout	D	AM	<b>&gt;50</b>	<b>F</b>
			PM	<b>&gt;50</b>	<b>F</b>
19. Campus Pkwy/ Olive Avenue	Roundabout	D	AM	<b>&gt;50</b>	<b>F</b>
			PM	29.1	D
20. Campus Parkway / Connector Road	Signalized	D	AM	10.3	B
			PM	9.9	A
21. SR 140 / Connector Road	Signalized	D	AM	17.3	B
			PM	16	B
22. Campus Parkway / Childs Avenue	Signalized	D	AM	23.7	C
			PM	21.3	C
23. Campus Parkway / Gerard Avenue	Signalized	D	AM	45.8	A
			PM	20.2	C
24. Campus Parkway / Coffee Street	Signalized	C	AM	38.9	D
			PM	32.9	C
25. SR 99 NB Ramps / Campus Parkway	Signalized	D	AM	35.1	D
			PM	36.9	D

DELAY is measured in seconds

N/A = Intersection was under construction but not yet open to traffic in this scenario

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded

For signalized and all way stop controlled intersections, delay results show the average for the entire intersection. For one-way and two-way stop controlled intersections, delay results show the delay for the worst movement.

**Table 4-5 (cont.)**  
**2042 Horizon Year Intersection Operations**  
**With Recommended Improvements**

INTERSECTION	CONTROL	TARGET LOS	PEAK HOUR	HORIZON YEAR 2042 WITH PROJECT WITH RECOMMENDED IMPROVEMENTS	
				DELAY	LOS
A. Meyers Gate Road / Lake Street	Signalized	D	AM	14	B
			PM	13.8	B
B. Meyers Gate Road / Campus Parkway	Roundabout	D	AM	19.6	C
			PM	10.7	B
C. Virginia Smith Parkway / Lake Road	Signalized	D	AM	15.5	B
			PM	17.6	B
D. Virginia Smith Parkway / Campus Parkway	Roundabout	D	AM	16.5	C
			PM	13.4	B
E. Virginia Smith Parkway / Golden Bobcat Avenue	Two-Way Stop Controlled	D	AM	18.7	C
			PM	22	C
F. Virginia Smith Parkway / Main Street	Roundabout	D	AM	5.2	A
			PM	5.9	A
G. Virginia Smith Parkway /Fourth Street	Two-Way Stop Controlled	D	AM	12.4	B
			PM	11.2	B

DELAY is measured in seconds

N/A = Intersection was under construction but not yet open to traffic in this scenario

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded

For signalized and all way stop controlled intersections, delay results show the average for the entire intersection. For one-way and two-way stop controlled intersections, delay results show the delay for the worst movement.

**Table 4-6**

**2042 Queuing Analysis - Meyers Gate Road, Lake Road to Campus Parkway**

INTERSECTION	RECOMMENDED QUEUE STORAGE LENGTH (ft)		AVAILABLE STORAGE LENGTH (ft)
Meyers Gate Road/Lake Road (AM)	WB Left	75	120
Meyers Gate Road/Lake Road (AM)	WB Through/Right	50	120
Meyers Gate Road/Campus Parkway (AM)	EB Left/Through/Right	150	120
Meyers Gate Road/Lake Road (PM)	WB Left	75	120
Meyers Gate Road/Lake Road (PM)	WB Through/Right	50	120
Meyers Gate Road/Lake Road (PM)	EB Left/Through/Right	225	120

# DRAFT

Virginia Smith Charitable Trust (VST)

Transportation Impact Study - Appendix

February 22, 2022

**Prepared by:**

VRPA Technologies, Inc.  
4630 W. Jennifer, Suite 105  
Fresno, CA 93722





## APPENDIX A

### Traffic Impact Study Assumptions/Methodology Memo

June 16, 2020

Mr. Steve Maxey, Deputy Director  
County of Merced Planning & Community Development Department  
2222 M Street  
Merced CA 95340

**Re: Traffic Impact Study Assumptions/Methodology for the Virginia Smith Trust Property Planning Project**

Dear Mr. Maxey:

VRPA Technologies, Inc. (VRPA) has prepared the following Traffic Impact Study/Methodology, which includes trip generation and trip distribution for the Virginia Smith Trust (VST) Property Project (“Project”). The Project location along with proposed study area intersections are provided in Figure 1, 2, and 3. Figure 3 includes the proposed study intersections to be evaluated in the traffic analysis and is consistent with the study intersections included in the UC Merced 2020 LRDP Transportation Impact Analysis, as well as the traffic impact analysis prepared for the 2005 University Community Plan EIR and associated traffic impact study. This scoping document is intended to be used by all appropriate reviewing agencies in approving a final scope of work for the required Project traffic analysis.

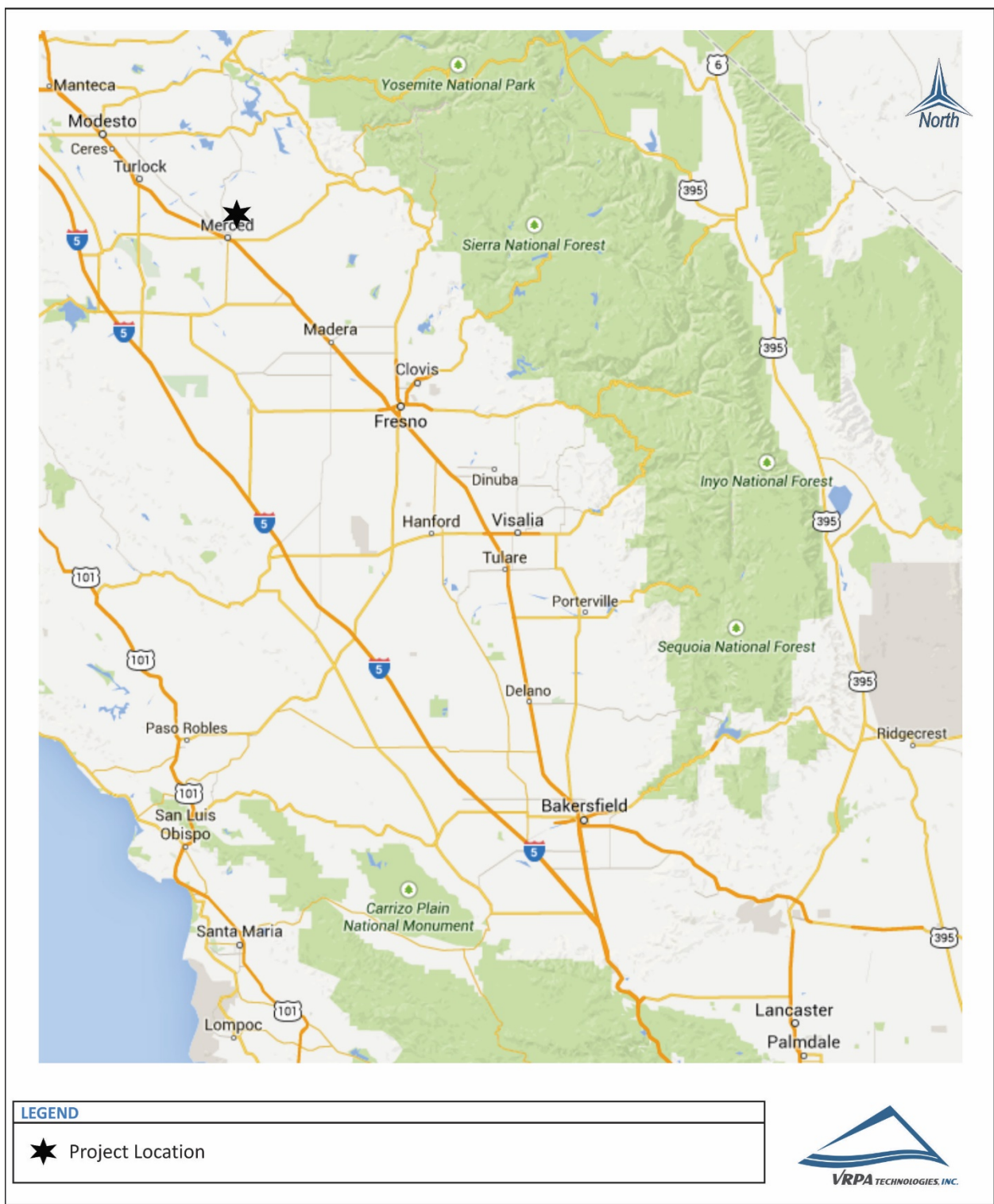
The trip generation and trip distribution estimates are broken down into Phase 1 totals and Project totals. Phase 1 estimates represent the land uses and areas that are covered by the “project-level” entitlements, including the tentative map. The Phase 1 totals and estimates will be used to inform the level of improvements and offsite mitigations that are associated with the Project. The Total Project impacts are considered more programmatic and will require some form of additional analysis and monitoring to confirm the level of the actual traffic generation and impacts.

### **TRIP GENERATION METHODOLOGY**

To assess the impacts that the Project may have on the surrounding roadway network, the first step is to determine Project trip generation. Project trip generation was determined using trip generation rates from the Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition), the ITE Trip Generation Handbook (3rd Edition), and engineering judgement. The analysis of trip generation also considered the trip generation analysis contained in the 2005 University Community Plan EIR and associated traffic impact analysis. This analysis also considered the likely number of “internal” trips based on the diversity of land uses, and guidance from the Transportation Research Board’s National Cooperative Highway Research Program (NCHRP) Report 684: “Enhancing Internal Trip Capture Estimation for Mixed-Use Developments”, and the likely mode split for internal and external trips based on the proximity of to major trip ends such as shopping and work. Based on this methodology, presented in Tables 1 and 2, there are 9,660 internal trips associated with Phase 1, and 11,498 internal trips associated with Phase 2. The fraction of total trips that are internally captured (29%) is similar to those estimated in the Table 4.14-5 for the UCP project in the UCP EIR (32%).

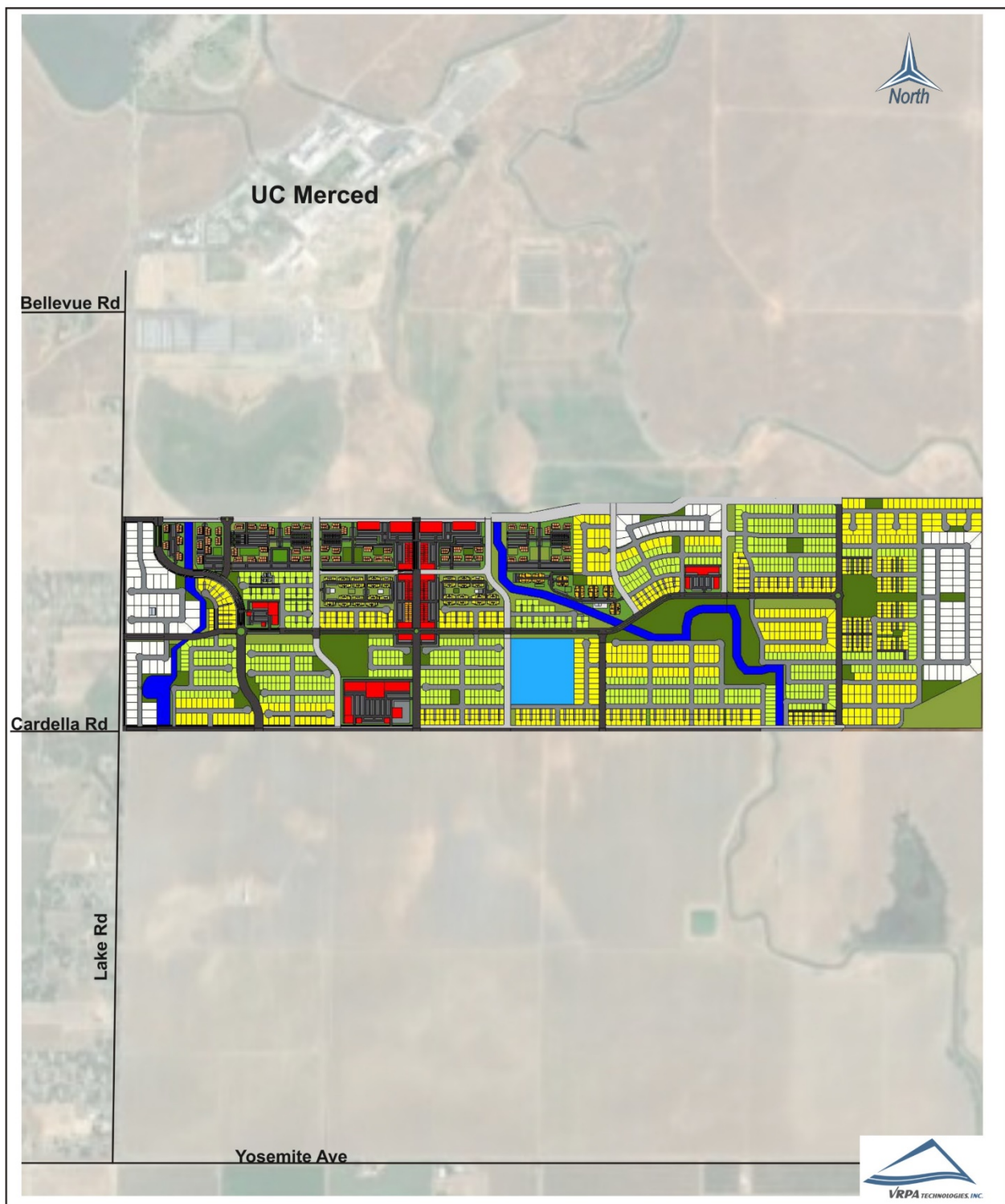
### VST Specific Plan Regional Location

Figure  
1



**VST Specific Plan  
Project Site Layout**

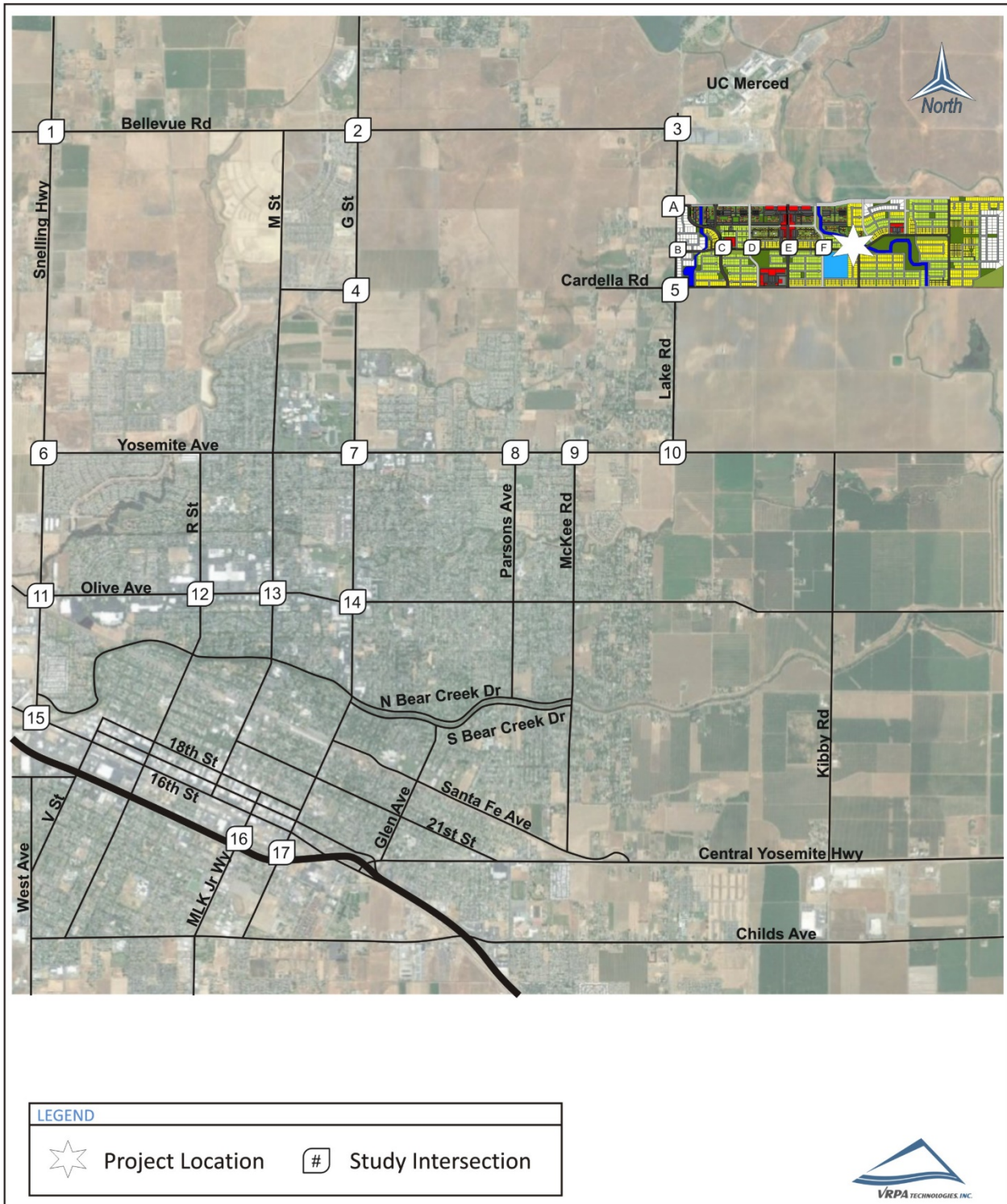
**Figure  
2**





### VST Specific Plan Study Area Intersections

Figure  
3



**Table 1**  
**Phase 1 Project Trip Generation**

LAND USE	Quantity	DAILY TRIP ENDS		(ADT)	WEEKDAY AM PEAK HOUR				WEEKDAY PM PEAK HOUR				
		RATE	VOLUME	RATE	IN:OUT SPLIT	VOLUME			RATE	IN:OUT SPLIT	VOLUME		
						IN	OUT	TOTAL			IN	OUT	TOTAL
R-1 Residential (220)	674 D.U.	7.32	4,934	0.43	23:77	67	225	292	0.48	63:37	203	120	323
R-4 Student Residential (225)	692 D.U.	4.12	2,851	0.17	28:72	33	85	118	0.31	52:48	112	103	215
R-2, R-3, & R-4 Market (220)	1,085 D.U.	7.32	7,942	0.43	23:77	106	354	460	0.45	63:37	311	182	493
Town Center Mixed Use (231)	108 D.U.	3.44	372	0.30	28:72	9	23	32	0.36	70:30	27	12	39
Retail Mixed (875)	307,500 s.f	22.88	7,036	0.58	64:36	114	64	178	1.95	50:50	300	300	600
NC/Retail and Community Commercial (875)	225,000 s.f	22.88	5,148	0.58	64:36	84	47	131	1.95	50:50	219	220	439
Hotel/Office (710)	275,000 s.f	9.74	2,679	1.16	86:14	274	45	319	1.08	16:84	48	250	298
Elementary School (520)	600 Students	1.89	1,134	0.67	54:46	217	185	402	0.17	48:52	49	53	102
Parks (411)	35.86 acres	3.12	112	0.02	59:41	1	0	1	0.7	55:45	14	11	25
<b>SUBTOTAL TRIP GENERATION</b>			<b>32,208</b>			<b>905</b>	<b>1,028</b>	<b>1,933</b>			<b>1,283</b>	<b>1,251</b>	<b>2534</b>
<b>Internal Trips (NCHRP Internal Trip Capture Estimation Tool) <sup>1</sup></b>			<b>9,660</b>			<b>304</b>	<b>278</b>	<b>582</b>			<b>379</b>	<b>381</b>	<b>760</b>
Internal Bike Trips (20%)			1,932			61	56	116			76	76	152
Internal Pedestrian Trips (10%)			966			30	28	58			38	38	76
Internal Vehicle Trips (70%)			6,762			213	195	407			265	267	532
Bike Trips (20%)			4,510			120	150	270			181	174	355
Pedestrian Trips (10%)			2,255			60	75	135			90	87	177
Transit Trips (5%)			1,127			30	38	68			45	44	89
<b>SUBTOTAL EXTERNAL VEHICLE TRIP GENERATION</b>			<b>14,656</b>			<b>391</b>	<b>488</b>	<b>878</b>			<b>588</b>	<b>566</b>	<b>1,153</b>
Pass-By Trips (5%)			732.81			20	24	44			29	28	58
<b>TOTAL EXTERNAL EXTERNAL TRIP GENERATION</b>			<b>13,923</b>			<b>371</b>	<b>463</b>	<b>834</b>			<b>558</b>	<b>537</b>	<b>1095</b>

Source: Generation factors from ITE Trip Generation Manual, 10th Edition.

Trip ends are one-way traffic movements, entering or leaving.

The numbers in parenthesis are ITE land use codes.

1. Daily internal trip capture rate basued upon PM peak results from the NCHRP Internal Trip Capture Estimation Tool. 90% of trips associated with the elementary school were assumed to be internal trips since the school will serve residents of the VST site. 100% of Park trips are internal trips.





**Table 2**  
**Full Project Trip Generation**

LAND USE	Quantity	DAILY TRIP ENDS		WEEKDAY AM PEAK HOUR					WEEKDAY PM PEAK HOUR				
		RATE	VOLUME	RATE	IN:OUT SPLIT	VOLUME			RATE	IN:OUT SPLIT	VOLUME		
						IN	OUT	TOTAL			IN	OUT	TOTAL
R-1 Residential (220)	1,298 D.U.	7.32	9,502	0.42	23:77	125	420	545	0.45	63:37	365	214	579
R-4 Student Residential (225)	894 D.U.	4.12	3,684	0.17	28:72	43	109	152	0.31	52:48	145	133	278
R-2, R-3, & R-4 Market (220)	1,617 D.U.	7.32	11,837	0.42	23:77	155	517	672	0.44	63:37	444	260	704
Town Center Mixed Use (231)	108 D.U.	3.44	372	0.30	28:72	9	23	32	0.36	70:30	27	12	39
Retail Mixed (875)	307,500 s.f	22.88	7,036	0.58	64:36	114	64	178	1.95	50:50	300	300	600
NC/Retail and Community Commercial (875)	279,500 s.f	22.88	6,395	0.58	64:36	104	59	163	1.95	50:50	273	273	546
Hotel/Office (710)	275,000 s.f	9.74	2,679	1.16	86:14	274	45	319	1.08	16:84	48	250	298
Elementary School (520)	600 Students	1.89	1,134	0.67	54:46	217	185	402	0.17	48:52	49	53	102
Parks (411)	67.74 acres	1.95	132	0.02	59:41	1	1	2	0.40	55:45	15	12	27
<b>SUBTOTAL TRIP GENERATION</b>			<b>42,771</b>			<b>1,042</b>	<b>1,423</b>	<b>2,465</b>			<b>1,666</b>	<b>1,507</b>	<b>3,173</b>
<b>Internal Trips (NCHRP Internal Trip Capture Estimation Tool) <sup>1</sup></b>			<b>11,498</b>			<b>350</b>	<b>318</b>	<b>668</b>			<b>426</b>	<b>427</b>	<b>853</b>
Internal Bike Trips (20%)			2,300			70	64	134			85	85	171
Internal Pedestrian Trips (10%)			1,150			35	32	67			43	43	85
Internal Vehicle Trips (70%)			8,049			245	223	468			298	299	597
Bike Trips (20%)			6,255			138	221	359			248	216	464
Pedestrian Trips (10%)			3,127			69	111	180			124	108	232
Transit Trips (5%)			1,564			35	55	90			62	54	116
<b>TOTAL EXTERNAL VEHICLE TRIP GENERATION</b>			<b>20,327</b>			<b>450</b>	<b>718</b>	<b>1,168</b>			<b>806</b>	<b>702</b>	<b>1,508</b>
Pass-By Trips (5%)			1016			22	36	58			40	35	75
<b>TOTAL EXTERNAL VEHICLE TRIP GENERATION</b>			<b>19,311</b>			<b>427</b>	<b>682</b>	<b>1,110</b>			<b>766</b>	<b>667</b>	<b>1,433</b>

Source: Generation factors from ITE Trip Generation Manual, 10th Edition

Trip ends are one-way traffic movements, entering or leaving.

The numbers in parenthesis are ITE land use codes.

1. Daily internal trip capture rate based upon PM peak results from the NCHRP Internal Trip Capture Estimation Tool. 90% of trips associated with the elementary school were assumed to be internal trips since the school will serve residents of the VST site. 100% of Park trips are internal trips.



The methodology also considered whether or not to allow for a significant pass-by factor to reflect the relocation of current commuters to the Project site. Although arguments can be made that a significant portion of Project trips will be from existing commuters, the analysis assumes that these will be minimal and are estimated at 5% in Tables 1 and 2. Similarly, the commercial and office trip generation is not assumed to include any diverted trips from existing destinations (for example shopping trips by those rural residential units, UC on-campus students, and UC staff ) that are already on the road.

The trip generation analysis was also informed by previous traffic studies including the 2020 UC Merced Long Range Development Plan (“2020 LRDP”), the 2004 University Community Plan, and the 2009 UC Merced Long Range Development Plan (2009 LRDP). As noted in the 2009 LRDP as in this one, the amount of daily vehicle traffic expected to be generated by the Project was validated using data gathered within Merced County for the Statewide Travel Survey. Adjustments were made for the mix and size of commercial units in each commercial center. Because of the mix and proximity of land uses trip generation rates for residential uses are approximately 20 to 25 percent lower for the University Community based on MCAG model rates than standard ITE rates. The use of these lower rates is consistent with recommended practice, as stated in the ITE Trip Generation Handbook, which states that “if available, properly collected and validated local rates should be considered in addition to the national data base.”

The trip generation and mode split estimates contained in this and previous studies reflects the fact that a significant number of trips from the Campus and the University Community are expected to remain within the Project site (campus and University Community sites combined), due to the relative proximity of the University Community to the Campus, as well as the expectation that the Project will attract campus students and staff. This expectation is supported by the fact that 56 percent of UC Santa Cruz’s faculty, staff, and commuting students, live within 3 miles of the UC Santa Cruz campus, and an additional 23 percent (79 percent total) live within 5 miles. Similarly, UC Davis indicates that approximately half of the faculty and staff live in Davis, as do a very high proportion of commuting students. The Project applicants expect to meet these capture rates, and possibly more, because of preferences and financial incentives that will be extended to Campus staff.

In comparison to the 2004 UCP EIR, the Project is estimated to generate 42,771 total trips compared to 89,469 total trips for the UCP North in Table 4.13-7 of the UCP EIR; the Project is also expected to generate 19,311 external vehicle trips compared to the 25,793 external vehicle trips estimated in the UCP EIR.

The travel mode was also given special consideration in this study. The mode of travel (especially the non-vehicular travel modes) are substantially influenced by the proximity of work and shopping destinations to the residential units, and the diversity of land uses.



In the case of the VST project UC-supporting multifamily and town center commercial uses are located closest to UC (and will eventually be physically adjacent); commercial shopping areas are distributed so that 90 percent of the residential units are located within one-quarter mile or less of commercial areas that provide daily and weekly shopping goods and services; a public park and/or open space is located within walking distance (no farther than 660 feet from any residential unit); and, all arterial and collector level streets have Class I or Class IV bike facilities to encourage bicycled usage for internal and external trips. Based on these factors, the estimates in Table 3 are presented to reflect mode split for the various types of Project trips

**Table 3**  
**Internal and External Project Mode Split Trip Factors**

<b>Internal Trips</b>	
Bike Trips	20%
Pedestrian Trips	10%
Transit Trips	0%
Vehicle Trips	70%
<b>External Trips</b>	-
Bike Trips	20%
Pedestrian Trips	10%
Transit Trips	5%
<b>Vehicle Trips</b>	<b>65%</b>

## TRIP DISTRIBUTION

Project trip distribution is shown in Figure 4 and is based upon engineering judgement, prevailing traffic patterns in the study area, major routes, and population centers. Using the Merced County Association of Governments (MCAG) Travel Model in this undeveloped rural area would not result in accurate model forecasts since the model is not accurate in areas where the TAZ structure is large (greater than ½ mile square) or is not dense enough to provide accurate trip assignments such as in the City of Merced.

The information shown in Table 4 was also used in determining the project trip distribution. This table is a summary of the amount of commercial space that is attributable to onsite UC staff and students, and the fraction of each housing product type that is expected to be directly associated with the University. Based on this table, 48.7% of projects trips will be oriented toward the UC Campus. Subtracting trips made by bicycle, walking, and transit leads to a conclusion that 45% of the Project vehicle trips will be oriented toward the University.



**VST Specific Plan  
 Trip Distribution**

**Figure  
 4**

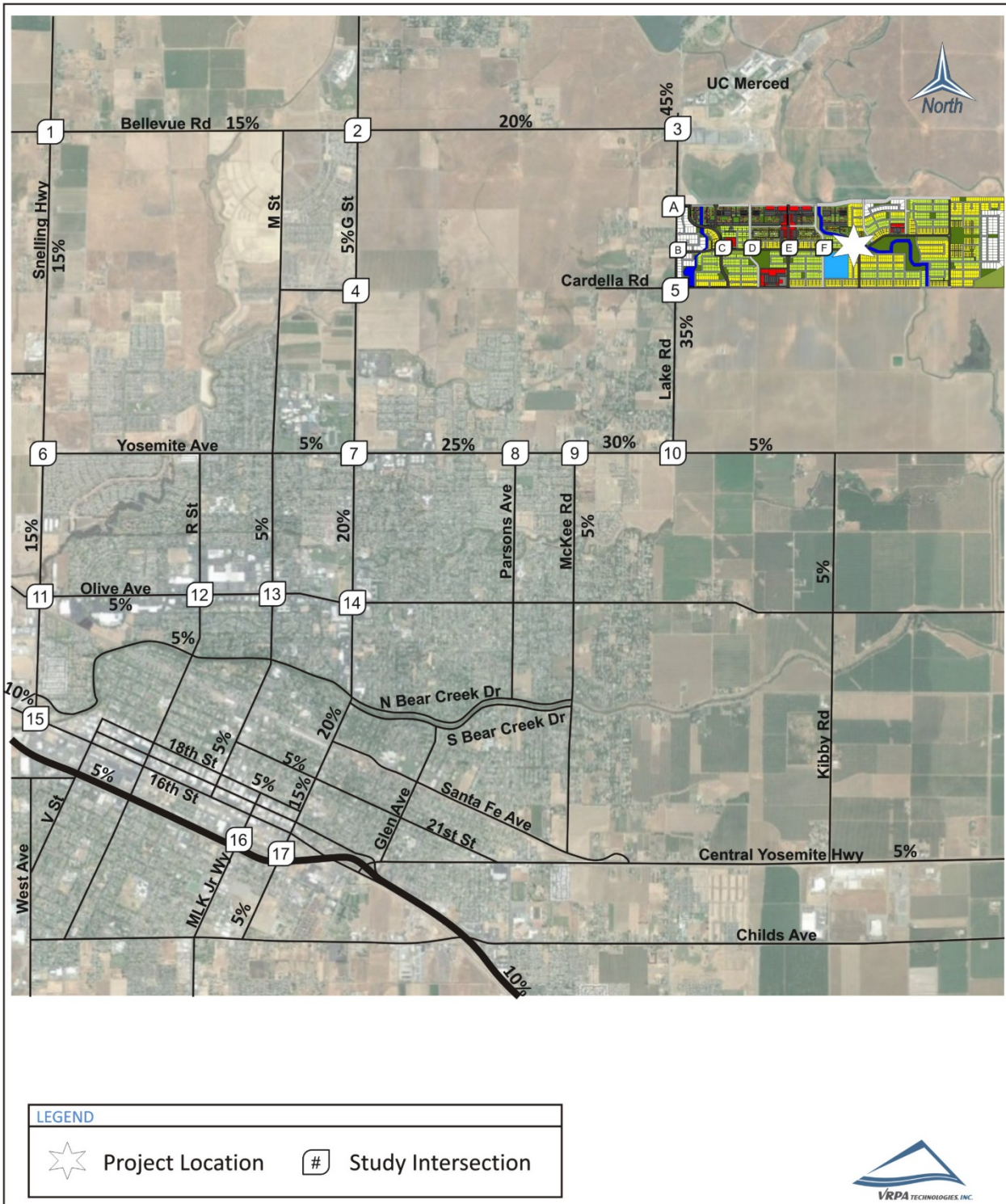


Table 4 Relationship Between UC Merced and VST Project – ER: See the PDF table called “UC Associated



**Table 4**  
**Trip Distribution Calculations**

	UCM North/VST	UC Merced (existing)	UC Merced (Future Growth)	Subtotal VST+UCM	UCM South (50%)	Total	Provided Per Land Plan-Phase 1	Provided Per Land Plan-Phase 2	Total Provided	
<b>Square Fee for Store Type</b>										
Food Store	32,213	8,400	4,200	44,813	25,606	70,418				
General Retail:	138,121	36,540	18,270	192,931	124,252	317,183				
Restaurants:	38,948	23,966	16,074	78,987	28,344	107,332				
Personal	20,577	19,200	9,600	49,377	17,621	66,999				
<b>Total Retail/Commercial</b>	<b>229,858</b>	<b>88,106</b>	<b>48,144</b>	<b>366,108</b>	<b>195,824</b>	<b>561,932</b>	<b>532,500</b>	<b>54,500</b>	<b>587,000</b>	
General Office @ 15 SF/Capita	161,124			161,124	146,028	307,152	275,000	-	275,000	
Total Medical	26,236	-	-	26,236	26,461	52,697		-	-	
<b>Total</b>	<b>417,218</b>	<b>88,106</b>	<b>48,144</b>	<b>553,467</b>	<b>368,313</b>	<b>921,780</b>	<b>807,500</b>	<b>54,500</b>	<b>862,000</b>	
	45.3%	9.6%	5.2%	60.0%	40.0%	100.0%				
	Units						Trip Rate	ADT	Percent	
Percent of Commercial Trips To/From UC		88,106	48,144			136,250		3,117		
Percent of Residential Trips To/From UC										
R-1 Low (12,500)	156	35%				55	7.32	400		
R-1 Low-Medium (7000)	358	35%				125	7.32	917		
R-1 Medium (5000)	703	35%				246	7.32	1,801		
R-1 Medium (5000, Cluster/Alley)	81	35%				28	7.32	208		
R-2 (Cluster)	491	35%				172	7.32	1,258		
R-3 For Sale	244	50%				122	7.32	893		
R-3 For Rent	288	50%				144	7.32	1,054		
R-4 Student (60%)	894	100%				894	4.12	3,683		
R-4 Market (40%)	594	50%				297	7.32	2,174		
Town Center Mixed Use	108	75%				54	3.44	186		
						Total UC Derived Trips		15,691	48.7%	
						Total ADT Per Traffic Study		32,208		





## TRAFFIC ANALYSIS SCENARIOS

The study time periods for the traffic analysis will include the weekday AM and PM peak hours determined between 7:00 and 9:00 AM and between 4:00 and 6:00 PM. Level of service analysis for the AM and PM peak hours will be analyzed for the following scenarios:

- ✓ Existing Conditions
- ✓ Existing Plus Project
- ✓ Near-Term Plus Project
- ✓ Cumulative Year 2042 Without Project
- ✓ Cumulative Year 2042 Plus Project

## NETWORK ALTERNATIVES

For the Existing Plus Project and Near-Term Plus Project scenarios, all existing streets and roads are assumed to be part of the network. For the Cumulative Year 2042 Without Project, the initial assumption will be that the only new roadway will be the extension of Campus Parkway to Yosemite Avenue as shown in Figure 5. The future extension of Campus Parkway through the Project site to the UC Campus will be considered as an alternative if needed to relieve expected traffic congestion on Lake Drive.

## INTERSECTION ANALYSIS

All intersection LOS analyses will be estimated using Synchro 10 Software. The following inputs and parameters will be applied to accurately determine the travel delay and LOS for each study intersection:

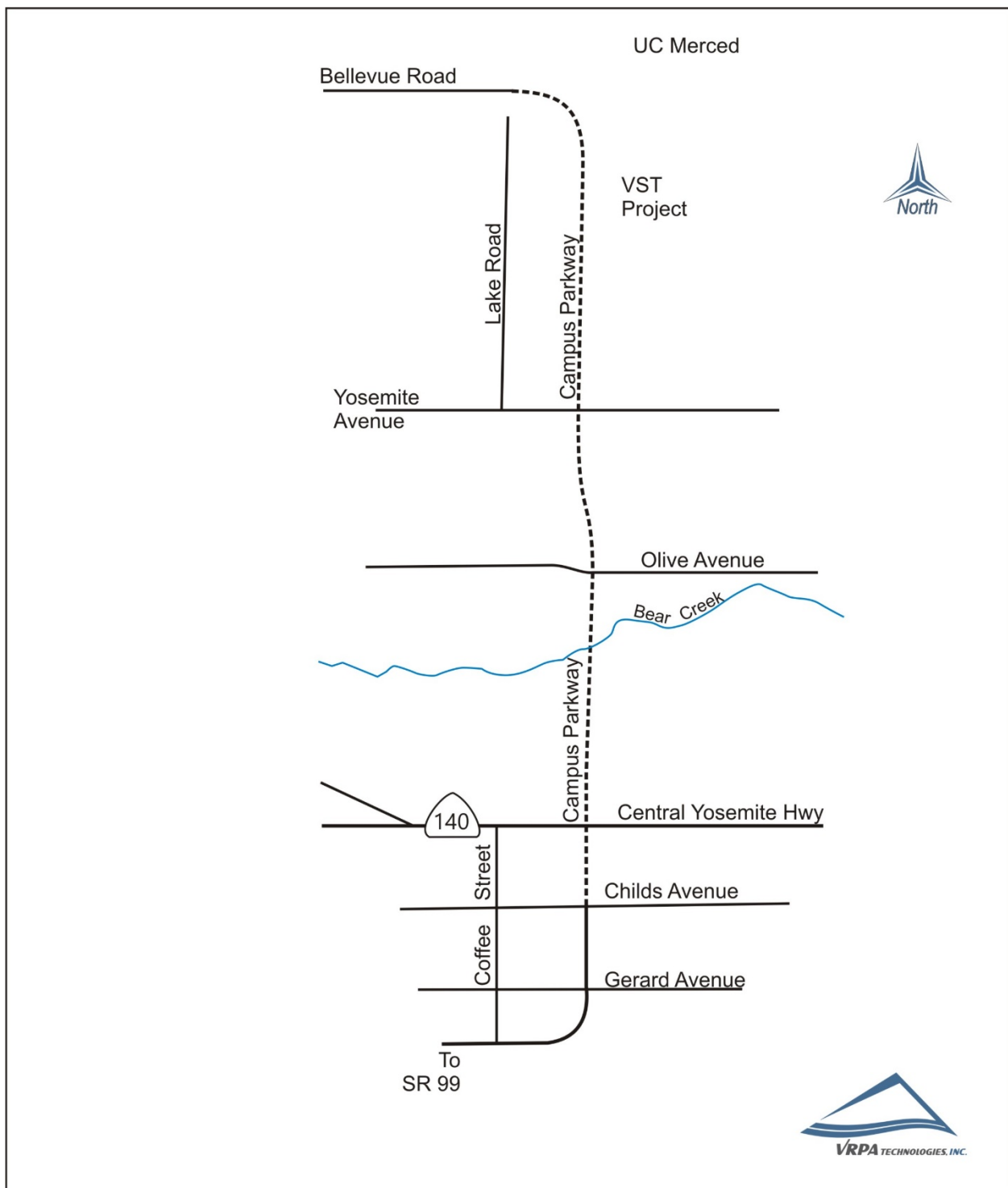
- ✓ VRPA will conduct a field study of the specified intersections and segments to verify lane geometry and intersection control as well as to obtain other pertinent data such as signal timing and phasing, where applicable.
- ✓ Peak hour factors (PHF) for each intersection approach will be obtained from existing traffic counts and utilized for Existing Conditions, Existing Plus Project, and Near-term (Opening Year 2022) Conditions. For all future scenarios, a PHF of 0.92 will be applied
- ✓ Existing left- and right-turn storage pockets will be measured from aerial photography and incorporated into the synchro analysis
- ✓ Roadway link speed limits will be observed in the field and input into the Synchro network to determine roadway link speeds
- ✓ Heavy vehicle percentages will be applied based on the Highway Capacity Manual (HCM) default of 3%
- ✓ HCM 6<sup>th</sup> Edition outputs for delay and level of service will be utilized in the results
- ✓ Queuing conditions for left and right-turn lanes at all study intersections will be based upon Synchro outputs or Section 400 of Caltrans' Highway Design Manual. Synchro provides 95th percentile maximum queue lengths in feet which represents the maximum back of queue with 95th percentile traffic volumes





**VST Specific Plan & Traffic Impact Study**  
**Proposed Alignment for Campus Parkway**

**Figure**  
**5**



## SB 743 ANALYSIS

In the fall of 2013, Senate Bill 743 (SB 743) was passed by the legislature and signed into law by the governor. Starting Jul 1, 2020, this legislation will change the way that transportation studies are conducted for environmental documents. Vehicle miles traveled (VMT) will be the new CEQA performance measure. There will be a comparison of the VMT that was projected to be generated by the UCP North area in the University Community Plan EIR to that from the proposed Project.

## ROADWAY IMPROVEMENTS/SIGNIFICANCE CRITERIA

Roadway improvements will be generally be recommended wherever traffic operations worse than level of service D (LOS D) are expected in the PM peak hours. If requested by local agencies or Caltrans, consideration will be given to using a different threshold for roadway improvements (i.e. LOS C or LOS E). Following is background information regarding this issue. It should be noted that with the implementation of SB 743 on July 1, roadway congestion will no longer result in a significant impact under CEQA, but it is assumed that analysis of traffic congestion and roadway improvements will continue to be conducted as has been done previously.

An important goal is to maintain acceptable levels of service along the highway, street, and road network. To accomplish this, Merced County, the City of Merced, and Caltrans adopt minimum levels of service to control congestion that may result as new development occurs.

The 2030 Merced County General Plan establishes measures of performance for the county roadway systems. The General Plan identifies LOS 'D' during weekday peak hours in urban area and for rural connectors between urban areas (including freeways) and LOS 'C' for other rural roadways.

The City of Merced considers levels of service 'D' or better to be acceptable, while levels of service 'E' and 'F' are considered unacceptable. At unsignalized intersections where a substandard level of service exists, traffic signals would only be recommended if warrants for traffic signals are satisfied. The satisfaction of a traffic signal warrant does not, in and of itself, require the installation of a traffic signal. Safety and/or the overall operation of the intersection should be the basis of the installation of a traffic signal. Other improvements, such as the installation of dedicated left/right turning movements, should also be considered for the purpose of alleviating substandard levels of service at an intersection.

Based on guidance from Caltrans, the LOS for operating State highway facilities is based on Measures of Effectiveness (MOE) identified in the Highway Capacity Manual (HCM). Caltrans endeavors to maintain a target LOS at the transition between LOS "C" and LOS "D" on State highway facilities; 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. If an existing State highway facility is operating at less than this target LOS, the existing MOE should be maintained. In general, the region-wide goal for an acceptable LOS on all freeways, roadways segments, and intersections is "D". For undeveloped or not densely developed locations, the goal may be to achieve LOS "C".



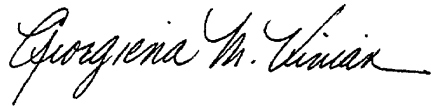
Mr. Steve Maxey

June 16, 2020

Page 14 of 15

If you have any questions or require further information, please contact Erik Ruehr or me. Erik can be reached at [eruehr@vrpatechnologies.com](mailto:eruehr@vrpatechnologies.com) or 858/361-7151. I can be reached at [gvivian@vrpatechnologies.com](mailto:gvivian@vrpatechnologies.com) or 559/259-9257.

Sincerely,

A handwritten signature in cursive script that reads "Georgiena M. Vivian".

Georgiena M. Vivian

President

Attachment



**ATTACHMENT**

**INTERNAL TRIP GENERATION CALCULATIONS**



NCHRP 8-51 Internal Trip Capture Estimation Tool						
Project Name:	VST Project			Organization:	VRPA Technologies, Inc.	
Project Location:	Merced			Performed By:	VRPA Technologies, Inc.	
Scenario Description:	Phase 1			Date:	3/30/2020	
Analysis Year:	2025			Checked By:		
Analysis Period:	AM Street Peak Hour			Date:		

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips		
	ITE LUCs <sup>1</sup>	Quantity	Units	Total	Entering	Exiting
Office	710	275,000	sf GFA	319	274	45
Retail	875	426,000	sf GFA	247	158	89
Restaurant	875	106,500	sf GFA	62	40	22
Cinema/Entertainment				0		
Residential	220, 225, 231	2,559	D.U.	902	215	687
Hotel				0		
All Other Land Uses <sup>2</sup>				0		
Total				1530	687	843

Table 2-P: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office	1.67			1.67		
Retail	1.67			1.67		
Restaurant	1.67			1.67		
Cinema/Entertainment						
Residential	1.67			1.67		
Hotel						
All Other Land Uses <sup>2</sup>						

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		250	250		500	
Retail					250	
Restaurant					250	
Cinema/Entertainment						
Residential		250	250			
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		15	1	0	2	0
Retail	3		19	0	39	0
Restaurant	1	15		0	7	0
Cinema/Entertainment	0	0	0		0	0
Residential	46	26	9	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	2,556	1,148	1,408
Internal Capture Percentage	14%	16%	13%
External Vehicle-Trips <sup>3</sup>	1,311	578	733
External Transit-Trips <sup>4</sup>	0	0	0
External Non-Motorized Trips <sup>4</sup>	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	11%	24%
Retail	21%	41%
Restaurant	43%	62%
Cinema/Entertainment	N/A	N/A
Residential	13%	7%
Hotel	N/A	N/A

<sup>1</sup>Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

<sup>2</sup>Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

<sup>3</sup>Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

<sup>4</sup>Person-Trips

\*Indicates computation that has been rounded to the nearest whole number.

*Estimation Tool Developed by the Texas Transportation Institute*

<b>Project Name:</b>	VST Project
<b>Analysis Period:</b>	AM Street Peak Hour

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends						
Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.67	274	458	1.67	45	75
Retail	1.67	174	291	1.67	98	164
Restaurant	1.67	44	73	1.67	25	42
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.67	332	554	1.67	1069	1785
Hotel	1.00	0	0	1.00	0	0

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		15	3	0	2	0
Retail	3		48	7	43	8
Restaurant	1	17		3	8	3
Cinema/Entertainment	0	0	0		0	0
Residential	71	738	369	0		54
Hotel	0	0	0	0	0	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		23	1	0	22	0
Retail	142		21	0	255	0
Restaurant	137	146		0	89	0
Cinema/Entertainment	27	12	2		22	0
Residential	261	29	10	0		0
Hotel	0	6	4	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)						
Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles <sup>1</sup>	Transit <sup>2</sup>	Non-Motorized <sup>2</sup>
Office	75	383	458	229	0	0
Retail	61	230	291	138	0	0
Restaurant	32	41	73	25	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	53	501	554	300	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses <sup>3</sup>	0	0	0	0	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)						
Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles <sup>1</sup>	Transit <sup>2</sup>	Non-Motorized <sup>2</sup>
Office	18	57	75	34	0	0
Retail	67	97	164	58	0	0
Restaurant	26	16	42	10	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	110	1675	1785	1003	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses <sup>3</sup>	0	0	0	0	0	0

<sup>1</sup>Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

<sup>2</sup>Person-Trips

<sup>3</sup>Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

\*Indicates computation that has been rounded to the nearest whole number.



NCHRP 8-51 Internal Trip Capture Estimation Tool						
<b>Project Name:</b>	VST Project			<b>Organization:</b>	VRPA Technologies, Inc.	
<b>Project Location:</b>	Merced			<b>Performed By:</b>	VRPA Technologies, Inc.	
<b>Scenario Description:</b>	Phase 1			<b>Date:</b>	3/30/2020	
<b>Analysis Year:</b>	2025			<b>Checked By:</b>		
<b>Analysis Period:</b>	PM Street Peak Hour			<b>Date:</b>		

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips		
	ITE LUCs <sup>1</sup>	Quantity	Units	Total	Entering	Exiting
Office	710	275,000	sf GFA	298	48	250
Retail	875	426,000	sf GFA	831	415	416
Restaurant	875	106,500	sf GFA	208	104	104
Cinema/Entertainment				0		
Residential	220, 225, 231	2,559	D.U.	1070	653	417
Hotel				0		
All Other Land Uses <sup>2</sup>				0		
<b>Total</b>				<b>2407</b>	<b>1220</b>	<b>1187</b>

Table 2-P: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office	1.67			1.67		
Retail	1.67			1.67		
Restaurant	1.67			1.67		
Cinema/Entertainment						
Residential	1.67			1.67		
Hotel						
All Other Land Uses <sup>2</sup>						

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		250	250		500	
Retail					250	
Restaurant					250	
Cinema/Entertainment						
Residential		250	250			
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		55	3	0	8	0
Retail	14		50	0	181	0
Restaurant	5	71		0	31	0
Cinema/Entertainment	0	0	0		0	0
Residential	28	68	24	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	4,021	2,038	1,983
Internal Capture Percentage	27%	26%	27%
External Vehicle-Trips <sup>3</sup>	1,764	899	865
External Transit-Trips <sup>4</sup>	0	0	0
External Non-Motorized Trips <sup>4</sup>	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	59%	16%
Retail	28%	35%
Restaurant	44%	61%
Cinema/Entertainment	N/A	N/A
Residential	20%	17%
Hotel	N/A	N/A

<sup>1</sup>Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

<sup>2</sup>Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

<sup>3</sup>Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

<sup>4</sup>Person-Trips

\*Indicates computation that has been rounded to the nearest whole number.

*Estimation Tool Developed by the Texas Transportation Institute*

<b>Project Name:</b>	VST Project
<b>Analysis Period:</b>	PM Street Peak Hour

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends						
Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.67	48	80	1.67	250	418
Retail	1.67	458	765	1.67	458	765
Restaurant	1.67	115	192	1.67	115	192
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.67	981	1638	1.67	619	1034
Hotel	1.00	0	0	1.00	0	0

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		82	16	0	8	0
Retail	15		222	31	199	38
Restaurant	6	79		15	35	13
Cinema/Entertainment	0	0	0		0	0
Residential	41	428	214	0		31
Hotel	0	0	0	0	0	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		60	4	0	66	0
Retail	25		56	0	753	0
Restaurant	24	383		0	262	0
Cinema/Entertainment	5	31	6		66	0
Residential	46	75	26	0		0
Hotel	0	15	10	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)						
Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles <sup>1</sup>	Transit <sup>2</sup>	Non-Motorized <sup>2</sup>
Office	62	18	80	11	0	0
Retail	214	551	765	330	0	0
Restaurant	86	106	192	63	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	242	1396	1638	836	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses <sup>3</sup>	0	0	0	0	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)						
Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles <sup>1</sup>	Transit <sup>2</sup>	Non-Motorized <sup>2</sup>
Office	72	346	418	207	0	0
Retail	270	495	765	296	0	0
Restaurant	120	72	192	43	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	142	892	1034	534	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses <sup>3</sup>	0	0	0	0	0	0

<sup>1</sup>Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

<sup>2</sup>Person-Trips

<sup>3</sup>Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

\*Indicates computation that has been rounded to the nearest whole number.

## **APPENDIX B**

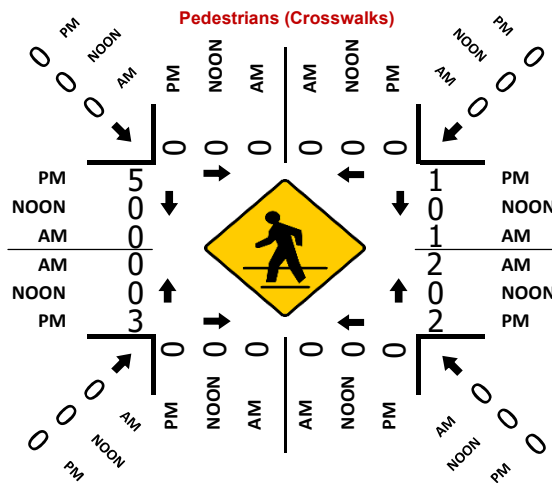
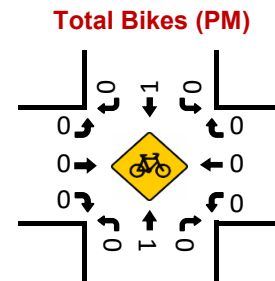
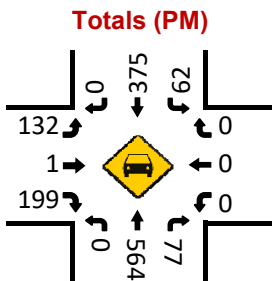
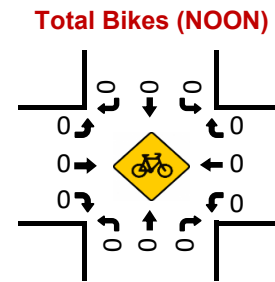
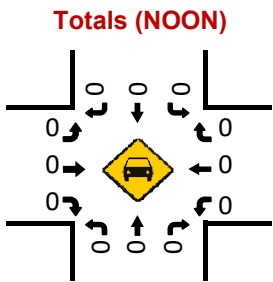
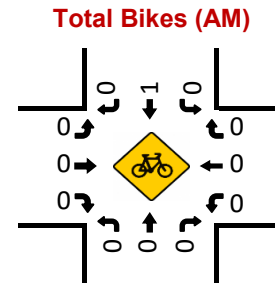
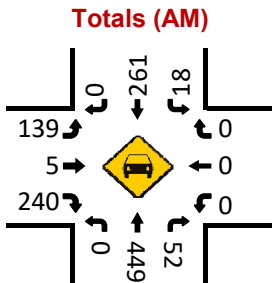
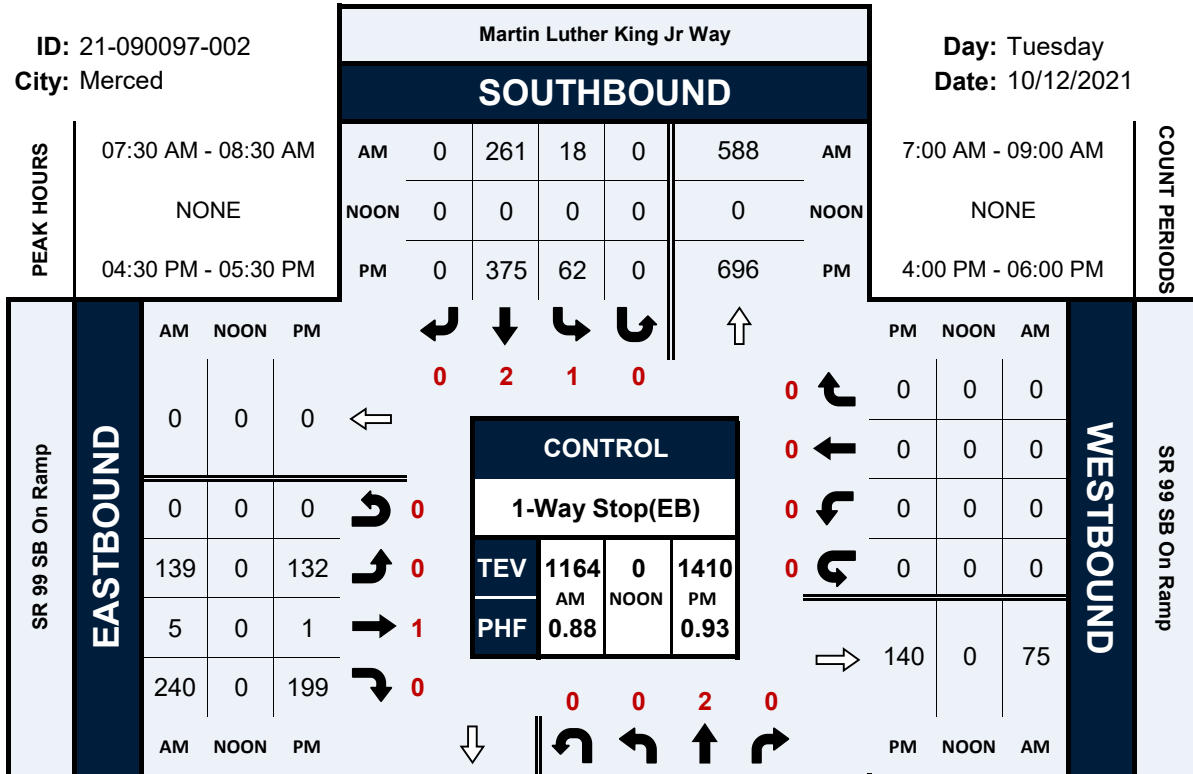
### **Traffic Counts**

# Martin Luther King Jr Way & SR 99 SB On Ramp

## Peak Hour Turning Movement Count

ID: 21-090097-002  
City: Merced

Day: Tuesday  
Date: 10/12/2021



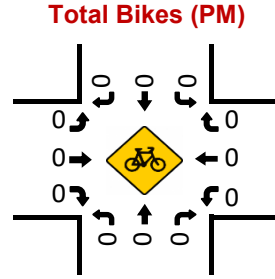
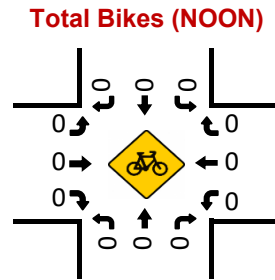
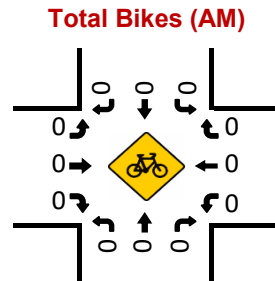
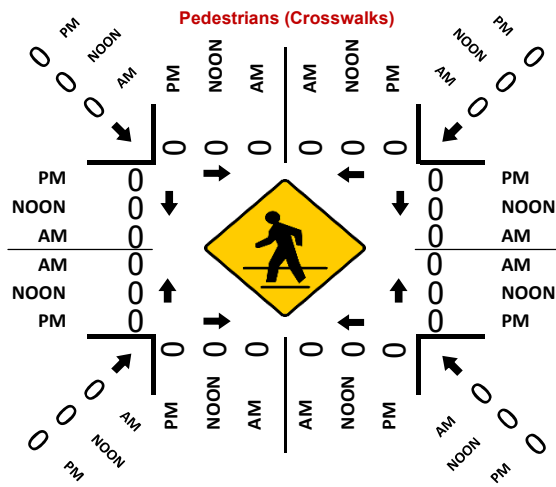
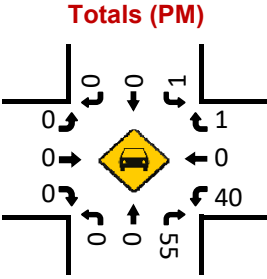
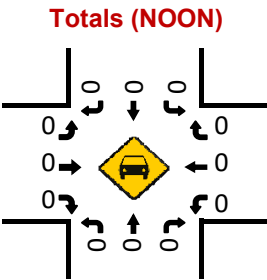
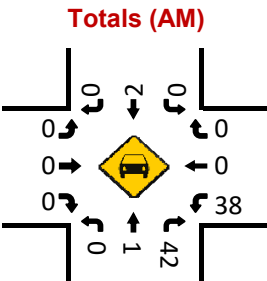
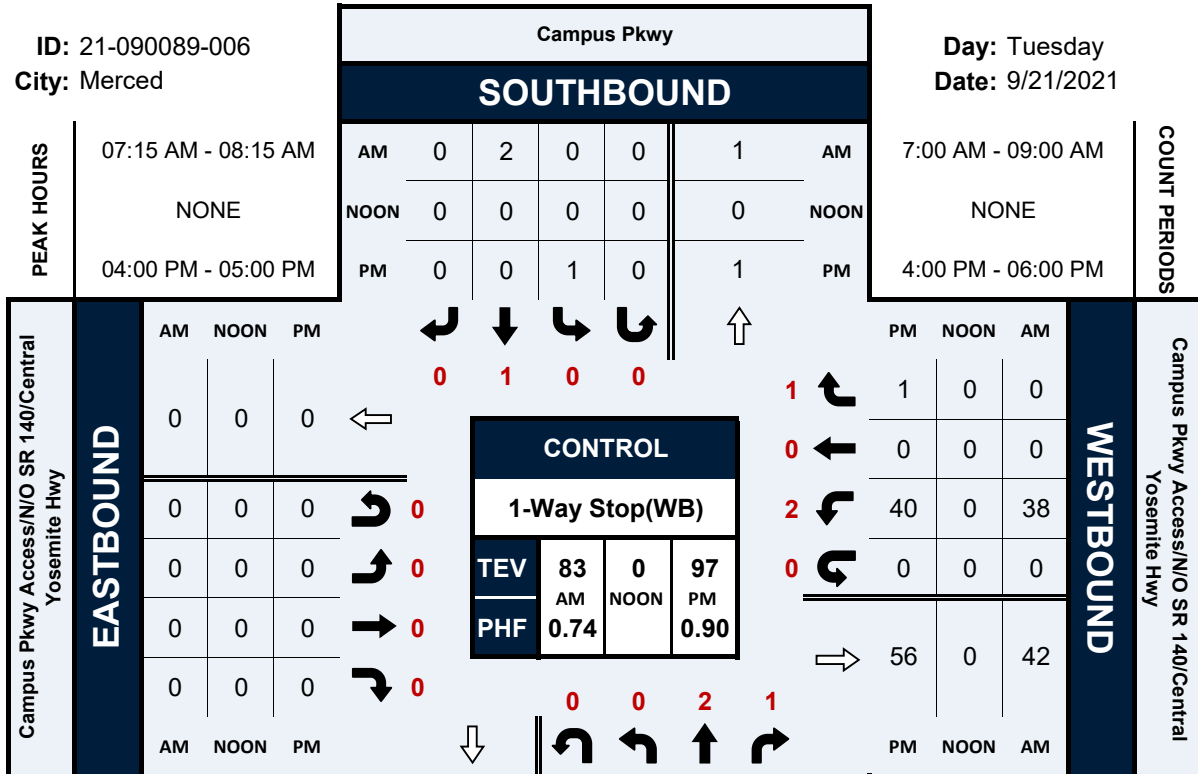


Campus Pkwy & Campus Pkwy Access/N/O SR 140/Central Yosemite Hwy

Peak Hour Turning Movement Count

ID: 21-090089-006  
City: Merced

Day: Tuesday  
Date: 9/21/2021



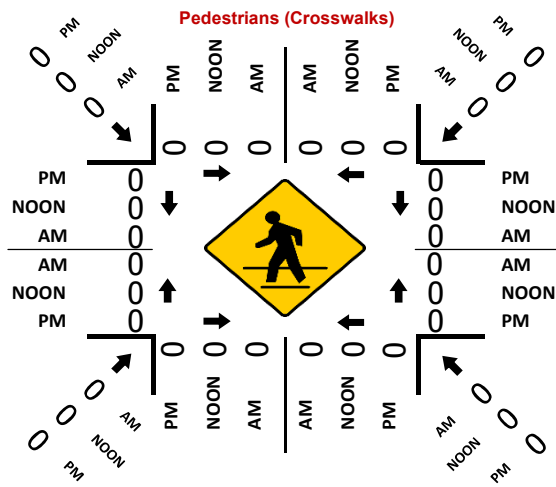
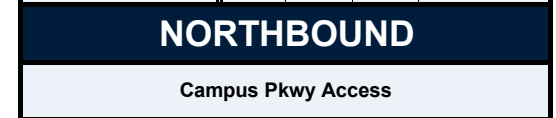
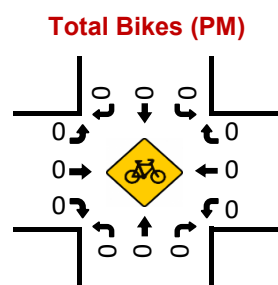
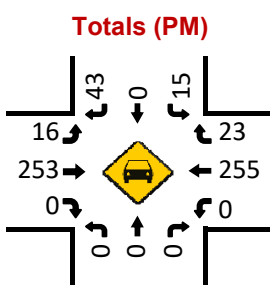
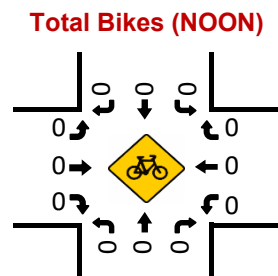
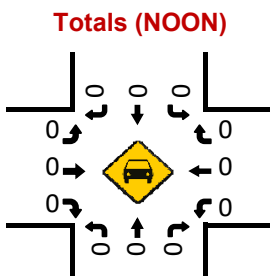
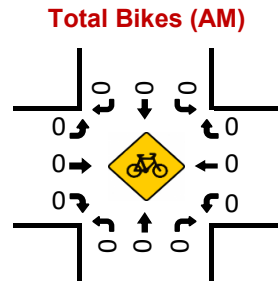
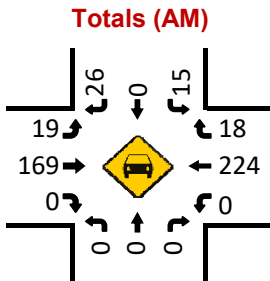
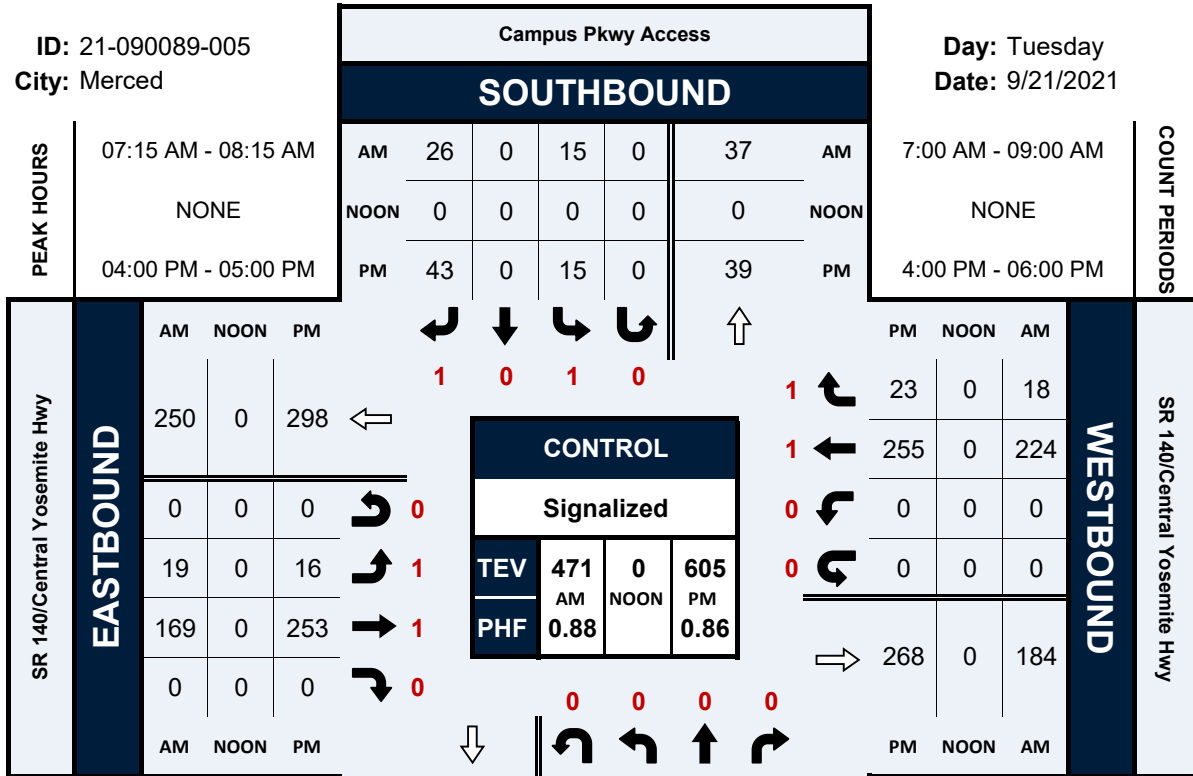


# Campus Pkwy Access & SR 140/Central Yosemite Hwy

## Peak Hour Turning Movement Count

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City: Merced

Day: Tuesday  
Date: 9/21/2021

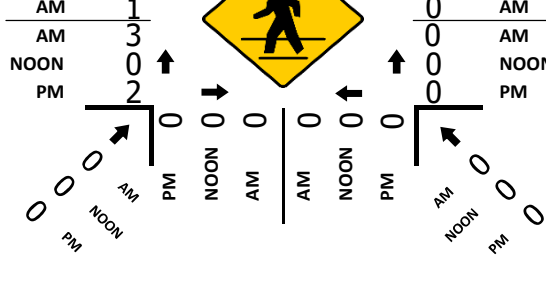
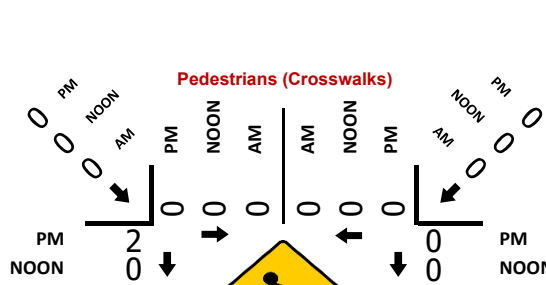
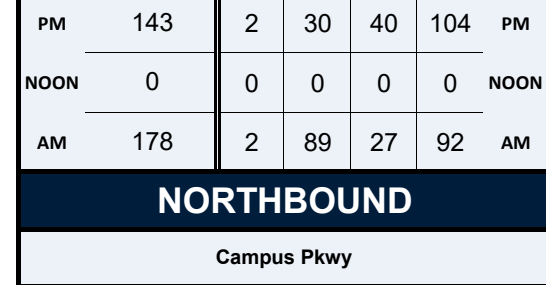
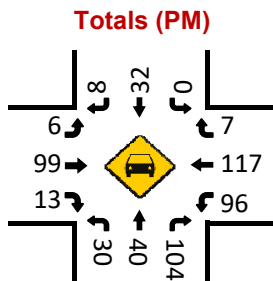
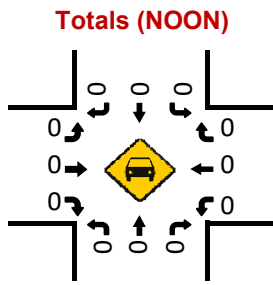
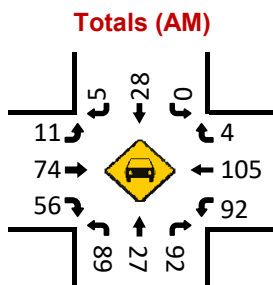
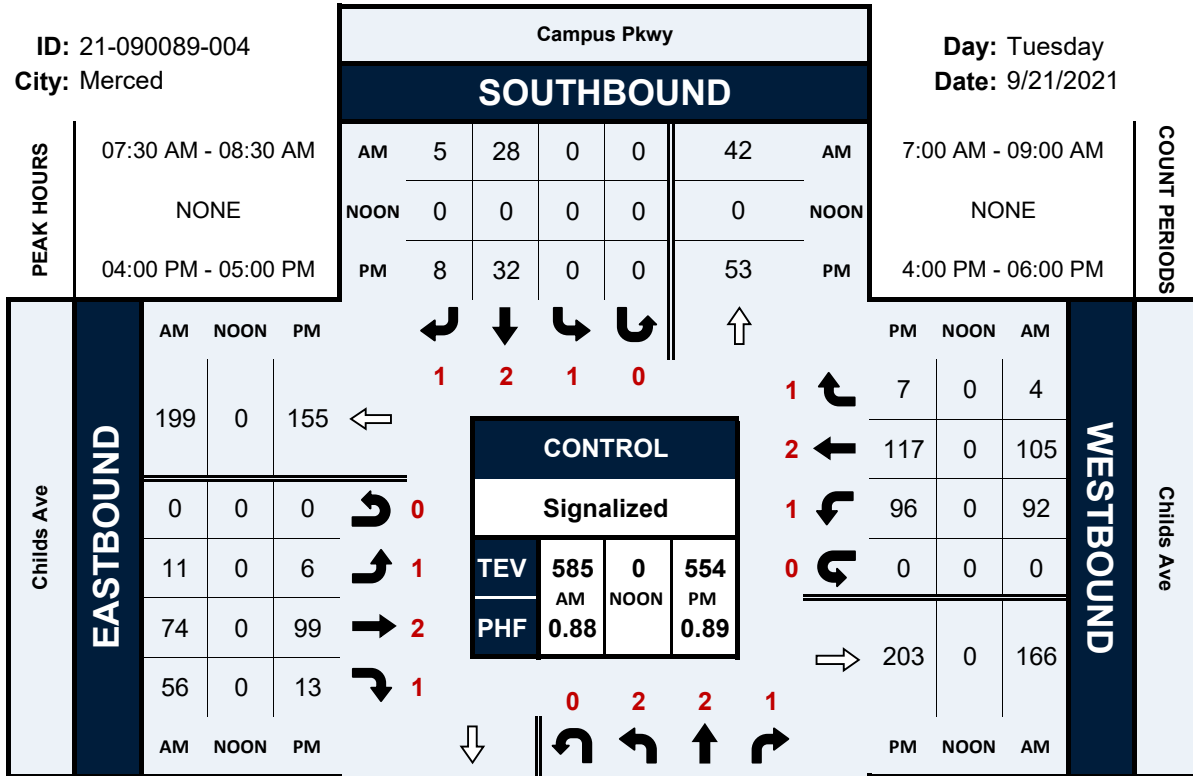


# Campus Pkwy & Childs Ave

## Peak Hour Turning Movement Count

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City: Merced

Day: Tuesday  
Date: 9/21/2021

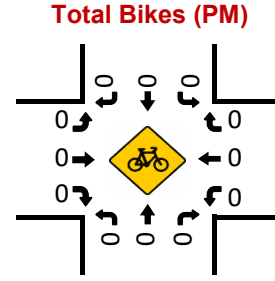
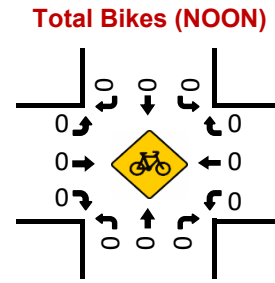
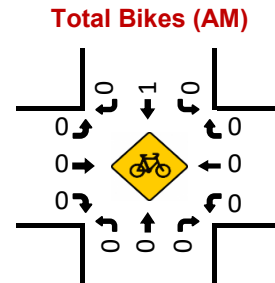
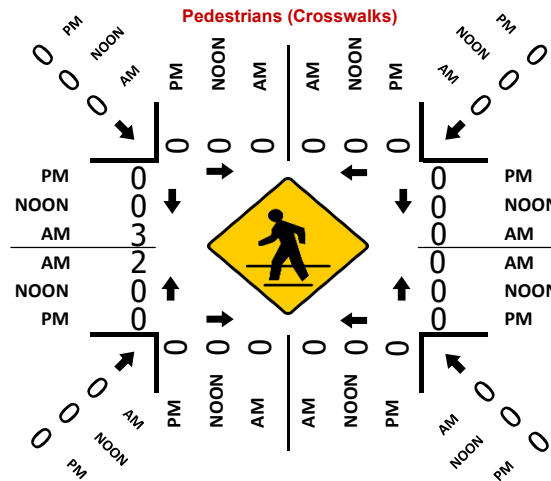
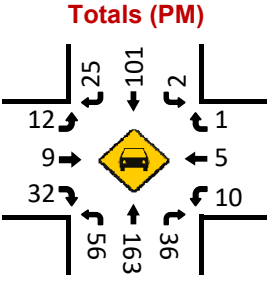
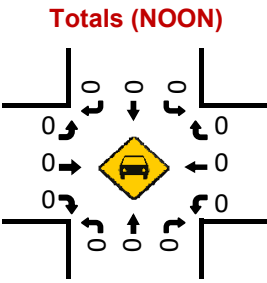
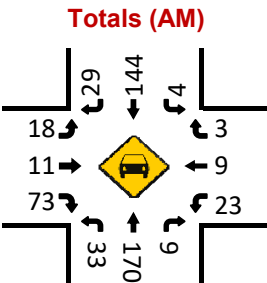
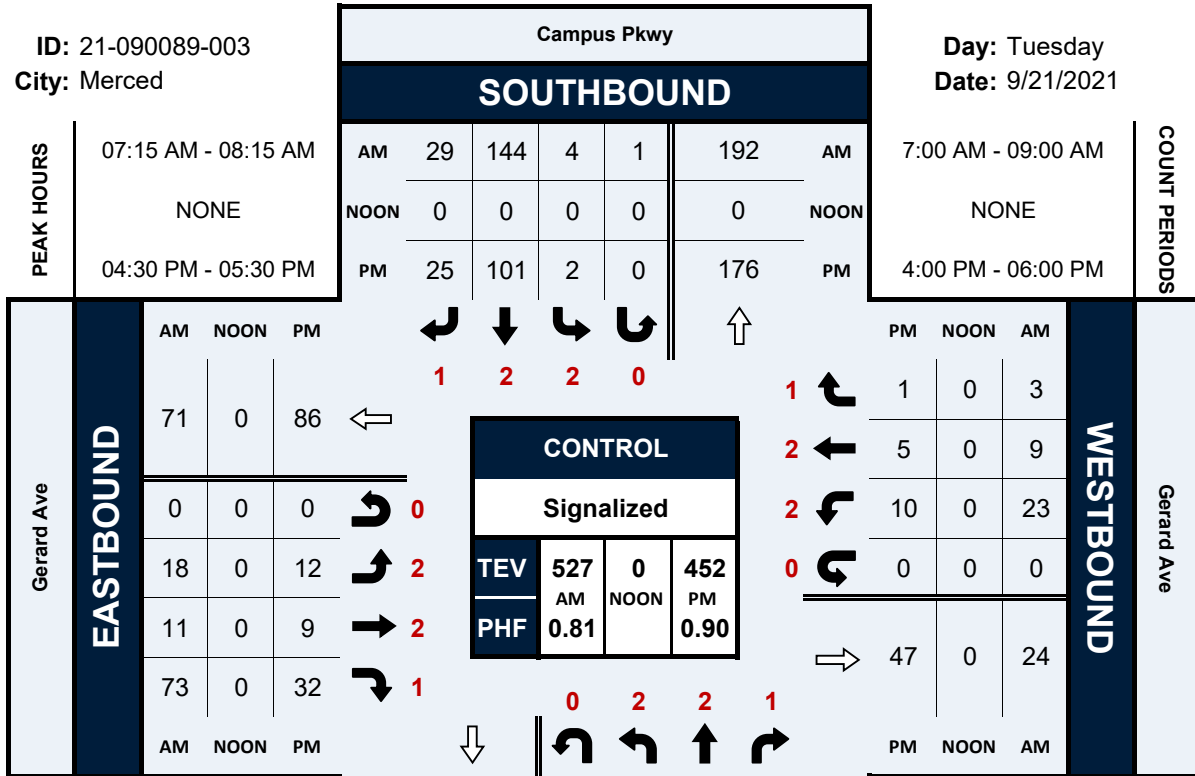


# Campus Pkwy & Gerard Ave

## Peak Hour Turning Movement Count

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City: Merced

Day: Tuesday  
Date: 9/21/2021

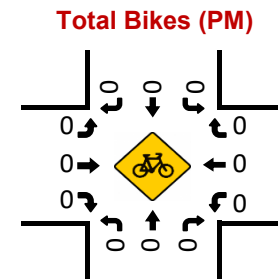
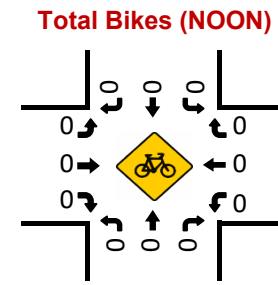
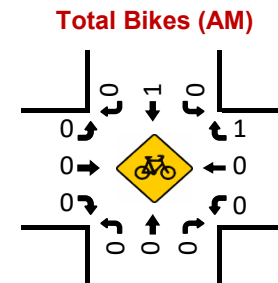
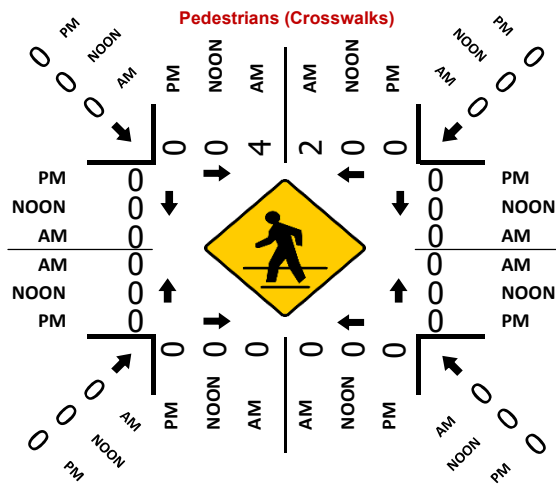
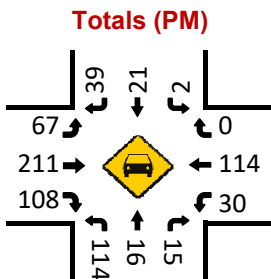
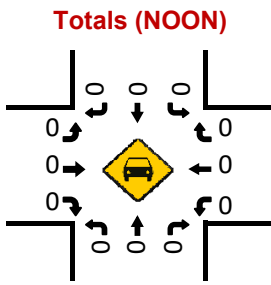
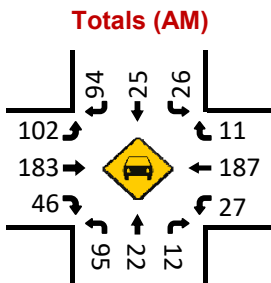
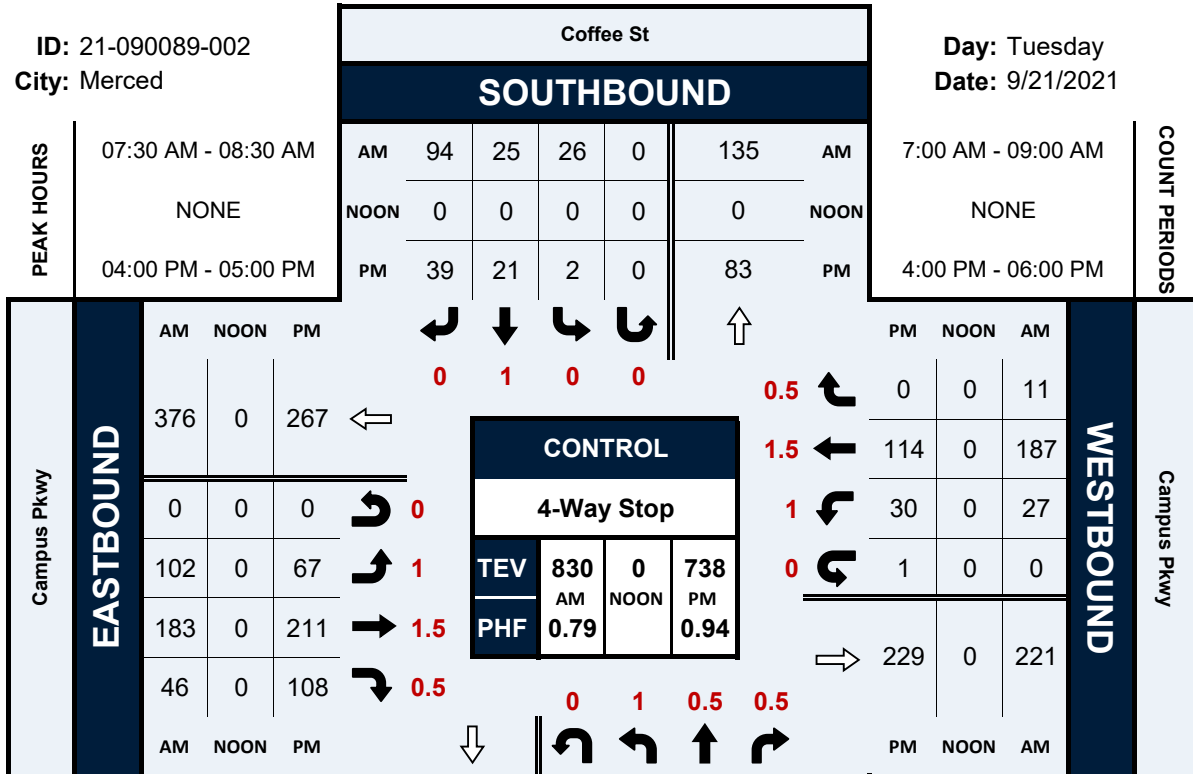


# Coffee St & Campus Pkwy

## Peak Hour Turning Movement Count

ID: 21-090089-002  
City: Merced

Day: Tuesday  
Date: 9/21/2021

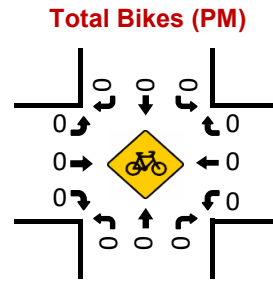
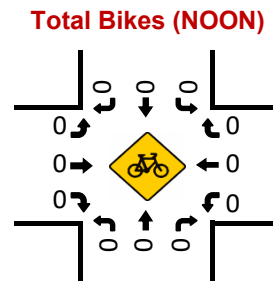
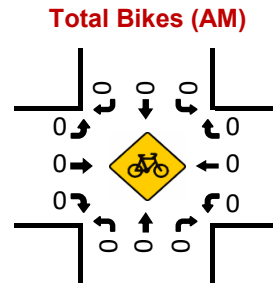
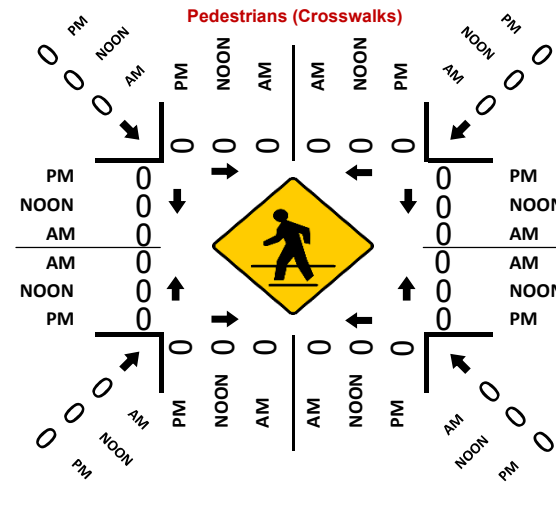
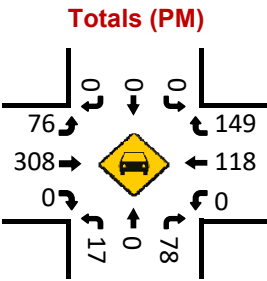
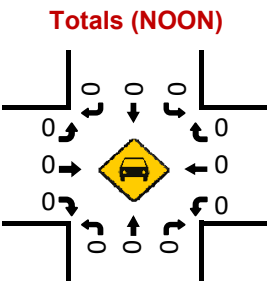
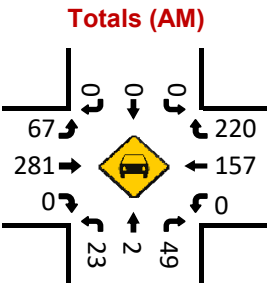
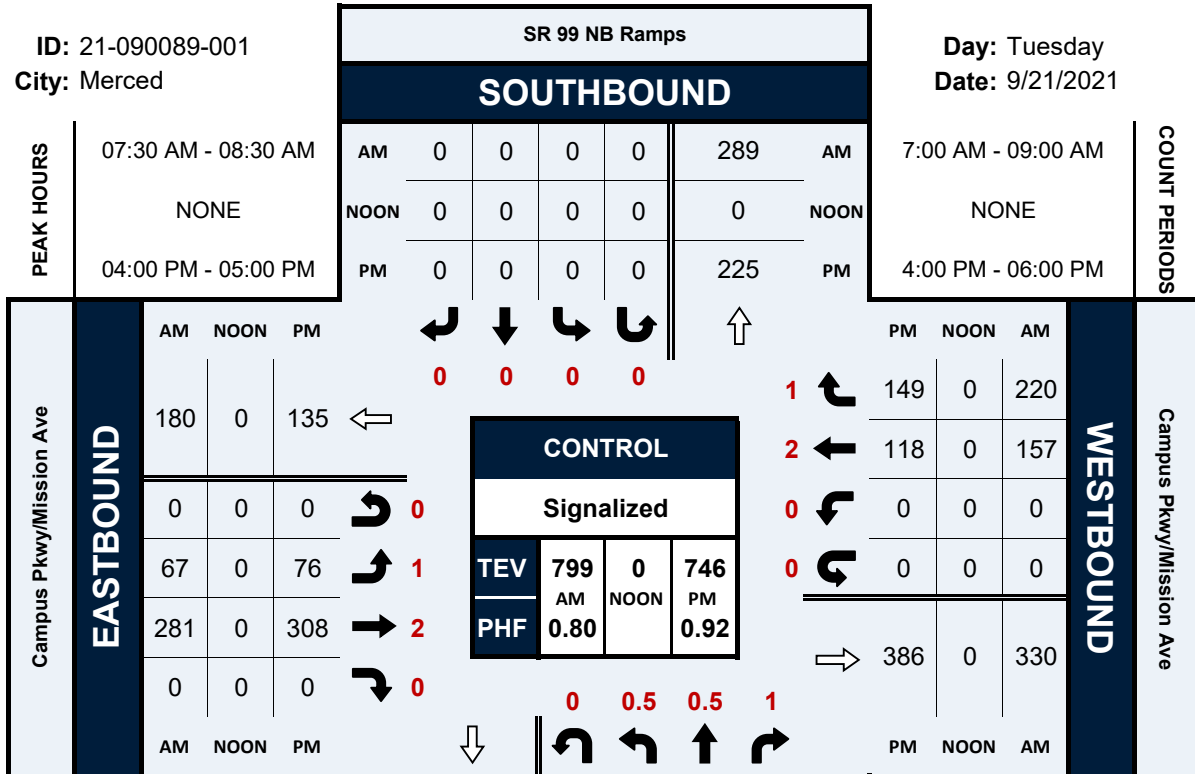


# SR 99 NB Ramps & Campus Pkwy/Mission Ave

## Peak Hour Turning Movement Count

ID: 21-090089-001  
City: Merced

Day: Tuesday  
Date: 9/21/2021



## APPENDIX C

### Capacity Analysis Worksheets



## **Existing Condition AM Peak Hour**

HCM 6th AWSC  
1: Snelling Highway (SR 59) & Bellevue Road

02/23/2022

Intersection	
Intersection Delay, s/veh	24.9
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	17	262	7	89	167	54	7	56	202	98	75	27
Future Vol, veh/h	17	262	7	89	167	54	7	56	202	98	75	27
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	21	328	9	111	209	68	9	70	253	123	94	34
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	26.5	29.6	21.9	19.3
HCM LOS	D	D	C	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	3%	6%	29%	49%
Vol Thru, %	21%	92%	54%	38%
Vol Right, %	76%	2%	17%	14%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	265	286	310	200
LT Vol	7	17	89	98
Through Vol	56	262	167	75
RT Vol	202	7	54	27
Lane Flow Rate	331	358	388	250
Geometry Grp	1	1	1	1
Degree of Util (X)	0.643	0.715	0.762	0.533
Departure Headway (Hd)	6.983	7.205	7.083	7.677
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	513	500	508	468
Service Time	5.07	5.294	5.169	5.774
HCM Lane V/C Ratio	0.645	0.716	0.764	0.534
HCM Control Delay	21.9	26.5	29.6	19.3
HCM Lane LOS	C	D	D	C
HCM 95th-tile Q	4.5	5.7	6.6	3.1

# HCM 6th Signalized Intersection Summary

## 2: G Street & Bellevue Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	211	159	41	60	20	134	318	165	15	295	49
Future Volume (veh/h)	60	211	159	41	60	20	134	318	165	15	295	49
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	90	315	237	61	90	30	200	475	246	22	440	73
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	113	285	214	79	501	425	176	933	481	46	1204	537
Arrive On Green	0.06	0.29	0.29	0.04	0.27	0.27	0.10	0.41	0.41	0.03	0.34	0.34
Sat Flow, veh/h	1767	983	740	1767	1856	1572	1767	2251	1159	1767	3526	1572
Grp Volume(v), veh/h	90	0	552	61	90	30	200	371	350	22	440	73
Grp Sat Flow(s),veh/h/ln	1767	0	1722	1767	1856	1572	1767	1763	1647	1767	1763	1572
Q Serve(g_s), s	5.8	0.0	33.5	4.0	4.3	1.6	11.5	18.1	18.2	1.4	10.9	3.7
Cycle Q Clear(g_c), s	5.8	0.0	33.5	4.0	4.3	1.6	11.5	18.1	18.2	1.4	10.9	3.7
Prop In Lane	1.00		0.43	1.00		1.00	1.00		0.70	1.00		1.00
Lane Grp Cap(c), veh/h	113	0	499	79	501	425	176	731	683	46	1204	537
V/C Ratio(X)	0.79	0.00	1.11	0.77	0.18	0.07	1.14	0.51	0.51	0.47	0.37	0.14
Avail Cap(c_a), veh/h	179	0	499	145	502	426	176	731	683	118	1204	537
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.4	0.0	41.1	54.7	32.4	31.4	52.1	25.1	25.2	55.5	28.6	26.3
Incr Delay (d2), s/veh	12.0	0.0	72.6	14.8	0.2	0.1	109.9	2.5	2.7	7.3	0.9	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	0.0	23.3	2.0	1.9	0.6	10.2	7.5	7.1	0.7	4.5	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.3	0.0	113.7	69.5	32.6	31.5	162.0	27.6	27.9	62.8	29.5	26.8
LnGrp LOS	E	A	F	E	C	C	F	C	C	E	C	C
Approach Vol, veh/h		642			181			921			535	
Approach Delay, s/veh		106.9			44.8			56.9			30.5	
Approach LOS		F			D			E			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.5	54.5	11.7	40.0	18.0	46.0	13.9	37.7				
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5				
Max Green Setting (Gmax), s	7.8	43.3	9.5	33.5	11.5	39.5	11.7	31.3				
Max Q Clear Time (g_c+1/3), s	13.4	20.2	6.0	35.5	13.5	12.9	7.8	6.3				
Green Ext Time (p_c), s	0.0	3.9	0.0	0.0	0.0	2.7	0.1	0.4				

### Intersection Summary

HCM 6th Ctrl Delay	63.8
HCM 6th LOS	E

# HCM 6th Signalized Intersection Summary

## 3: Lake Road & Bellevue Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	275	231	90	5	5	3	56	258	1	19	53	70
Future Volume (veh/h)	275	231	90	5	5	3	56	258	1	19	53	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	327	275	107	6	6	4	67	307	1	23	63	83
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	356	339	132	16	77	51	179	796	3	129	350	425
Arrive On Green	0.20	0.27	0.27	0.01	0.07	0.07	0.54	0.54	0.54	0.54	0.54	0.54
Sat Flow, veh/h	1767	1272	495	1767	1039	692	256	1464	5	167	643	782
Grp Volume(v), veh/h	327	0	382	6	0	10	375	0	0	169	0	0
Grp Sat Flow(s),veh/h/ln	1767	0	1766	1767	0	1731	1725	0	0	1592	0	0
Q Serve(g_s), s	19.6	0.0	21.8	0.4	0.0	0.6	3.7	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	19.6	0.0	21.8	0.4	0.0	0.6	12.9	0.0	0.0	5.4	0.0	0.0
Prop In Lane	1.00		0.28	1.00		0.40	0.18		0.00	0.14		0.49
Lane Grp Cap(c), veh/h	356	0	471	16	0	128	977	0	0	903	0	0
V/C Ratio(X)	0.92	0.00	0.81	0.37	0.00	0.08	0.38	0.00	0.00	0.19	0.00	0.00
Avail Cap(c_a), veh/h	385	0	597	98	0	305	977	0	0	903	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	42.2	0.0	37.1	53.2	0.0	46.6	14.1	0.0	0.0	12.5	0.0	0.0
Incr Delay (d2), s/veh	25.5	0.0	6.6	13.5	0.0	0.3	1.1	0.0	0.0	0.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ft	0.5	0.0	9.6	0.2	0.0	0.2	4.9	0.0	0.0	2.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.7	0.0	43.7	66.7	0.0	46.8	15.3	0.0	0.0	12.9	0.0	0.0
LnGrp LOS	E	A	D	E	A	D	B	A	A	B	A	A
Approach Vol, veh/h		709			16			375			169	
Approach Delay, s/veh		54.8			54.3			15.3			12.9	
Approach LOS		D			D			B			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		65.2	7.5	35.3		65.2	28.3	14.5				
Change Period (Y+Rc), s		6.5	6.5	6.5		* 6.5	6.5	6.5				
Max Green Setting (Gmax), s		58.0	6.0	36.5		* 59	23.5	19.0				
Max Q Clear Time (g_c+I1), s		14.9	2.4	23.8		7.4	21.6	2.6				
Green Ext Time (p_c), s		2.1	0.0	1.6		1.0	0.2	0.0				

### Intersection Summary

HCM 6th Ctrl Delay	37.5
HCM 6th LOS	D

### Notes

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

# HCM 6th Signalized Intersection Summary

## 4: G Street & Cardella Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕		↖	↖		↖	↖	↖
Traffic Volume (veh/h)	112	0	52	2	0	0	27	510	0	1	592	52
Future Volume (veh/h)	112	0	52	2	0	0	27	510	0	1	592	52
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	172	0	80	3	0	0	42	785	0	2	911	0
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	261	0	183	90	0	0	68	1270	0	68	1270	
Arrive On Green	0.12	0.00	0.12	0.12	0.00	0.00	0.04	0.68	0.00	0.04	0.68	0.00
Sat Flow, veh/h	1709	0	1572	236	0	0	1767	1856	0	1767	1856	1572
Grp Volume(v), veh/h	172	0	80	3	0	0	42	785	0	2	911	0
Grp Sat Flow(s),veh/h/ln	1709	0	1572	236	0	0	1767	1856	0	1767	1856	1572
Q Serve(g_s), s	0.0	0.0	5.4	0.3	0.0	0.0	2.7	26.5	0.0	0.1	34.9	0.0
Cycle Q Clear(g_c), s	10.9	0.0	5.4	11.2	0.0	0.0	2.7	26.5	0.0	0.1	34.9	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	261	0	183	90	0	0	68	1270	0	68	1270	
V/C Ratio(X)	0.66	0.00	0.44	0.03	0.00	0.00	0.62	0.62	0.00	0.03	0.72	
Avail Cap(c_a), veh/h	308	0	235	133	0	0	92	1270	0	92	1270	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	49.6	0.0	47.2	55.1	0.0	0.0	54.3	9.9	0.0	53.0	11.2	0.0
Incr Delay (d2), s/veh	4.0	0.0	1.6	0.1	0.0	0.0	8.7	2.3	0.0	0.2	3.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/lr	5.0	0.0	2.2	0.1	0.0	0.0	1.3	9.0	0.0	0.1	12.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.6	0.0	48.8	55.2	0.0	0.0	63.0	12.1	0.0	53.2	14.7	0.0
LnGrp LOS	D	A	D	E	A	A	E	B	A	D	B	
Approach Vol, veh/h		252			3			827			913	A
Approach Delay, s/veh		52.1			55.2			14.7			14.8	
Approach LOS		D			E			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	0.9	85.0		18.7	10.9	85.0		18.7				
Change Period (Y+Rc), s	6.5	6.5		5.4	6.5	6.5		5.4				
Max Green Setting (Gmax), s	6.0	78.5		17.1	6.0	78.5		17.1				
Max Q Clear Time (g_c+1/2I), s	12.5	28.5		12.9	4.7	36.9		13.2				
Green Ext Time (p_c), s	0.0	5.6		0.4	0.0	7.1		0.0				

### Intersection Summary

HCM 6th Ctrl Delay	19.5
HCM 6th LOS	B

### Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th TWSC  
5: Lake Road & Cardella Road

02/23/2022

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	1	2	460	97	8
Future Vol, veh/h	10	1	2	460	97	8
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	0	-	-	-	-
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	11	1	2	523	110	9

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	642	115	119	0	0
Stage 1	115	-	-	-	-
Stage 2	527	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-
Pot Cap-1 Maneuver	437	935	1463	-	-
Stage 1	907	-	-	-	-
Stage 2	590	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	436	935	1463	-	-
Mov Cap-2 Maneuver	436	-	-	-	-
Stage 1	905	-	-	-	-
Stage 2	590	-	-	-	-

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

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1463	-	436	935	-	-
HCM Lane V/C Ratio	0.002	-	0.026	0.001	-	-
HCM Control Delay (s)	7.5	0	13.5	8.9	-	-
HCM Lane LOS	A	A	B	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	0	-	-



# HCM 6th Signalized Intersection Summary

## 6: Snelling Highway (SR 59) & Yosemite Avenue

02/23/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↶	↶	↶	↷	↶	↶
Traffic Volume (veh/h)	172	347	197	186	425	219
Future Volume (veh/h)	172	347	197	186	425	219
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	202	408	232	219	500	258
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	353	314	533	452	537	1231
Arrive On Green	0.20	0.20	0.29	0.29	0.30	0.66
Sat Flow, veh/h	1767	1572	1856	1572	1767	1856
Grp Volume(v), veh/h	202	408	232	219	500	258
Grp Sat Flow(s),veh/h/ln	1767	1572	1856	1572	1767	1856
Q Serve(g_s), s	9.3	18.0	9.2	10.4	24.7	4.9
Cycle Q Clear(g_c), s	9.3	18.0	9.2	10.4	24.7	4.9
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	353	314	533	452	537	1231
V/C Ratio(X)	0.57	1.30	0.44	0.48	0.93	0.21
Avail Cap(c_a), veh/h	353	314	533	452	599	1231
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.5	36.0	26.1	26.6	30.4	5.9
Incr Delay (d2), s/veh	2.2	155.3	2.6	3.7	20.3	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	20.0	4.0	4.0	12.4	1.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	34.7	191.3	28.7	30.3	50.7	6.3
LnGrp LOS	C	F	C	C	D	A
Approach Vol, veh/h	610		451			758
Approach Delay, s/veh	139.5		29.5			35.6
Approach LOS	F		C			D
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	33.8	32.4			66.2	23.8
Change Period (Y+Rc), s	6.5	6.5			6.5	5.8
Max Green Setting (Gmax), s	30.5	22.7			59.7	18.0
Max Q Clear Time (g_c+I1), s	26.7	12.4			6.9	20.0
Green Ext Time (p_c), s	0.6	1.3			1.3	0.0
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			68.9			
HCM 6th LOS			E			

# HCM 6th Signalized Intersection Summary

## 7: G Street & Yosemite Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	131	475	116	166	406	106	230	418	159	120	367	120
Future Volume (veh/h)	131	475	116	166	406	106	230	418	159	120	367	120
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	162	586	143	205	501	131	284	516	196	148	453	148
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	196	691	168	240	954	426	240	1121	500	139	918	410
Arrive On Green	0.11	0.25	0.25	0.14	0.27	0.27	0.14	0.32	0.32	0.08	0.26	0.26
Sat Flow, veh/h	1767	2811	684	1767	3526	1572	1767	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	162	367	362	205	501	131	284	516	196	148	453	148
Grp Sat Flow(s),veh/h/ln	1767	1763	1732	1767	1763	1572	1767	1763	1572	1767	1763	1572
Q Serve(g_s), s	9.4	20.7	20.8	11.8	12.6	6.9	14.2	12.2	6.5	8.2	11.4	8.0
Cycle Q Clear(g_c), s	9.4	20.7	20.8	11.8	12.6	6.9	14.2	12.2	6.5	8.2	11.4	8.0
Prop In Lane	1.00		0.39	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	196	433	426	240	954	426	240	1121	500	139	918	410
V/C Ratio(X)	0.83	0.85	0.85	0.86	0.52	0.31	1.18	0.46	0.39	1.07	0.49	0.36
Avail Cap(c_a), veh/h	399	543	534	393	1073	479	240	1121	500	139	918	410
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	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	45.5	37.5	37.6	44.1	32.4	30.3	45.1	28.5	11.3	48.1	32.8	31.5
Incr Delay (d2), s/veh	8.6	9.9	10.3	9.7	0.4	0.4	116.2	1.4	2.3	95.3	1.9	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	9.7	9.6	5.6	5.2	2.6	13.7	5.1	3.7	7.2	4.9	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.0	47.4	47.9	53.8	32.8	30.7	161.3	29.8	13.6	143.4	34.7	34.0
LnGrp LOS	D	D	D	D	C	C	F	C	B	F	C	C
Approach Vol, veh/h		891			837			996			749	
Approach Delay, s/veh		48.8			37.6			64.1			56.0	
Approach LOS		D			D			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.0	39.0	20.0	31.5	20.0	33.0	17.4	34.1				
Change Period (Y+Rc), s	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8				
Max Green Setting (Gmax), s	33.2	23.2	23.2	14.2	27.2	23.6	31.8					
Max Q Clear Time (g_c+110), s	14.2	13.8	22.8	16.2	13.4	11.4	14.6					
Green Ext Time (p_c), s	0.0	3.6	0.4	2.9	0.0	2.7	0.3	3.2				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay					52.1							
HCM 6th LOS					D							

**Intersection**

Intersection Delay, s/veh 32.1

Intersection LOS D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔			↔			↔	↔
Traffic Vol, veh/h	27	350	120	19	382	17	198	23	32	37	59	41
Future Vol, veh/h	27	350	120	19	382	17	198	23	32	37	59	41
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	30	385	132	21	420	19	218	25	35	41	65	45
Number of Lanes	0	2	0	0	1	0	0	1	0	0	1	1

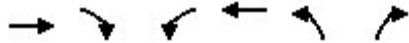
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	2	1
Conflicting Approach Left		NB	EB	WB
Conflicting Lanes Left	2	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	2
HCM Control Delay	20.3	56.1	25.4	13.9
HCM LOS	C	F	D	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	78%	13%	0%	5%	39%	0%
Vol Thru, %	9%	87%	59%	91%	61%	0%
Vol Right, %	13%	0%	41%	4%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	253	202	295	418	96	41
LT Vol	198	27	0	19	37	0
Through Vol	23	175	175	382	59	0
RT Vol	32	0	120	17	0	41
Lane Flow Rate	278	222	324	459	105	45
Geometry Grp	6	7	7	6	7	7
Degree of Util (X)	0.646	0.47	0.653	0.945	0.262	0.1
Departure Headway (Hd)	8.36	7.615	7.253	7.532	8.957	8.029
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	434	475	499	487	402	447
Service Time	6.373	5.335	4.973	5.532	6.687	5.759
HCM Lane V/C Ratio	0.641	0.467	0.649	0.943	0.261	0.101
HCM Control Delay	25.4	16.9	22.6	56.1	14.8	11.7
HCM Lane LOS	D	C	C	F	B	B
HCM 95th-tile Q	4.4	2.5	4.6	11.5	1	0.3

# HCM 6th Signalized Intersection Summary

## 9: McKee Road & Yosemite Avenue

02/23/2022



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑	↵	↵
Traffic Volume (veh/h)	238	114	88	251	196	172
Future Volume (veh/h)	238	114	88	251	196	172
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	262	125	97	276	215	189
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	418	194	147	677	746	664
Arrive On Green	0.18	0.18	0.08	0.36	0.42	0.42
Sat Flow, veh/h	2432	1084	1767	1856	1767	1572
Grp Volume(v), veh/h	196	191	97	276	215	189
Grp Sat Flow(s),veh/h/ln	1763	1660	1767	1856	1767	1572
Q Serve(g_s), s	5.8	6.0	3.0	6.3	4.5	4.4
Cycle Q Clear(g_c), s	5.8	6.0	3.0	6.3	4.5	4.4
Prop In Lane		0.65	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	315	297	147	677	746	664
V/C Ratio(X)	0.62	0.64	0.66	0.41	0.29	0.28
Avail Cap(c_a), veh/h	976	919	539	1784	746	664
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.4	21.5	25.1	13.4	10.7	10.7
Incr Delay (d2), s/veh	2.0	2.3	5.0	0.4	1.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	2.2	1.3	2.1	1.5	1.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	23.4	23.8	30.1	13.7	11.7	11.8
LnGrp LOS	C	C	C	B	B	B
Approach Vol, veh/h	387			373	404	
Approach Delay, s/veh	23.6			18.0	11.7	
Approach LOS	C			B	B	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		30.0	10.5	15.9		26.4
Change Period (Y+Rc), s		6.2	5.8	5.8		5.8
Max Green Setting (Gmax), s		23.8	17.2	31.2		54.2
Max Q Clear Time (g_c+I1), s		6.5	5.0	8.0		8.3
Green Ext Time (p_c), s		1.1	0.1	2.1		1.5
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			17.7			
HCM 6th LOS			B			

**Intersection**

Intersection Delay, s/veh 12.3

Intersection LOS B

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	316	66	141	95	30	77
Future Vol, veh/h	316	66	141	95	30	77
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	367	77	164	110	35	90
Number of Lanes	1	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left SB			WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	14.4	10.3	9.5
HCM LOS	B	B	A

Lane	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	100%	0%	0%	28%
Vol Thru, %	0%	100%	60%	0%
Vol Right, %	0%	0%	40%	72%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	316	66	236	107
LT Vol	316	0	0	30
Through Vol	0	66	141	0
RT Vol	0	0	95	77
Lane Flow Rate	367	77	274	124
Geometry Grp	7	7	5	2
Degree of Util (X)	0.571	0.109	0.356	0.181
Departure Headway (Hd)	5.596	5.093	4.668	5.244
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	643	701	766	679
Service Time	3.352	2.849	2.724	3.31
HCM Lane V/C Ratio	0.571	0.11	0.358	0.183
HCM Control Delay	15.6	8.5	10.3	9.5
HCM Lane LOS	C	A	B	A
HCM 95th-tile Q	3.6	0.4	1.6	0.7

# HCM 6th Signalized Intersection Summary

## 11: Snelling Highway (SR 59) & Santa Fe Drive/Olive Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	134	750	114	188	417	40	68	344	248	49	287	44
Future Volume (veh/h)	134	750	114	188	417	40	68	344	248	49	287	44
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		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	158	882	134	221	491	47	80	405	292	58	338	52
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	186	959	428	241	1069	477	101	644	546	76	523	80
Arrive On Green	0.11	0.27	0.27	0.14	0.30	0.30	0.06	0.35	0.35	0.04	0.33	0.33
Sat Flow, veh/h	1767	3526	1572	1767	3526	1572	1767	1856	1572	1767	1570	242
Grp Volume(v), veh/h	158	882	134	221	491	47	80	405	292	58	0	390
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1572	1767	1856	1572	1767	0	1812
Q Serve(g_s), s	10.4	28.8	6.3	14.6	13.4	2.5	5.3	21.6	17.7	3.9	0.0	21.7
Cycle Q Clear(g_c), s	10.4	28.8	6.3	14.6	13.4	2.5	5.3	21.6	17.7	3.9	0.0	21.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.13
Lane Grp Cap(c), veh/h	186	959	428	241	1069	477	101	644	546	76	0	603
V/C Ratio(X)	0.85	0.92	0.31	0.92	0.46	0.10	0.79	0.63	0.54	0.76	0.00	0.65
Avail Cap(c_a), veh/h	250	992	443	241	1069	477	104	644	546	110	0	603
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	52.2	41.9	21.3	50.6	33.5	29.7	55.2	32.4	31.1	56.2	0.0	33.7
Incr Delay (d2), s/veh	18.1	13.0	0.4	36.1	0.3	0.1	32.1	4.6	3.7	16.8	0.0	5.3
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/lr	5.4	13.7	3.0	8.7	5.6	1.0	3.2	10.1	7.0	2.0	0.0	9.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	70.3	54.9	21.7	86.7	33.8	29.8	87.4	37.0	34.8	73.0	0.0	38.9
LnGrp LOS	E	D	C	F	C	C	F	D	C	E	A	D
Approach Vol, veh/h		1174			759			777			448	
Approach Delay, s/veh		53.2			48.9			41.4			43.3	
Approach LOS		D			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	1.6	47.0	22.0	38.1	12.6	46.0	18.3	41.8				
Change Period (Y+Rc), s	6.5	5.8	5.8	5.8	5.8	6.5	5.8	5.8				
Max Green Setting (Gmax), s	7.4	39.1	16.2	33.4	7.0	39.5	16.8	32.8				
Max Q Clear Time (g_c+1/3), s	9.5	23.6	16.6	30.8	7.3	23.7	12.4	15.4				
Green Ext Time (p_c), s	0.0	2.9	0.0	1.5	0.0	1.8	0.1	2.9				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay											47.9	
HCM 6th LOS											D	

# HCM 6th Signalized Intersection Summary

## 12: R Street & Olive Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	107	628	126	217	484	112	127	406	109	141	421	45
Future Volume (veh/h)	107	628	126	217	484	112	127	406	109	141	421	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	130	766	154	265	590	137	155	495	133	172	513	55
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	132	974	302	244	1295	402	183	994	265	186	1280	571
Arrive On Green	0.07	0.19	0.19	0.14	0.26	0.26	0.10	0.36	0.36	0.11	0.36	0.36
Sat Flow, veh/h	1767	5066	1572	1767	5066	1572	1767	2751	735	1767	3526	1572
Grp Volume(v), veh/h	130	766	154	265	590	137	155	316	312	172	513	55
Grp Sat Flow(s),veh/h/ln	1767	1689	1572	1767	1689	1572	1767	1763	1723	1767	1763	1572
Q Serve(g_s), s	8.1	15.9	9.7	15.2	10.8	5.6	9.5	15.4	15.5	10.6	12.0	2.5
Cycle Q Clear(g_c), s	8.1	15.9	9.7	15.2	10.8	5.6	9.5	15.4	15.5	10.6	12.0	2.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.43	1.00		1.00
Lane Grp Cap(c), veh/h	132	974	302	244	1295	402	183	637	623	186	1280	571
V/C Ratio(X)	0.99	0.79	0.51	1.09	0.46	0.34	0.85	0.50	0.50	0.92	0.40	0.10
Avail Cap(c_a), veh/h	132	1195	371	244	1517	471	192	637	623	186	1280	571
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.9	42.4	39.9	47.5	34.5	17.4	48.5	27.4	27.4	48.9	26.2	23.2
Incr Delay (d2), s/veh	74.7	2.9	1.3	82.7	0.3	0.5	27.1	2.8	2.9	44.9	0.9	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/lr	6.2	6.6	3.7	12.1	4.3	2.9	5.5	6.7	6.7	6.9	5.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	125.7	45.2	41.2	130.2	34.8	17.9	75.6	30.1	30.3	93.8	27.1	23.5
LnGrp LOS	F	D	D	F	C	B	E	C	C	F	C	C
Approach Vol, veh/h		1050			992			783			740	
Approach Delay, s/veh		54.6			58.0			39.2			42.3	
Approach LOS		D			E			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.0	45.2	21.0	27.0	16.8	45.4	14.0	34.0				
Change Period (Y+Rc), s	5.4	5.4	5.8	5.8	5.4	5.4	5.8	5.8				
Max Green Setting (Gmax), s	1.6	39.8	15.2	26.0	12.0	39.4	8.2	33.0				
Max Q Clear Time (g_c+1/2g), s	11.6	17.5	17.2	17.9	11.5	14.0	10.1	12.8				
Green Ext Time (p_c), s	0.0	3.7	0.0	3.3	0.0	3.5	0.0	4.0				

### Intersection Summary

HCM 6th Ctrl Delay	49.6
HCM 6th LOS	D



# HCM 6th Signalized Intersection Summary

## 13: M Street & Olive Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑↑↑	↗	↖	↑↑↑		↖	↑↑		↖	↑↑	
Traffic Volume (veh/h)	129	661	133	131	668	103	127	352	110	220	405	59
Future Volume (veh/h)	129	661	133	131	668	103	127	352	110	220	405	59
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	159	816	164	162	825	127	157	435	136	272	500	73
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	187	1112	345	191	984	150	185	813	252	300	1149	167
Arrive On Green	0.11	0.22	0.22	0.11	0.22	0.22	0.10	0.31	0.31	0.17	0.37	0.37
Sat Flow, veh/h	1767	5066	1572	1767	4432	678	1767	2650	821	1767	3088	449
Grp Volume(v), veh/h	159	816	164	162	627	325	157	288	283	272	284	289
Grp Sat Flow(s),veh/h/ln	1767	1689	1572	1767	1689	1733	1767	1763	1708	1767	1763	1775
Q Serve(g_s), s	10.1	17.1	10.4	10.3	20.3	20.5	10.0	15.5	15.7	17.3	13.8	13.9
Cycle Q Clear(g_c), s	10.1	17.1	10.4	10.3	20.3	20.5	10.0	15.5	15.7	17.3	13.8	13.9
Prop In Lane	1.00		1.00	1.00		0.39	1.00		0.48	1.00		0.25
Lane Grp Cap(c), veh/h	187	1112	345	191	749	385	185	541	524	300	656	660
V/C Ratio(X)	0.85	0.73	0.48	0.85	0.84	0.84	0.85	0.53	0.54	0.91	0.43	0.44
Avail Cap(c_a), veh/h	206	1143	355	249	845	434	204	541	524	318	656	660
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.2	41.5	38.9	50.1	42.5	42.6	50.3	32.8	32.9	46.6	26.9	26.9
Incr Delay (d2), s/veh	25.8	2.4	1.0	18.8	6.7	12.9	25.6	3.7	3.9	27.5	2.1	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	5.7	7.1	4.0	5.4	8.8	9.8	5.6	7.0	6.9	9.7	6.0	6.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	76.0	43.9	39.9	68.8	49.3	55.5	75.9	36.5	36.9	74.1	29.0	29.0
LnGrp LOS	E	D	D	E	D	E	E	D	D	E	C	C
Approach Vol, veh/h		1139			1114			728			845	
Approach Delay, s/veh		47.8			53.9			45.2			43.5	
Approach LOS		D			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	24.8	40.5	18.2	30.9	17.3	47.9	17.9	31.2				
Change Period (Y+Rc), s	5.4	5.4	5.8	5.8	5.4	5.4	5.8	5.8				
Max Green Setting (Gmax), s	20.6	35.1	16.1	25.8	13.2	42.5	13.3	28.6				
Max Q Clear Time (g_c+119), s	119.3	17.7	12.3	19.1	12.0	15.9	12.1	22.5				
Green Ext Time (p_c), s	0.1	3.0	0.1	3.1	0.0	3.4	0.0	2.9				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay											48.1	
HCM 6th LOS											D	

# HCM 6th Signalized Intersection Summary

## 14: Olive Avenue & G Street

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	233	309	211	216	571	56	261	785	114	76	652	314
Future Volume (veh/h)	233	309	211	216	571	56	261	785	114	76	652	314
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	268	355	243	248	656	64	300	902	131	87	749	361
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	272	935	417	197	724	71	227	1322	590	93	1054	470
Arrive On Green	0.15	0.27	0.27	0.11	0.22	0.22	0.13	0.37	0.37	0.05	0.30	0.30
Sat Flow, veh/h	1767	3526	1572	1767	3245	316	1767	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	268	355	243	248	356	364	300	902	131	87	749	361
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1799	1767	1763	1572	1767	1763	1572
Q Serve(g_s), s	17.9	9.7	15.9	13.2	23.3	23.3	15.2	25.4	6.7	5.8	22.4	15.9
Cycle Q Clear(g_c), s	17.9	9.7	15.9	13.2	23.3	23.3	15.2	25.4	6.7	5.8	22.4	15.9
Prop In Lane	1.00		1.00	1.00		0.18	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	272	935	417	197	393	401	227	1322	590	93	1054	470
V/C Ratio(X)	0.99	0.38	0.58	1.26	0.91	0.91	1.32	0.68	0.22	0.94	0.71	0.77
Avail Cap(c_a), veh/h	272	982	438	197	417	425	227	1322	590	93	1054	470
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.0	35.5	37.8	52.6	44.8	44.8	51.6	31.1	25.2	55.9	36.9	15.5
Incr Delay (d2), s/veh	50.8	0.3	1.8	150.8	22.2	22.2	172.5	2.9	0.9	74.0	4.1	11.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	4.1	6.1	13.9	12.2	12.5	17.4	10.8	2.6	4.4	9.9	6.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	100.8	35.8	39.6	203.5	67.0	67.0	224.1	34.0	26.1	129.9	41.0	26.9
LnGrp LOS	F	D	D	F	E	E	F	C	C	F	D	C
Approach Vol, veh/h		866			968			1333			1197	
Approach Delay, s/veh		57.0			101.9			76.0			43.2	
Approach LOS		E			F			E			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	2.0	50.2	19.0	37.2	21.0	41.2	24.0	32.2				
Change Period (Y+Rc), s	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8				
Max Green Setting (Gmax), s	2.0	44.4	13.2	33.0	15.2	35.4	18.2	28.0				
Max Q Clear Time (g_c+1), s	2.0	27.4	15.2	17.9	17.2	24.4	19.9	25.3				
Green Ext Time (p_c), s	0.0	5.8	0.0	2.6	0.0	4.5	0.0	1.1				

### Intersection Summary

HCM 6th Ctrl Delay	69.0
HCM 6th LOS	E

HCM 6th AWSC  
 15: 16th Street & Snelling Highway (SR 59)

02/23/2022

Intersection

Intersection Delay, s/veh 209

Intersection LOS F

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	324	735	275	302	324	315
Future Vol, veh/h	324	735	275	302	324	315
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	352	799	299	328	352	342
Number of Lanes	1	1	2	1	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	3	2	0
Conflicting Approach Left SB			WB
Conflicting Lanes Left	1	0	3
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	280.2	15.4	265.8
HCM LOS	F	C	F

Lane	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	100%	0%	0%	0%	0%	51%
Vol Thru, %	0%	100%	100%	100%	0%	0%
Vol Right, %	0%	0%	0%	0%	100%	49%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	324	735	138	138	302	639
LT Vol	324	0	0	0	0	324
Through Vol	0	735	138	138	0	0
RT Vol	0	0	0	0	302	315
Lane Flow Rate	352	799	149	149	328	695
Geometry Grp	8	8	7	7	7	7
Degree of Util (X)	0.833	1.779	0.323	0.323	0.487	1.515
Departure Headway (Hd)	9.971	9.438	8.999	8.999	6.407	8.536
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	366	391	402	402	568	431
Service Time	7.671	7.138	6.699	6.699	4.107	6.236
HCM Lane V/C Ratio	0.962	2.043	0.371	0.371	0.577	1.613
HCM Control Delay	46.9	383.1	15.9	15.9	15	265.8
HCM Lane LOS	E	F	C	C	B	F
HCM 95th-tile Q	7.5	43.1	1.4	1.4	2.7	34.2

HCM 6th TWSC  
16: MLK JR Way & SR 99 NB Ramps

02/23/2022

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	0	0	0	62	0	87	206	484	0	0	239	244
Future Vol, veh/h	0	0	0	62	0	87	206	484	0	0	239	244
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	75	-	-	-	-	-
Veh in Median Storage, #	-	2	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	0	70	0	98	231	544	0	0	269	274

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1141	1549	272 543 0 - - - 0
Stage 1	1006	1006	- - - - - - -
Stage 2	135	543	- - - - - - -
Critical Hdwy	6.86	6.56	6.96 4.16 - - - - -
Critical Hdwy Stg 1	5.86	5.56	- - - - - - -
Critical Hdwy Stg 2	5.86	5.56	- - - - - - -
Follow-up Hdwy	3.53	4.03	3.33 2.23 - - - - -
Pot Cap-1 Maneuver	193	112	723 1015 - 0 0 - -
Stage 1	312	315	- - - 0 0 - -
Stage 2	874	515	- - - 0 0 - -
Platoon blocked, %			- - - - -
Mov Cap-1 Maneuver	149	0	723 1015 - - - - -
Mov Cap-2 Maneuver	149	0	- - - - - - -
Stage 1	241	0	- - - - - - -
Stage 2	874	0	- - - - - - -

Approach	WB	NB	SB
HCM Control Delay, s	35.8	2.9	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBTWBLn1	SBT	SBR
Capacity (veh/h)	1015	-	278	-
HCM Lane V/C Ratio	0.228	-	0.602	-
HCM Control Delay (s)	9.6	-	35.8	-
HCM Lane LOS	A	-	E	-
HCM 95th %tile Q(veh)	0.9	-	3.6	-

HCM 6th TWSC  
 17: G Street & 14th Street/SR 99 NB Off Ramp

02/23/2022

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖		↗		↖		↖	↖↗			↖↗	
Traffic Vol, veh/h	18	0	7	49	3	85	8	463	0	0	427	27
Future Vol, veh/h	18	0	7	49	3	85	8	463	0	0	427	27
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	-	-	-	75	-	-	-	-	-
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	20	0	8	54	3	93	9	509	0	0	469	30

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	758	-	250	762	1026	255	499	0	-	-	-	0
Stage 1	484	-	-	527	527	-	-	-	-	-	-	-
Stage 2	274	-	-	235	499	-	-	-	-	-	-	-
Critical Hdwy	7.56	-	6.96	7.56	6.56	6.96	4.16	-	-	-	-	-
Critical Hdwy Stg 1	6.56	-	-	6.56	5.56	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.56	-	-	6.56	5.56	-	-	-	-	-	-	-
Follow-up Hdwy	3.53	-	3.33	3.53	4.03	3.33	2.23	-	-	-	-	-
Pot Cap-1 Maneuver	294	0	747	292	232	741	1054	-	0	0	-	-
Stage 1	530	0	-	500	524	-	-	-	0	0	-	-
Stage 2	706	0	-	744	539	-	-	-	0	0	-	-
Platoon blocked, %								-			-	
Mov Cap-1 Maneuver	253	-	747	287	230	741	1054	-	-	-	-	-
Mov Cap-2 Maneuver	253	-	-	287	230	-	-	-	-	-	-	-
Stage 1	525	-	-	496	519	-	-	-	-	-	-	-
Stage 2	608	-	-	736	539	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	17.5		11.1		0.1		0	
HCM LOS	C		B					

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	WBLn1	SBT	SBR
Capacity (veh/h)	1054	-	253	747	689	-	-
HCM Lane V/C Ratio	0.008	-	0.078	0.01	0.14	-	-
HCM Control Delay (s)	8.4	-	20.4	9.9	11.1	-	-
HCM Lane LOS	A	-	C	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.3	0	0.5	-	-

HCM 6th Roundabout  
18: Campus Parkway & Yosemite Avenue

02/23/2022

Intersection			
Intersection Delay, s/veh	0.0		
Intersection LOS	-		
Approach	EB	WB	NB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	0	0	0
Demand Flow Rate, veh/h	0	0	0
Vehicles Circulating, veh/h	0	0	0
Vehicles Exiting, veh/h	0	0	0
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	0.0	0.0	0.0
Approach LOS	-	-	-
Lane	Left	Left	Left
Designated Moves	TR	LT	LR
Assumed Moves	TR	LT	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	0	0	0
Cap Entry Lane, veh/h	1380	1380	1380
Entry HV Adj Factor	1.000	1.000	1.000
Flow Entry, veh/h	0	0	0
Cap Entry, veh/h	1380	1380	1380
V/C Ratio	0.000	0.000	0.000
Control Delay, s/veh	2.6	2.6	2.6
LOS	A	A	A
95th %tile Queue, veh	0	0	0

HCM 6th Roundabout  
19: Campus Parkway & Olive Avenue

02/23/2022

Intersection					
Intersection Delay, s/veh	0.0				
Intersection LOS	-				
Approach	EB	WB	NB	SB	
Entry Lanes	1	1	1	1	
Conflicting Circle Lanes	1	1	1	1	
Adj Approach Flow, veh/h	0	0	0	0	
Demand Flow Rate, veh/h	0	0	0	0	
Vehicles Circulating, veh/h	0	0	0	0	
Vehicles Exiting, veh/h	0	0	0	0	
Ped Vol Crossing Leg, #/h	0	0	0	0	
Ped Cap Adj	1.000	1.000	1.000	1.000	
Approach Delay, s/veh	0.0	0.0	0.0	0.0	
Approach LOS	-	-	-	-	
Lane	Left	Left	Left	Left	Bypass
Designated Moves	LTR	LTR	LTR	LT	R
Assumed Moves	LTR	LTR	LTR	LT	R
RT Channelized					Yield
Lane Util	1.000	1.000	1.000	1.000	
Follow-Up Headway, s	2.609	2.609	2.609	2.609	
Critical Headway, s	4.976	4.976	4.976	4.976	
Entry Flow, veh/h	0	0	0	0	1380
Cap Entry Lane, veh/h	1380	1380	1380	1380	0.971
Entry HV Adj Factor	1.000	1.000	1.000	1.000	
Flow Entry, veh/h	0	0	0	0	1340
Cap Entry, veh/h	1380	1380	1380	1380	0.000
V/C Ratio	0.000	0.000	0.000	0.000	
Control Delay, s/veh	2.6	2.6	2.6	2.6	
LOS	A	A	A	A	
95th %tile Queue, veh	0	0	0	0	



# HCM 6th Signalized Intersection Summary

## 20: Campus Parkway & Connector Road

02/23/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔↔	↔	↑↑	↔	↔↔	↑↑
Traffic Volume (veh/h)	38	0	1	42	2	0
Future Volume (veh/h)	38	0	1	42	2	0
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	41	0	1	0	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	247		1737		11	2287
Arrive On Green	0.07	0.00	0.49	0.00	0.00	0.00
Sat Flow, veh/h	3428	1572	3618	1572	3428	3618
Grp Volume(v), veh/h	41	0	1	0	2	0
Grp Sat Flow(s),veh/h/ln	1714	1572	1763	1572	1714	1763
Q Serve(g_s), s	0.5	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.5	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	247		1737		11	2287
V/C Ratio(X)	0.17		0.00		0.18	0.00
Avail Cap(c_a), veh/h	2655		1737		483	2287
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	18.6	0.0	5.5	0.0	21.2	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.0	7.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	18.9	0.0	5.5	0.0	28.4	0.0
LnGrp LOS	B		A		C	A
Approach Vol, veh/h	41	A	1	A		2
Approach Delay, s/veh	18.9		5.5			28.4
Approach LOS	B		A			C
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	6.6	27.5			34.1	8.5
Change Period (Y+Rc), s	6.5	6.5			6.5	5.4
Max Green Setting (Gmax), s	6.6	21.0			17.7	33.0
Max Q Clear Time (g_c+1/2g), s	12.6	2.0			0.0	2.5
Green Ext Time (p_c), s	0.0	0.0			0.0	0.1

### Intersection Summary

HCM 6th Ctrl Delay	19.0
HCM 6th LOS	B

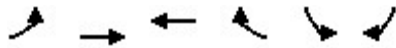
### Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

# HCM 6th Signalized Intersection Summary

## 21: SR 140 & Connector Road

02/23/2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↕	↗	↖	↗	↘	↗
Traffic Volume (veh/h)	19	169	224	18	15	26
Future Volume (veh/h)	19	169	224	18	15	26
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	21	184	243	20	16	28
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	54	696	387	328	665	592
Arrive On Green	0.03	0.37	0.21	0.21	0.38	0.38
Sat Flow, veh/h	1767	1856	1856	1572	1767	1572
Grp Volume(v), veh/h	21	184	243	20	16	28
Grp Sat Flow(s),veh/h/ln	1767	1856	1856	1572	1767	1572
Q Serve(g_s), s	0.6	3.3	5.7	0.5	0.3	0.5
Cycle Q Clear(g_c), s	0.6	3.3	5.7	0.5	0.3	0.5
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	54	696	387	328	665	592
V/C Ratio(X)	0.39	0.26	0.63	0.06	0.02	0.05
Avail Cap(c_a), veh/h	222	698	970	822	665	592
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.7	10.4	17.2	15.2	9.4	9.5
Incr Delay (d2), s/veh	4.5	0.2	1.7	0.1	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.9	2.0	0.1	0.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	27.3	10.6	18.9	15.3	9.5	9.6
LnGrp LOS	C	B	B	B	A	A
Approach Vol, veh/h		205	263		44	
Approach Delay, s/veh		12.3	18.6		9.6	
Approach LOS		B	B		A	
Timer - Assigned Phs			4		6	7 8
Phs Duration (G+Y+Rc), s			24.4		23.4	8.0 16.5
Change Period (Y+Rc), s			6.5		5.4	6.5 6.5
Max Green Setting (Gmax), s			18.0		18.0	6.0 25.0
Max Q Clear Time (g_c+I1), s			5.3		2.5	2.6 7.7
Green Ext Time (p_c), s			0.6		0.1	0.0 1.1
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			15.3			
HCM 6th LOS			B			

# HCM 6th Signalized Intersection Summary

## 22: Campus Parkway & Childs Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	74	56	92	105	4	91	27	92	0	28	5
Future Volume (veh/h)	11	74	56	92	105	4	91	27	92	0	28	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	12	80	61	100	114	4	99	29	100	0	30	5
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	32	420	188	134	662	295	259	1880	839	3	1270	566
Arrive On Green	0.02	0.12	0.12	0.08	0.19	0.19	0.08	0.53	0.53	0.00	0.36	0.36
Sat Flow, veh/h	1767	3526	1572	1767	3526	1572	3428	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	12	80	61	100	114	4	99	29	100	0	30	5
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1572	1714	1763	1572	1767	1763	1572
Q Serve(g_s), s	0.4	1.4	2.4	3.7	1.8	0.1	1.8	0.3	2.1	0.0	0.4	0.1
Cycle Q Clear(g_c), s	0.4	1.4	2.4	3.7	1.8	0.1	1.8	0.3	2.1	0.0	0.4	0.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	32	420	188	134	662	295	259	1880	839	3	1270	566
V/C Ratio(X)	0.38	0.19	0.33	0.75	0.17	0.01	0.38	0.02	0.12	0.00	0.02	0.01
Avail Cap(c_a), veh/h	159	2063	920	159	2169	967	309	1880	839	159	1270	566
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	32.4	26.4	26.9	30.2	22.7	22.0	29.3	7.3	7.8	0.0	13.8	13.7
Incr Delay (d2), s/veh	7.3	0.2	1.0	14.6	0.1	0.0	0.9	0.0	0.3	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.6	0.9	2.0	0.7	0.0	0.7	0.1	0.6	0.0	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.6	26.7	27.9	44.7	22.8	22.1	30.2	7.3	8.0	0.0	13.8	13.7
LnGrp LOS	D	C	C	D	C	C	C	A	A	A	B	B
Approach Vol, veh/h		153			218			228			35	
Approach Delay, s/veh		28.2			32.9			17.6			13.8	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	0.0	42.0	10.9	13.7	11.5	30.5	6.3	18.3				
Change Period (Y+Rc), s	6.5	6.5	5.8	* 5.8	6.5	6.5	5.1	5.8				
Max Green Setting (Gmax), s	6.0	23.0	6.0	* 39	6.0	24.0	6.0	41.0				
Max Q Clear Time (g_c+10), s	4.1	4.1	5.7	4.4	3.8	2.4	2.4	3.8				
Green Ext Time (p_c), s	0.0	0.4	0.0	0.7	0.0	0.1	0.0	0.6				

### Intersection Summary

HCM 6th Ctrl Delay	25.2
HCM 6th LOS	C

### Notes

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

HCM 6th Signalized Intersection Summary  
 23: Campus Parkway & Gerard Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑	↗	↔↔	↑↑	↗	↔↔	↑↑	↗	↔↔	↑↑	↗
Traffic Volume (veh/h)	18	11	73	23	9	3	33	170	9	5	144	29
Future Volume (veh/h)	18	11	73	23	9	3	33	170	9	5	144	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	20	12	79	25	10	3	36	185	10	5	157	32
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	95	370	165	113	425	190	149	1684	751	27	1559	695
Arrive On Green	0.03	0.11	0.11	0.03	0.12	0.12	0.04	0.48	0.48	0.01	0.44	0.44
Sat Flow, veh/h	3428	3526	1572	3428	3526	1572	3428	3526	1572	3428	3526	1572
Grp Volume(v), veh/h	20	12	79	25	10	3	36	185	10	5	157	32
Grp Sat Flow(s),veh/h/ln	1714	1763	1572	1714	1763	1572	1714	1763	1572	1714	1763	1572
Q Serve(g_s), s	0.4	0.2	3.3	0.5	0.2	0.1	0.7	2.0	0.2	0.1	1.8	0.8
Cycle Q Clear(g_c), s	0.4	0.2	3.3	0.5	0.2	0.1	0.7	2.0	0.2	0.1	1.8	0.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	95	370	165	113	425	190	149	1684	751	27	1559	695
V/C Ratio(X)	0.21	0.03	0.48	0.22	0.02	0.02	0.24	0.11	0.01	0.18	0.10	0.05
Avail Cap(c_a), veh/h	298	1888	842	298	1939	865	298	1684	751	298	1559	695
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.9	27.8	29.1	32.5	26.8	26.8	32.0	10.0	9.5	34.1	11.2	11.0
Incr Delay (d2), s/veh	1.1	0.0	2.1	1.0	0.0	0.0	0.8	0.1	0.0	3.2	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/lr	0.2	0.1	1.2	0.2	0.1	0.0	0.3	0.6	0.1	0.0	0.6	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.9	27.8	31.3	33.5	26.8	26.8	32.8	10.1	9.5	37.2	11.4	11.1
LnGrp LOS	C	C	C	C	C	C	C	B	A	D	B	B
Approach Vol, veh/h		111			38			231			194	
Approach Delay, s/veh		31.4			31.2			13.6			12.0	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.0	39.5	8.8	13.8	9.5	37.1	7.7	14.8				
Change Period (Y+Rc), s	6.5	6.5	6.5	* 6.5	6.5	6.5	5.8	6.5				
Max Green Setting (Gmax), s	6.0	33.0	6.0	* 37	6.0	30.0	6.0	38.0				
Max Q Clear Time (g_c+1), s	4.0	4.0	2.5	5.3	2.7	3.8	2.4	2.2				
Green Ext Time (p_c), s	0.0	1.0	0.0	0.3	0.0	0.9	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	17.7
HCM 6th LOS	B

Notes

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

HCM 6th AWSC  
 24: Coffee Street & Campus Parkway

02/23/2022

Intersection

Intersection Delay, s/veh 22.7

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↑↘		↙	↑↘		↙	↘			↕	
Traffic Vol, veh/h	102	183	46	27	187	11	95	22	12	263	25	94
Future Vol, veh/h	102	183	46	27	187	11	95	22	12	263	25	94
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	111	199	50	29	203	12	103	24	13	286	27	102
Number of Lanes	1	2	0	1	2	0	1	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	3	3
HCM Control Delay	13.3	13.4	13.5	39.5
HCM LOS	B	B	B	E

Lane	NBLn1	NBLn2	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	100%	0%	100%	0%	0%	100%	0%	0%	69%
Vol Thru, %	0%	65%	0%	100%	57%	0%	100%	85%	7%
Vol Right, %	0%	35%	0%	0%	43%	0%	0%	15%	25%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	95	34	102	122	107	27	125	73	382
LT Vol	95	0	102	0	0	27	0	0	263
Through Vol	0	22	0	122	61	0	125	62	25
RT Vol	0	12	0	0	46	0	0	11	94
Lane Flow Rate	103	37	111	133	116	29	136	80	415
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.249	0.081	0.254	0.285	0.24	0.07	0.302	0.175	0.85
Departure Headway (Hd)	8.669	7.906	8.256	7.739	7.429	8.551	8.033	7.925	7.371
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	413	452	435	463	482	418	446	451	490
Service Time	6.445	5.681	6.023	5.506	5.195	6.322	5.804	5.695	5.126
HCM Lane V/C Ratio	0.249	0.082	0.255	0.287	0.241	0.069	0.305	0.177	0.847
HCM Control Delay	14.3	11.4	13.8	13.6	12.5	12	14.3	12.4	39.5
HCM Lane LOS	B	B	B	B	B	B	B	B	E
HCM 95th-tile Q	1	0.3	1	1.2	0.9	0.2	1.3	0.6	8.7

# HCM 6th Signalized Intersection Summary

## 25: SR 99 NB Ramps & Campus Parkway

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	281	0	0	157	220	23	2	0	0	0	0
Future Volume (veh/h)	67	281	0	0	157	220	23	2	0	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1856	1856	0	0	1856	1856	1856	1856	1856			
Adj Flow Rate, veh/h	73	305	0	0	171	239	25	2	0			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	3	3	0	0	3	3	3	3	3			
Cap, veh/h	134	1434	0	0	718	320	579	46	554			
Arrive On Green	0.08	0.41	0.00	0.00	0.20	0.20	0.35	0.35	0.00			
Sat Flow, veh/h	1767	3618	0	0	3618	1572	1642	131	1572			
Grp Volume(v), veh/h	73	305	0	0	171	239	27	0	0			
Grp Sat Flow(s),veh/h/ln	1767	1763	0	0	1763	1572	1773	0	1572			
Q Serve(g_s), s	2.0	2.9	0.0	0.0	2.1	7.3	0.5	0.0	0.0			
Cycle Q Clear(g_c), s	2.0	2.9	0.0	0.0	2.1	7.3	0.5	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	0.93		1.00			
Lane Grp Cap(c), veh/h	134	1434	0	0	718	320	625	0	554			
V/C Ratio(X)	0.55	0.21	0.00	0.00	0.24	0.75	0.04	0.00	0.00			
Avail Cap(c_a), veh/h	208	1434	0	0	1243	554	625	0	554			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(l)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	22.8	9.8	0.0	0.0	17.0	19.1	10.9	0.0	0.0			
Incr Delay (d2), s/veh	3.4	0.1	0.0	0.0	0.2	3.5	0.1	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.8	0.7	0.0	0.0	0.7	2.4	0.2	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.2	9.9	0.0	0.0	17.2	22.6	11.0	0.0	0.0			
LnGrp LOS	C	A	A	A	B	C	B	A	A			
Approach Vol, veh/h		378			410			27				
Approach Delay, s/veh		13.1			20.3			11.0				
Approach LOS		B			C			B				
Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		23.8		27.3			10.4	16.9				
Change Period (Y+Rc), s		5.8		6.5			6.5	6.5				
Max Green Setting (Gmax), s		18.0		20.0			6.0	18.0				
Max Q Clear Time (g_c+I1), s		2.5		4.9			4.0	9.3				
Green Ext Time (p_c), s		0.0		1.4			0.0	1.1				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay												16.6
HCM 6th LOS												B

## **Existing Condition PM Peak Hour**



HCM 6th AWSC  
 1: Snelling Highway (SR 59) & Bellevue Road

02/23/2022

Intersection	
Intersection Delay, s/veh	27.3
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	14	106	8	124	233	81	6	72	85	75	144	20
Future Vol, veh/h	14	106	8	124	233	81	6	72	85	75	144	20
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	18	133	10	155	291	101	8	90	106	94	180	25
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	12.9	41.7	13.7	17.9
HCM LOS	B	E	B	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	4%	11%	28%	31%
Vol Thru, %	44%	83%	53%	60%
Vol Right, %	52%	6%	18%	8%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	163	128	438	239
LT Vol	6	14	124	75
Through Vol	72	106	233	144
RT Vol	85	8	81	20
Lane Flow Rate	204	160	548	299
Geometry Grp	1	1	1	1
Degree of Util (X)	0.376	0.304	0.906	0.555
Departure Headway (Hd)	6.645	6.839	5.959	6.69
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	538	523	608	538
Service Time	4.721	4.921	4.015	4.758
HCM Lane V/C Ratio	0.379	0.306	0.901	0.556
HCM Control Delay	13.7	12.9	41.7	17.9
HCM Lane LOS	B	B	E	C
HCM 95th-tile Q	1.7	1.3	11.2	3.4

# HCM 6th Signalized Intersection Summary

## 2: G Street & Bellevue Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↖	↖	↗		↖	↗	↖
Traffic Volume (veh/h)	40	104	121	251	248	10	122	175	128	6	153	29
Future Volume (veh/h)	40	104	121	251	248	10	122	175	128	6	153	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	60	155	181	375	370	15	182	261	191	9	228	43
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	80	173	202	151	486	412	183	879	621	23	1253	559
Arrive On Green	0.05	0.22	0.22	0.09	0.26	0.26	0.10	0.45	0.45	0.01	0.36	0.36
Sat Flow, veh/h	1767	780	911	1767	1856	1572	1767	1973	1394	1767	3526	1572
Grp Volume(v), veh/h	60	0	336	375	370	15	182	232	220	9	228	43
Grp Sat Flow(s),veh/h/ln	1767	0	1692	1767	1856	1572	1767	1763	1605	1767	1763	1572
Q Serve(g_s), s	3.7	0.0	21.4	9.5	20.4	0.8	11.4	9.3	9.8	0.6	5.0	2.0
Cycle Q Clear(g_c), s	3.7	0.0	21.4	9.5	20.4	0.8	11.4	9.3	9.8	0.6	5.0	2.0
Prop In Lane	1.00		0.54	1.00		1.00	1.00		0.87	1.00		1.00
Lane Grp Cap(c), veh/h	80	0	375	151	486	412	183	786	715	23	1253	559
V/C Ratio(X)	0.75	0.00	0.89	2.48	0.76	0.04	1.00	0.30	0.31	0.39	0.18	0.08
Avail Cap(c_a), veh/h	186	0	510	151	522	443	183	786	715	122	1253	559
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.4	0.0	42.0	50.8	37.8	30.6	49.8	19.7	19.8	54.4	24.7	23.8
Incr Delay (d2), s/veh	12.8	0.0	14.5	686.9	6.1	0.0	65.2	1.0	1.1	10.3	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	9.9	32.8	9.5	0.3	8.1	3.7	3.6	0.3	2.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.2	0.0	56.5	737.8	43.9	30.6	115.0	20.6	20.9	64.7	25.0	24.0
LnGrp LOS	E	A	E	F	D	C	F	C	C	E	C	C
Approach Vol, veh/h		396			760			634			280	
Approach Delay, s/veh		57.8			386.0			47.8			26.1	
Approach LOS		E			F			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.0	56.0	16.0	31.2	18.0	46.0	11.6	35.6				
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5				
Max Green Setting (Gmax), s	7.8	43.3	9.5	33.5	11.5	39.5	11.7	31.3				
Max Q Clear Time (g_c+1), s	12.6	11.8	11.5	23.4	13.4	7.0	5.7	22.4				
Green Ext Time (p_c), s	0.0	2.4	0.0	1.2	0.0	1.4	0.0	1.2				

### Intersection Summary

HCM 6th Ctrl Delay	171.0
HCM 6th LOS	F

# HCM 6th Signalized Intersection Summary

## 3: Lake Road & Bellevue Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	166	47	46	23	111	23	72	125	0	15	232	265
Future Volume (veh/h)	166	47	46	23	111	23	72	125	0	15	232	265
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		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	198	56	55	27	132	27	86	149	0	18	276	315
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	233	180	177	55	163	33	253	419	0	49	451	497
Arrive On Green	0.13	0.21	0.21	0.03	0.11	0.11	0.57	0.57	0.00	0.57	0.57	0.57
Sat Flow, veh/h	1767	859	844	1767	1495	306	361	735	0	23	791	872
Grp Volume(v), veh/h	198	0	111	27	0	159	235	0	0	609	0	0
Grp Sat Flow(s),veh/h/ln	1767	0	1704	1767	0	1801	1096	0	0	1687	0	0
Q Serve(g_s), s	11.3	0.0	5.7	1.5	0.0	8.9	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	11.3	0.0	5.7	1.5	0.0	8.9	13.8	0.0	0.0	24.8	0.0	0.0
Prop In Lane	1.00		0.50	1.00		0.17	0.37		0.00	0.03		0.52
Lane Grp Cap(c), veh/h	233	0	358	55	0	197	672	0	0	997	0	0
V/C Ratio(X)	0.85	0.00	0.31	0.49	0.00	0.81	0.35	0.00	0.00	0.61	0.00	0.00
Avail Cap(c_a), veh/h	403	0	603	103	0	332	672	0	0	997	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	43.7	0.0	34.4	49.1	0.0	44.8	11.7	0.0	0.0	14.9	0.0	0.0
Incr Delay (d2), s/veh	8.4	0.0	0.5	6.5	0.0	7.6	1.4	0.0	0.0	2.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/lr	5.2	0.0	2.3	0.8	0.0	4.2	2.6	0.0	0.0	9.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.1	0.0	34.9	55.6	0.0	52.5	13.1	0.0	0.0	17.7	0.0	0.0
LnGrp LOS	D	A	C	E	A	D	B	A	A	B	A	A
Approach Vol, veh/h		309			186			235			609	
Approach Delay, s/veh		45.9			52.9			13.1			17.7	
Approach LOS		D			D			B			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		65.2	9.7	28.1		65.2	20.1	17.8				
Change Period (Y+Rc), s		6.5	6.5	6.5		* 6.5	6.5	6.5				
Max Green Setting (Gmax), s		58.0	6.0	36.5		* 59	23.5	19.0				
Max Q Clear Time (g_c+I1), s		15.8	3.5	7.7		26.8	13.3	10.9				
Green Ext Time (p_c), s		1.6	0.0	0.5		4.3	0.3	0.4				

### Intersection Summary

HCM 6th Ctrl Delay	28.3
HCM 6th LOS	C

### Notes

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

# HCM 6th Signalized Intersection Summary

## 4: G Street & Cardella Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕		↖	↗		↖	↕	↗
Traffic Volume (veh/h)	69	0	46	0	1	0	47	441	0	1	504	71
Future Volume (veh/h)	69	0	46	0	1	0	47	441	0	1	504	71
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	106	0	71	0	2	0	72	678	0	2	775	0
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	196	0	150	0	177	0	92	1282	0	92	1282	
Arrive On Green	0.10	0.00	0.10	0.00	0.10	0.00	0.05	0.69	0.00	0.05	0.69	0.00
Sat Flow, veh/h	1389	0	1572	0	1856	0	1767	1856	0	1767	1856	1572
Grp Volume(v), veh/h	106	0	71	0	2	0	72	678	0	2	775	0
Grp Sat Flow(s),veh/h/ln	1389	0	1572	0	1856	0	1767	1856	0	1767	1856	1572
Q Serve(g_s), s	8.4	0.0	4.9	0.0	0.1	0.0	4.6	20.2	0.0	0.1	25.2	0.0
Cycle Q Clear(g_c), s	8.5	0.0	4.9	0.0	0.1	0.0	4.6	20.2	0.0	0.1	25.2	0.0
Prop In Lane	1.00		1.00	0.00		0.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	196	0	150	0	177	0	92	1282	0	92	1282	
V/C Ratio(X)	0.54	0.00	0.47	0.00	0.01	0.00	0.78	0.53	0.00	0.02	0.60	
Avail Cap(c_a), veh/h	273	0	237	0	279	0	93	1282	0	93	1282	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	50.4	0.0	48.7	0.0	46.6	0.0	53.2	8.6	0.0	51.1	9.3	0.0
Incr Delay (d2), s/veh	2.3	0.0	2.3	0.0	0.0	0.0	34.0	1.6	0.0	0.1	2.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/lr	3.0	0.0	2.0	0.0	0.1	0.0	2.8	6.7	0.0	0.1	8.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.7	0.0	51.0	0.0	46.6	0.0	87.2	10.1	0.0	51.2	11.4	0.0
LnGrp LOS	D	A	D	A	D	A	F	B	A	D	B	
Approach Vol, veh/h		177			2			750			777	A
Approach Delay, s/veh		52.0			46.6			17.5			11.5	
Approach LOS		D			D			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	2.4	85.0		16.2	12.4	85.0		16.2				
Change Period (Y+Rc), s	6.5	6.5		5.4	6.5	6.5		5.4				
Max Green Setting (Gmax), s	6.0	78.5		17.1	6.0	78.5		17.1				
Max Q Clear Time (g_c+1/2), s	12.5	22.2		10.5	6.6	27.2		2.1				
Green Ext Time (p_c), s	0.0	4.4		0.3	0.0	5.5		0.0				

### Intersection Summary

HCM 6th Ctrl Delay	18.4
HCM 6th LOS	B

### Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th TWSC  
5: Lake Road & Cardella Road

02/23/2022

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	7	3	1	176	451	8
Future Vol, veh/h	7	3	1	176	451	8
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	0	-	-	-	-
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	8	3	1	200	513	9













Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	720	518	522	0	-	0
Stage 1	518	-	-	-	-	-
Stage 2	202	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	393	556	1039	-	-	-
Stage 1	596	-	-	-	-	-
Stage 2	830	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	393	556	1039	-	-	-
Mov Cap-2 Maneuver	393	-	-	-	-	-
Stage 1	595	-	-	-	-	-
Stage 2	830	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1039	-	393	556	-	-
HCM Lane V/C Ratio	0.001	-	0.02	0.006	-	-
HCM Control Delay (s)	8.5	0	14.3	11.5	-	-
HCM Lane LOS	A	A	B	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	0	-	-

HCM 6th Signalized Intersection Summary  
 6: Snelling Highway (SR 59) & Yosemite Avenue

02/23/2022

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	176	353	201	202	343	283
Future Volume (veh/h)	176	353	201	202	343	283
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	207	415	236	238	404	333
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	353	314	628	532	447	1231
Arrive On Green	0.20	0.20	0.34	0.34	0.25	0.66
Sat Flow, veh/h	1767	1572	1856	1572	1767	1856
Grp Volume(v), veh/h	207	415	236	238	404	333
Grp Sat Flow(s),veh/h/ln	1767	1572	1856	1572	1767	1856
Q Serve(g_s), s	9.6	18.0	8.7	10.6	19.9	6.6
Cycle Q Clear(g_c), s	9.6	18.0	8.7	10.6	19.9	6.6
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	353	314	628	532	447	1231
V/C Ratio(X)	0.59	1.32	0.38	0.45	0.90	0.27
Avail Cap(c_a), veh/h	353	314	628	532	599	1231
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.6	36.0	22.6	23.2	32.6	6.2
Incr Delay (d2), s/veh	2.5	164.5	1.7	2.7	14.1	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	20.8	3.7	3.9	9.4	2.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	35.1	200.5	24.3	25.9	46.7	6.8
LnGrp LOS	D	F	C	C	D	A
Approach Vol, veh/h	622		474			737
Approach Delay, s/veh	145.4		25.1			28.6
Approach LOS	F		C			C
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	29.2	37.0			66.2	23.8
Change Period (Y+Rc), s	6.5	6.5			6.5	5.8
Max Green Setting (Gmax), s	30.5	22.7			59.7	18.0
Max Q Clear Time (g_c+I1), s	21.9	12.6			8.6	20.0
Green Ext Time (p_c), s	0.8	1.4			1.8	0.0
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			67.4			
HCM 6th LOS			E			

# HCM 6th Signalized Intersection Summary

## 7: G Street & Yosemite Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	131	586	142	139	433	77	258	418	159	122	337	179
Future Volume (veh/h)	131	586	142	139	433	77	258	418	159	122	337	179
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		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	162	723	175	172	535	95	319	516	196	151	416	221
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	195	796	193	205	1017	454	234	1089	486	135	892	398
Arrive On Green	0.11	0.28	0.28	0.12	0.29	0.29	0.13	0.31	0.31	0.08	0.25	0.25
Sat Flow, veh/h	1767	2815	681	1767	3526	1572	1767	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	162	453	445	172	535	95	319	516	196	151	416	221
Grp Sat Flow(s),veh/h/ln	1767	1763	1733	1767	1763	1572	1767	1763	1572	1767	1763	1572
Q Serve(g_s), s	9.6	26.6	26.7	10.2	13.7	4.9	14.2	12.7	7.1	8.2	10.7	13.1
Cycle Q Clear(g_c), s	9.6	26.6	26.7	10.2	13.7	4.9	14.2	12.7	7.1	8.2	10.7	13.1
Prop In Lane	1.00		0.39	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	195	498	490	205	1017	454	234	1089	486	135	892	398
V/C Ratio(X)	0.83	0.91	0.91	0.84	0.53	0.21	1.37	0.47	0.40	1.12	0.47	0.56
Avail Cap(c_a), veh/h	388	528	519	382	1043	465	234	1089	486	135	892	398
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.8	37.2	37.2	46.5	32.1	28.9	46.6	30.1	13.4	49.6	34.0	34.9
Incr Delay (d2), s/veh	8.8	19.0	19.3	8.8	0.5	0.2	189.7	1.5	2.5	113.3	1.7	5.5
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	4.6	13.5	13.3	4.8	5.6	1.8	18.3	5.4	4.0	7.7	4.6	5.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.6	56.2	56.5	55.3	32.5	29.2	236.3	31.5	15.9	162.9	35.7	40.4
LnGrp LOS	E	E	E	E	C	C	F	C	B	F	D	D
Approach Vol, veh/h		1060			802			1031			788	
Approach Delay, s/veh		56.2			37.0			91.9			61.4	
Approach LOS		E			D			F			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.0	39.0	18.3	36.2	20.0	33.0	17.7	36.8				
Change Period (Y+Rc), s	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8				
Max Green Setting (Gmax), s	33.2	23.2	23.2	14.2	27.2	23.6	31.8					
Max Q Clear Time (g_c+110), s	14.7	12.2	28.7	16.2	15.1	11.6	15.7					
Green Ext Time (p_c), s	0.0	3.6	0.3	1.7	0.0	2.6	0.3	3.2				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay					63.2							
HCM 6th LOS					E							



Intersection

Intersection Delay, s/veh 26.7

Intersection LOS D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔			↔			↔	↔
Traffic Vol, veh/h	30	363	161	42	394	21	99	46	19	15	37	22
Future Vol, veh/h	30	363	161	42	394	21	99	46	19	15	37	22
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	33	399	177	46	433	23	109	51	21	16	41	24
Number of Lanes	0	2	0	0	1	0	0	1	0	0	1	1

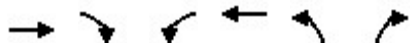
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	2	1
Conflicting Approach Left		NB	EB	WB
Conflicting Lanes Left	2	1	2	1
Conflicting Approach Right		SB	WB	EB
Conflicting Lanes Right	1	2	1	2
HCM Control Delay	17.3	44.4	15.8	11.8
HCM LOS	C	E	C	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	60%	14%	0%	9%	29%	0%
Vol Thru, %	28%	86%	53%	86%	71%	0%
Vol Right, %	12%	0%	47%	5%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	164	212	343	457	52	22
LT Vol	99	30	0	42	15	0
Through Vol	46	182	182	394	37	0
RT Vol	19	0	161	21	0	22
Lane Flow Rate	180	232	376	502	57	24
Geometry Grp	6	7	7	6	7	7
Degree of Util (X)	0.391	0.423	0.643	0.908	0.132	0.05
Departure Headway (Hd)	7.816	6.557	6.149	6.512	8.293	7.42
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	461	551	591	557	432	482
Service Time	5.864	4.271	3.863	4.523	6.045	5.172
HCM Lane V/C Ratio	0.39	0.421	0.636	0.901	0.132	0.05
HCM Control Delay	15.8	14	19.3	44.4	12.3	10.6
HCM Lane LOS	C	B	C	E	B	B
HCM 95th-tile Q	1.8	2.1	4.6	10.9	0.5	0.2

# HCM 6th Signalized Intersection Summary

## 9: McKee Road & Yosemite Avenue

02/23/2022



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑	↵	↵
Traffic Volume (veh/h)	215	144	133	310	125	85
Future Volume (veh/h)	215	144	133	310	125	85
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	236	158	146	341	137	93
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	373	240	190	720	719	640
Arrive On Green	0.18	0.18	0.11	0.39	0.41	0.41
Sat Flow, veh/h	2150	1323	1767	1856	1767	1572
Grp Volume(v), veh/h	201	193	146	341	137	93
Grp Sat Flow(s),veh/h/ln	1763	1617	1767	1856	1767	1572
Q Serve(g_s), s	6.2	6.5	4.7	8.1	2.9	2.2
Cycle Q Clear(g_c), s	6.2	6.5	4.7	8.1	2.9	2.2
Prop In Lane		0.82	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	319	293	190	720	719	640
V/C Ratio(X)	0.63	0.66	0.77	0.47	0.19	0.15
Avail Cap(c_a), veh/h	940	863	520	1719	719	640
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.1	22.3	25.4	13.4	11.2	10.9
Incr Delay (d2), s/veh	2.0	2.5	6.4	0.5	0.6	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	2.3	2.1	2.8	1.0	0.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	24.2	24.8	31.8	13.9	11.7	11.4
LnGrp LOS	C	C	C	B	B	B
Approach Vol, veh/h	394			487	230	
Approach Delay, s/veh	24.5			19.3	11.6	
Approach LOS	C			B	B	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		30.0	12.1	16.4		28.5
Change Period (Y+Rc), s		6.2	5.8	5.8		5.8
Max Green Setting (Gmax), s		23.8	17.2	31.2		54.2
Max Q Clear Time (g_c+I1), s		4.9	6.7	8.5		10.1
Green Ext Time (p_c), s		0.6	0.2	2.1		2.0
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			19.5			
HCM 6th LOS			B			

Intersection

Intersection Delay, s/veh 14.2

Intersection LOS B

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	137	107	89	40	110	323
Future Vol, veh/h	137	107	89	40	110	323
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	159	124	103	47	128	376
Number of Lanes	1	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left SB			WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	11.3	10.4	16.9
HCM LOS	B	B	C

Lane	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	100%	0%	0%	25%
Vol Thru, %	0%	100%	69%	0%
Vol Right, %	0%	0%	31%	75%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	137	107	129	433
LT Vol	137	0	0	110
Through Vol	0	107	89	0
RT Vol	0	0	40	323
Lane Flow Rate	159	124	150	503
Geometry Grp	7	7	5	2
Degree of Util (X)	0.292	0.21	0.235	0.67
Departure Headway (Hd)	6.593	6.086	5.647	4.789
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	545	590	635	760
Service Time	4.33	3.822	3.688	2.789
HCM Lane V/C Ratio	0.292	0.21	0.236	0.662
HCM Control Delay	12	10.4	10.4	16.9
HCM Lane LOS	B	B	B	C
HCM 95th-tile Q	1.2	0.8	0.9	5.2

# HCM 6th Signalized Intersection Summary

## 11: Snelling Highway (SR 59) & Santa Fe Drive/Olive Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	109	638	128	303	711	89	87	336	357	100	317	81
Future Volume (veh/h)	109	638	128	303	711	89	87	336	357	100	317	81
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	128	751	151	356	836	105	102	395	420	118	373	95
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	156	876	391	248	1060	473	107	630	534	113	489	125
Arrive On Green	0.09	0.25	0.25	0.14	0.30	0.30	0.06	0.34	0.34	0.06	0.34	0.34
Sat Flow, veh/h	1767	3526	1572	1767	3526	1572	1767	1856	1572	1767	1427	363
Grp Volume(v), veh/h	128	751	151	356	836	105	102	395	420	118	0	468
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1572	1767	1856	1572	1767	0	1790
Q Serve(g_s), s	8.2	23.4	7.2	16.2	25.0	5.8	6.6	20.6	27.7	7.4	0.0	26.8
Cycle Q Clear(g_c), s	8.2	23.4	7.2	16.2	25.0	5.8	6.6	20.6	27.7	7.4	0.0	26.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.20
Lane Grp Cap(c), veh/h	156	876	391	248	1060	473	107	630	534	113	0	614
V/C Ratio(X)	0.82	0.86	0.39	1.43	0.79	0.22	0.95	0.63	0.79	1.04	0.00	0.76
Avail Cap(c_a), veh/h	258	1022	456	248	1060	473	107	630	534	113	0	614
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	51.6	41.3	22.2	49.5	36.9	30.2	53.9	32.0	34.3	53.9	0.0	33.7
Incr Delay (d2), s/veh	10.1	6.5	0.6	216.5	4.1	0.2	70.9	4.7	11.2	95.6	0.0	8.7
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	4.0	10.6	3.4	21.9	10.9	2.1	5.0	9.6	11.7	6.2	0.0	12.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.7	47.9	22.8	266.0	41.0	30.4	124.8	36.6	45.5	149.5	0.0	42.4
LnGrp LOS	E	D	C	F	D	C	F	D	D	F	A	D
Approach Vol, veh/h		1030			1297			917			586	
Approach Delay, s/veh		45.9			101.9			50.5			64.0	
Approach LOS		D			F			D			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	3.9	44.9	22.0	34.4	12.8	46.0	16.0	40.5				
Change Period (Y+Rc), s	6.5	5.8	5.8	5.8	5.8	6.5	5.8	5.8				
Max Green Setting (Gmax), s	7.4	39.1	16.2	33.4	7.0	39.5	16.8	32.8				
Max Q Clear Time (g_c+1), s	19.4	29.7	18.2	25.4	8.6	28.8	10.2	27.0				
Green Ext Time (p_c), s	0.0	2.6	0.0	3.2	0.0	1.9	0.1	2.7				

### Intersection Summary

HCM 6th Ctrl Delay	68.7
HCM 6th LOS	E

# HCM 6th Signalized Intersection Summary

## 12: R Street & Olive Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	190	795	194	253	815	172	285	597	116	154	465	124
Future Volume (veh/h)	190	795	194	253	815	172	285	597	116	154	465	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		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	232	970	237	309	994	210	348	728	141	188	567	151
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	127	1108	344	236	1419	441	186	1029	199	180	1219	544
Arrive On Green	0.07	0.22	0.22	0.13	0.28	0.28	0.11	0.35	0.35	0.10	0.35	0.35
Sat Flow, veh/h	1767	5066	1572	1767	5066	1572	1767	2945	570	1767	3526	1572
Grp Volume(v), veh/h	232	970	237	309	994	210	348	436	433	188	567	151
Grp Sat Flow(s),veh/h/ln	1767	1689	1572	1767	1689	1572	1767	1763	1753	1767	1763	1572
Q Serve(g_s), s	8.2	21.1	15.8	15.2	20.0	9.1	12.0	24.3	24.3	11.6	14.3	7.9
Cycle Q Clear(g_c), s	8.2	21.1	15.8	15.2	20.0	9.1	12.0	24.3	24.3	11.6	14.3	7.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.33	1.00		1.00
Lane Grp Cap(c), veh/h	127	1108	344	236	1419	441	186	616	612	180	1219	544
V/C Ratio(X)	1.82	0.88	0.69	1.31	0.70	0.48	1.87	0.71	0.71	1.04	0.46	0.28
Avail Cap(c_a), veh/h	127	1156	359	236	1467	456	186	616	612	180	1219	544
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.9	43.0	40.9	49.4	36.7	17.8	51.0	32.0	32.0	51.2	29.0	27.0
Incr Delay (d2), s/veh	399.7	7.5	5.2	166.7	1.4	0.8	411.0	6.7	6.8	79.4	1.3	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.7	9.2	6.4	17.4	8.1	3.2	26.4	11.1	11.1	9.0	6.1	3.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	452.6	50.5	46.2	216.0	38.2	18.6	462.0	38.7	38.8	130.5	30.3	28.2
LnGrp LOS	F	D	D	F	D	B	F	D	D	F	C	C
Approach Vol, veh/h		1439			1513			1217			906	
Approach Delay, s/veh		114.6			71.8			159.8			50.8	
Approach LOS		F			E			F			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.0	45.2	21.0	30.7	17.4	44.8	14.0	37.7				
Change Period (Y+Rc), s	5.4	5.4	5.8	5.8	5.4	5.4	5.8	5.8				
Max Green Setting (Gmax), s	1.6	39.8	15.2	26.0	12.0	39.4	8.2	33.0				
Max Q Clear Time (g_c+1/3), s	11.6	26.3	17.2	23.1	14.0	16.3	10.2	22.0				
Green Ext Time (p_c), s	0.0	4.4	0.0	1.8	0.0	4.2	0.0	5.2				

### Intersection Summary

HCM 6th Ctrl Delay	101.3
HCM 6th LOS	F

# HCM 6th Signalized Intersection Summary

## 13: M Street & Olive Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶ ↑↑↑	↑↑↑	↷	↶ ↑↑↑	↑↑↑	↷	↶ ↑↑	↑↑		↶	↑↑	↷
Traffic Volume (veh/h)	150	818	146	187	824	82	244	542	113	298	458	140
Future Volume (veh/h)	150	818	146	187	824	82	244	542	113	298	458	140
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		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	185	1010	180	231	1017	101	301	669	140	368	565	173
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	196	1086	337	237	1113	110	195	850	178	304	943	288
Arrive On Green	0.11	0.21	0.21	0.13	0.24	0.24	0.11	0.29	0.29	0.17	0.35	0.35
Sat Flow, veh/h	1767	5066	1572	1767	4685	464	1767	2902	607	1767	2660	812
Grp Volume(v), veh/h	185	1010	180	231	733	385	301	406	403	368	374	364
Grp Sat Flow(s),veh/h/ln	1767	1689	1572	1767	1689	1772	1767	1763	1746	1767	1763	1709
Q Serve(g_s), s	12.5	23.5	12.2	15.6	25.3	25.4	13.2	25.4	25.4	20.6	20.8	21.0
Cycle Q Clear(g_c), s	12.5	23.5	12.2	15.6	25.3	25.4	13.2	25.4	25.4	20.6	20.8	21.0
Prop In Lane	1.00		1.00	1.00		0.26	1.00		0.35	1.00		0.48
Lane Grp Cap(c), veh/h	196	1086	337	237	803	421	195	516	511	304	625	606
V/C Ratio(X)	0.94	0.93	0.53	0.97	0.91	0.92	1.55	0.79	0.79	1.21	0.60	0.60
Avail Cap(c_a), veh/h	196	1090	338	237	806	423	195	516	511	304	625	606
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.9	46.2	41.8	51.7	44.5	44.5	53.3	39.0	39.0	49.6	31.7	31.7
Incr Delay (d2), s/veh	48.3	13.6	1.6	50.8	14.7	24.3	270.0	11.5	11.7	121.9	4.2	4.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/lr	8.0	10.9	4.7	10.1	11.8	13.6	20.3	12.3	12.2	19.2	9.3	9.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	101.2	59.9	43.4	102.5	59.2	68.8	323.4	50.5	50.7	171.6	35.9	36.1
LnGrp LOS	F	E	D	F	E	E	F	D	D	F	D	D
Approach Vol, veh/h		1375			1349			1110			1106	
Approach Delay, s/veh		63.3			69.3			124.5			81.1	
Approach LOS		E			E			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	36.0	40.5	21.9	31.5	18.6	47.9	19.1	34.3				
Change Period (Y+Rc), s	5.4	5.4	5.8	5.8	5.4	5.4	5.8	5.8				
Max Green Setting (Gmax), s	20.6	35.1	16.1	25.8	13.2	42.5	13.3	28.6				
Max Q Clear Time (g_c+Q), s	22.6	27.4	17.6	25.5	15.2	23.0	14.5	27.4				
Green Ext Time (p_c), s	0.0	2.9	0.0	0.2	0.0	4.3	0.0	0.8				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay											82.7	
HCM 6th LOS											F	

# HCM 6th Signalized Intersection Summary

## 14: Olive Avenue & G Street

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑		↘	↑↑	↗	↘	↑↑	↗
Traffic Volume (veh/h)	344	534	284	180	399	60	244	542	216	76	736	314
Future Volume (veh/h)	344	534	284	180	399	60	244	542	216	76	736	314
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	395	614	326	207	459	69	280	623	248	87	846	361
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	315	856	382	203	552	82	234	1362	608	95	1086	484
Arrive On Green	0.18	0.24	0.24	0.11	0.18	0.18	0.13	0.39	0.39	0.05	0.31	0.31
Sat Flow, veh/h	1767	3526	1572	1767	3076	460	1767	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	395	614	326	207	262	266	280	623	248	87	846	361
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1773	1767	1763	1572	1767	1763	1572
Q Serve(g_s), s	20.5	18.3	22.8	13.2	16.5	16.6	15.2	15.1	13.2	5.6	25.1	14.1
Cycle Q Clear(g_c), s	20.5	18.3	22.8	13.2	16.5	16.6	15.2	15.1	13.2	5.6	25.1	14.1
Prop In Lane	1.00		1.00	1.00		0.26	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	315	856	382	203	316	318	234	1362	608	95	1086	484
V/C Ratio(X)	1.25	0.72	0.85	1.02	0.83	0.84	1.20	0.46	0.41	0.91	0.78	0.75
Avail Cap(c_a), veh/h	315	1012	452	203	430	432	234	1362	608	95	1086	484
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.2	39.9	41.5	50.9	45.4	45.5	49.9	26.3	25.7	54.1	36.2	12.7
Incr Delay (d2), s/veh	137.3	2.0	13.0	68.4	9.5	10.1	122.8	1.1	2.0	64.4	5.5	10.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.7	7.9	9.9	9.5	7.8	8.0	14.5	6.3	5.1	4.1	11.1	5.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	184.5	41.9	54.5	119.2	55.0	55.6	172.7	27.4	27.7	118.5	41.7	22.7
LnGrp LOS	F	D	D	F	D	E	F	C	C	F	D	C
Approach Vol, veh/h		1335			735			1151			1294	
Approach Delay, s/veh		87.2			73.3			62.8			41.6	
Approach LOS		F			E			E			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	2.0	50.2	19.0	33.7	21.0	41.2	26.3	26.4				
Change Period (Y+Rc), s	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8				
Max Green Setting (Gmax), s	2.0	44.4	13.2	33.0	15.2	35.4	18.2	28.0				
Max Q Clear Time (g_c+11), s	2.0	17.1	15.2	24.8	17.2	27.1	22.5	18.6				
Green Ext Time (p_c), s	0.0	5.0	0.0	3.2	0.0	4.1	0.0	2.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			65.6									
HCM 6th LOS			E									



HCM 6th AWSC  
 15: 16th Street & Snelling Highway (SR 59)

02/23/2022

Intersection

Intersection Delay, s/veh 140.5

Intersection LOS F

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	343	489	527	428	314	326
Future Vol, veh/h	343	489	527	428	314	326
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	373	532	573	465	341	354
Number of Lanes	1	1	2	1	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	3	2	0
Conflicting Approach Left SB			WB
Conflicting Lanes Left	1	0	3
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	135.8	24.2	320.2
HCM LOS	F	C	F

Lane	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	100%	0%	0%	0%	0%	49%
Vol Thru, %	0%	100%	100%	100%	0%	0%
Vol Right, %	0%	0%	0%	0%	100%	51%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	343	489	264	264	428	640
LT Vol	343	0	0	0	0	314
Through Vol	0	489	264	264	0	0
RT Vol	0	0	0	0	428	326
Lane Flow Rate	373	532	286	286	465	696
Geometry Grp	8	8	7	7	7	7
Degree of Util (X)	0.956	1.289	0.621	0.621	0.692	1.639
Departure Headway (Hd)	11.004	10.466	9.072	9.072	6.476	8.832
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	332	351	401	401	563	417
Service Time	8.704	8.166	6.772	6.772	4.176	6.532
HCM Lane V/C Ratio	1.123	1.516	0.713	0.713	0.826	1.669
HCM Control Delay	73.3	179.7	25.5	25.5	22.5	320.2
HCM Lane LOS	F	F	D	D	C	F
HCM 95th-tile Q	10	20.5	4	4	5.4	39

HCM 6th TWSC  
16: MLK JR Way & SR 99 NB Ramps

02/23/2022

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	0	0	0	23	0	62	240	506	0	0	419	346
Future Vol, veh/h	0	0	0	23	0	62	240	506	0	0	419	346
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	75	-	-	-	-	-
Veh in Median Storage, #	-	2	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	0	26	0	70	270	569	0	0	471	389

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1345	1969	285 860 0 - - - - 0
Stage 1	1109	1109	- - - - - - - -
Stage 2	236	860	- - - - - - - -
Critical Hdwy	6.86	6.56	6.96 4.16 - - - - - -
Critical Hdwy Stg 1	5.86	5.56	- - - - - - - -
Critical Hdwy Stg 2	5.86	5.56	- - - - - - - -
Follow-up Hdwy	3.53	4.03	3.33 2.23 - - - - - -
Pot Cap-1 Maneuver	142	61	709 771 - 0 0 - -
Stage 1	275	281	- - - 0 0 - -
Stage 2	778	369	- - - 0 0 - -
Platoon blocked, %			- - - - - - - -
Mov Cap-1 Maneuver	92	0	709 771 - - - - - -
Mov Cap-2 Maneuver	92	0	- - - - - - - -
Stage 1	179	0	- - - - - - - -
Stage 2	778	0	- - - - - - - -

Approach	WB	NB	SB
HCM Control Delay, s	27.7	3.9	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBTWBLn1	SBT	SBR
Capacity (veh/h)	771	-	252	-
HCM Lane V/C Ratio	0.35	-	0.379	-
HCM Control Delay (s)	12.2	-	27.7	-
HCM Lane LOS	B	-	D	-
HCM 95th %tile Q(veh)	1.6	-	1.7	-

HCM 6th TWSC  
17: G Street & 14th Street/SR 99 NB Off Ramp

02/23/2022

Intersection												
Int Delay, s/veh	1.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙		↗		↕		↙	↕			↕	↗
Traffic Vol, veh/h	28	0	8	16	5	36	10	530	0	0	467	35
Future Vol, veh/h	28	0	8	16	5	36	10	530	0	0	467	35
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	-	-	-	75	-	-	-	-	-
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	31	0	9	18	5	40	11	582	0	0	513	38

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	848	-	276	861	1155	291	551	0	-	-	-	0
Stage 1	532	-	-	604	604	-	-	-	-	-	-	-
Stage 2	316	-	-	257	551	-	-	-	-	-	-	-
Critical Hdwy	7.56	-	6.96	7.56	6.56	6.96	4.16	-	-	-	-	-
Critical Hdwy Stg 1	6.56	-	-	6.56	5.56	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.56	-	-	6.56	5.56	-	-	-	-	-	-	-
Follow-up Hdwy	3.53	-	3.33	3.53	4.03	3.33	2.23	-	-	-	-	-
Pot Cap-1 Maneuver	253	0	718	248	194	703	1008	-	0	0	-	-
Stage 1	496	0	-	450	484	-	-	-	0	0	-	-
Stage 2	667	0	-	722	511	-	-	-	0	0	-	-
Platoon blocked, %								-			-	
Mov Cap-1 Maneuver	231	-	718	243	192	703	1008	-	-	-	-	-
Mov Cap-2 Maneuver	231	-	-	243	192	-	-	-	-	-	-	-
Stage 1	491	-	-	445	479	-	-	-	-	-	-	-
Stage 2	615	-	-	713	511	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	20.1		15.7		0.2		0	
HCM LOS	C		C					

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	WBLn1	SBT	SBR
Capacity (veh/h)	1008	-	231	718	398	-	-
HCM Lane V/C Ratio	0.011	-	0.133	0.012	0.157	-	-
HCM Control Delay (s)	8.6	-	23	10.1	15.7	-	-
HCM Lane LOS	A	-	C	B	C	-	-
HCM 95th %tile Q(veh)	0	-	0.5	0	0.6	-	-

HCM 6th Roundabout  
 18: Campus Parkway & Yosemite Avenue

02/23/2022

Intersection			
Intersection Delay, s/veh	0.0		
Intersection LOS	-		
Approach	EB	WB	NB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	0	0	0
Demand Flow Rate, veh/h	0	0	0
Vehicles Circulating, veh/h	0	0	0
Vehicles Exiting, veh/h	0	0	0
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	0.0	0.0	0.0
Approach LOS	-	-	-
Lane	Left	Left	Left
Designated Moves	TR	LT	LR
Assumed Moves	TR	LT	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	0	0	0
Cap Entry Lane, veh/h	1380	1380	1380
Entry HV Adj Factor	1.000	1.000	1.000
Flow Entry, veh/h	0	0	0
Cap Entry, veh/h	1380	1380	1380
V/C Ratio	0.000	0.000	0.000
Control Delay, s/veh	2.6	2.6	2.6
LOS	A	A	A
95th %tile Queue, veh	0	0	0

HCM 6th Roundabout  
19: Campus Parkway & Olive Avenue

02/23/2022

Intersection					
Intersection Delay, s/veh	0.0				
Intersection LOS	-				
Approach	EB	WB	NB	SB	
Entry Lanes	1	1	1	1	
Conflicting Circle Lanes	1	1	1	1	
Adj Approach Flow, veh/h	0	0	0	0	
Demand Flow Rate, veh/h	0	0	0	0	
Vehicles Circulating, veh/h	0	0	0	0	
Vehicles Exiting, veh/h	0	0	0	0	
Ped Vol Crossing Leg, #/h	0	0	0	0	
Ped Cap Adj	1.000	1.000	1.000	1.000	
Approach Delay, s/veh	0.0	0.0	0.0	0.0	
Approach LOS	-	-	-	-	
Lane	Left	Left	Left	Left	Bypass
Designated Moves	LTR	LTR	LTR	LT	R
Assumed Moves	LTR	LTR	LTR	LT	R
RT Channelized					Yield
Lane Util	1.000	1.000	1.000	1.000	
Follow-Up Headway, s	2.609	2.609	2.609	2.609	
Critical Headway, s	4.976	4.976	4.976	4.976	
Entry Flow, veh/h	0	0	0	0	1380
Cap Entry Lane, veh/h	1380	1380	1380	1380	0.971
Entry HV Adj Factor	1.000	1.000	1.000	1.000	
Flow Entry, veh/h	0	0	0	0	1340
Cap Entry, veh/h	1380	1380	1380	1380	0.000
V/C Ratio	0.000	0.000	0.000	0.000	
Control Delay, s/veh	2.6	2.6	2.6	2.6	
LOS	A	A	A	A	
95th %tile Queue, veh	0	0	0	0	

# HCM 6th Signalized Intersection Summary

## 20: Campus Parkway & Connector Road

02/23/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖↗	↖	↕	↖	↖↗	↕
Traffic Volume (veh/h)	40	1	0	55	1	0
Future Volume (veh/h)	40	1	0	55	1	0
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	43	0	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	257		1735		8	2278
Arrive On Green	0.07	0.00	0.00	0.00	0.00	0.00
Sat Flow, veh/h	3428	1572	3618	1572	3428	3618
Grp Volume(v), veh/h	43	0	0	0	1	0
Grp Sat Flow(s),veh/h/ln	1714	1572	1763	1572	1714	1763
Q Serve(g_s), s	0.5	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.5	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	257		1735		8	2278
V/C Ratio(X)	0.17		0.00		0.12	0.00
Avail Cap(c_a), veh/h	2652		1735		482	2278
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	18.5	0.0	0.0	0.0	21.3	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.0	6.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	18.8	0.0	0.0	0.0	28.0	0.0
LnGrp LOS	B		A		C	A
Approach Vol, veh/h	43	A	0	A		1
Approach Delay, s/veh	18.8		0.0			28.0
Approach LOS	B					C
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	6.6	27.5			34.1	8.6
Change Period (Y+Rc), s	6.5	6.5			6.5	5.4
Max Green Setting (Gmax), s	6.6	21.0			17.7	33.0
Max Q Clear Time (g_c+I), s	6.6	0.0			0.0	2.5
Green Ext Time (p_c), s	0.0	0.0			0.0	0.1

### Intersection Summary

HCM 6th Ctrl Delay		19.0
HCM 6th LOS		B

### Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

# HCM 6th Signalized Intersection Summary

## 21: SR 140 & Connector Road

02/23/2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations	↙	↑	↑	↗	↙	↗	
Traffic Volume (veh/h)	16	253	255	23	15	43	
Future Volume (veh/h)	16	253	255	23	15	43	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	
Adj Flow Rate, veh/h	17	275	277	25	16	47	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	3	3	3	3	3	3	
Cap, veh/h	45	690	390	330	668	595	
Arrive On Green	0.03	0.37	0.21	0.21	0.38	0.38	
Sat Flow, veh/h	1767	1856	1856	1572	1767	1572	
Grp Volume(v), veh/h	17	275	277	25	16	47	
Grp Sat Flow(s),veh/h/ln	1767	1856	1856	1572	1767	1572	
Q Serve(g_s), s	0.5	5.2	6.6	0.6	0.3	0.9	
Cycle Q Clear(g_c), s	0.5	5.2	6.6	0.6	0.3	0.9	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	45	690	390	330	668	595	
V/C Ratio(X)	0.38	0.40	0.71	0.08	0.02	0.08	
Avail Cap(c_a), veh/h	223	702	974	826	668	595	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	22.8	11.0	17.5	15.1	9.3	9.5	
Incr Delay (d2), s/veh	5.2	0.4	2.4	0.1	0.1	0.3	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.2	1.5	2.4	0.2	0.1	0.0	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	28.0	11.4	19.9	15.2	9.4	9.7	
LnGrp LOS	C	B	B	B	A	A	
Approach Vol, veh/h		292	302		63		
Approach Delay, s/veh		12.4	19.5		9.6		
Approach LOS		B	B		A		
Timer - Assigned Phs			4		6	7	8
Phs Duration (G+Y+Rc), s			24.2		23.4	7.7	16.5
Change Period (Y+Rc), s			6.5		5.4	6.5	6.5
Max Green Setting (Gmax), s			18.0		18.0	6.0	25.0
Max Q Clear Time (g_c+I1), s			7.2		2.9	2.5	8.6
Green Ext Time (p_c), s			0.9		0.1	0.0	1.2
<b>Intersection Summary</b>							
HCM 6th Ctrl Delay			15.4				
HCM 6th LOS			B				



HCM 6th Signalized Intersection Summary  
 22: Campus Parkway & Childs Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗	↘↗	↑↑	↗	↘	↑↑	↗
Traffic Volume (veh/h)	6	99	13	96	117	7	30	40	104	0	32	8
Future Volume (veh/h)	6	99	13	96	117	7	30	40	104	0	32	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		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	7	108	14	104	127	8	33	43	113	0	35	9
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	19	435	194	139	712	318	142	1820	812	3	1317	587
Arrive On Green	0.01	0.12	0.12	0.08	0.20	0.20	0.04	0.52	0.52	0.00	0.37	0.37
Sat Flow, veh/h	1767	3526	1572	1767	3526	1572	3428	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	7	108	14	104	127	8	33	43	113	0	35	9
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1572	1714	1763	1572	1767	1763	1572
Q Serve(g_s), s	0.3	1.8	0.5	3.7	1.9	0.3	0.6	0.4	2.4	0.0	0.4	0.2
Cycle Q Clear(g_c), s	0.3	1.8	0.5	3.7	1.9	0.3	0.6	0.4	2.4	0.0	0.4	0.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	19	435	194	139	712	318	142	1820	812	3	1317	587
V/C Ratio(X)	0.36	0.25	0.07	0.75	0.18	0.03	0.23	0.02	0.14	0.00	0.03	0.02
Avail Cap(c_a), veh/h	165	2140	954	165	2249	1003	320	1820	812	165	1317	587
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	31.6	25.5	24.9	29.0	21.2	20.6	29.8	7.6	8.1	0.0	12.7	12.7
Incr Delay (d2), s/veh	10.9	0.3	0.2	14.3	0.1	0.0	0.8	0.0	0.4	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.7	0.2	2.0	0.7	0.1	0.2	0.1	0.7	0.0	0.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.5	25.8	25.1	43.2	21.3	20.6	30.6	7.6	8.5	0.0	12.8	12.7
LnGrp LOS	D	C	C	D	C	C	C	A	A	A	B	B
Approach Vol, veh/h		129			239			189			44	
Approach Delay, s/veh		26.6			30.8			12.1			12.8	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	0.0	39.7	10.9	13.7	9.2	30.5	5.8	18.8				
Change Period (Y+Rc), s	6.5	6.5	5.8	* 5.8	6.5	6.5	5.1	5.8				
Max Green Setting (Gmax), s	6.0	23.0	6.0	* 39	6.0	24.0	6.0	41.0				
Max Q Clear Time (g_c+10), s	4.4	4.4	5.7	3.8	2.6	2.4	2.3	3.9				
Green Ext Time (p_c), s	0.0	0.5	0.0	0.7	0.0	0.1	0.0	0.7				

Intersection Summary

HCM 6th Ctrl Delay	22.7
HCM 6th LOS	C

Notes

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

# HCM 6th Signalized Intersection Summary

## 23: Campus Parkway & Gerard Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑	↗	↔↔	↑↑	↗	↔↔	↑↑	↗	↔↔	↑↑	↗
Traffic Volume (veh/h)	12	9	32	10	5	1	56	163	36	2	101	25
Future Volume (veh/h)	12	9	32	10	5	1	56	163	36	2	101	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	13	10	35	11	5	1	61	177	39	2	110	27
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	66	294	131	57	321	143	209	1788	798	11	1585	707
Arrive On Green	0.02	0.08	0.08	0.02	0.09	0.09	0.06	0.51	0.51	0.00	0.45	0.45
Sat Flow, veh/h	3428	3526	1572	3428	3526	1572	3428	3526	1572	3428	3526	1572
Grp Volume(v), veh/h	13	10	35	11	5	1	61	177	39	2	110	27
Grp Sat Flow(s),veh/h/ln	1714	1763	1572	1714	1763	1572	1714	1763	1572	1714	1763	1572
Q Serve(g_s), s	0.2	0.2	1.4	0.2	0.1	0.0	1.1	1.7	0.8	0.0	1.2	0.6
Cycle Q Clear(g_c), s	0.2	0.2	1.4	0.2	0.1	0.0	1.1	1.7	0.8	0.0	1.2	0.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	66	294	131	57	321	143	209	1788	798	11	1585	707
V/C Ratio(X)	0.20	0.03	0.27	0.19	0.02	0.01	0.29	0.10	0.05	0.18	0.07	0.04
Avail Cap(c_a), veh/h	308	1955	872	308	2008	896	308	1788	798	308	1585	707
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.2	28.1	28.7	32.4	27.6	27.6	30.0	8.5	8.3	33.2	10.4	10.3
Incr Delay (d2), s/veh	1.4	0.0	1.1	1.6	0.0	0.0	0.8	0.1	0.1	7.4	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.1	0.5	0.1	0.0	0.0	0.4	0.5	0.2	0.0	0.4	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.7	28.2	29.8	34.0	27.6	27.6	30.7	8.6	8.4	40.5	10.5	10.4
LnGrp LOS	C	C	C	C	C	C	C	A	A	D	B	B
Approach Vol, veh/h		58			17			277			139	
Approach Delay, s/veh		30.4			31.7			13.5			10.9	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.7	40.3	7.6	12.1	10.6	36.5	7.1	12.6				
Change Period (Y+Rc), s	6.5	6.5	6.5	* 6.5	6.5	6.5	5.8	6.5				
Max Green Setting (Gmax), s	6.0	33.0	6.0	* 37	6.0	30.0	6.0	38.0				
Max Q Clear Time (g_c+1), s	12.0	3.7	2.2	3.4	3.1	3.2	2.2	2.1				
Green Ext Time (p_c), s	0.0	1.0	0.0	0.1	0.0	0.6	0.0	0.0				

### Intersection Summary

HCM 6th Ctrl Delay	15.4
HCM 6th LOS	B

### Notes

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

HCM 6th AWSC  
 24: Coffee Street & Campus Parkway

02/23/2022

Intersection

Intersection Delay, s/veh 9.9

Intersection LOS A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↑↑		↵	↑↑		↵	↑			↕	
Traffic Vol, veh/h	0	211	108	30	114	0	114	16	15	2	21	39
Future Vol, veh/h	0	211	108	30	114	0	114	16	15	2	21	39
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	0	229	117	33	124	0	124	17	16	2	23	42
Number of Lanes	1	2	0	1	2	0	1	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	3	3
HCM Control Delay	10.2	8.7	10.8	9.4
HCM LOS	B	A	B	A

Lane	NBLn1	NBLn2	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	100%	0%	0%	0%	0%	100%	0%	0%	3%
Vol Thru, %	0%	52%	100%	100%	39%	0%	100%	100%	34%
Vol Right, %	0%	48%	0%	0%	61%	0%	0%	0%	63%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	114	31	0	141	178	30	57	57	62
LT Vol	114	0	0	0	0	30	0	0	2
Through Vol	0	16	0	141	70	0	57	57	21
RT Vol	0	15	0	0	108	0	0	0	39
Lane Flow Rate	124	34	0	153	194	33	62	62	67
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.228	0.054	0	0.242	0.284	0.06	0.105	0.075	0.111
Departure Headway (Hd)	6.617	5.774	5.706	5.706	5.278	6.606	6.101	4.331	5.946
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	544	621	0	630	682	543	589	826	603
Service Time	4.345	3.502	3.431	3.431	3.003	4.334	3.829	2.059	3.68
HCM Lane V/C Ratio	0.228	0.055	0	0.243	0.284	0.061	0.105	0.075	0.111
HCM Control Delay	11.3	8.8	8.4	10.3	10.1	9.8	9.5	7.4	9.4
HCM Lane LOS	B	A	N	B	B	A	A	A	A
HCM 95th-tile Q	0.9	0.2	0	0.9	1.2	0.2	0.4	0.2	0.4

# HCM 6th Signalized Intersection Summary

## 25: SR 99 NB Ramps & Campus Parkway

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	76	308	0	0	118	149	17	0	78	0	0	0
Future Volume (veh/h)	76	308	0	0	118	149	17	0	78	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1856	1856	0	0	1856	1856	1856	1856	1856			
Adj Flow Rate, veh/h	83	335	0	0	128	162	18	0	85			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	3	3	0	0	3	3	3	3	3			
Cap, veh/h	144	1429	0	0	692	309	624	0	556			
Arrive On Green	0.08	0.41	0.00	0.00	0.20	0.20	0.35	0.00	0.35			
Sat Flow, veh/h	1767	3618	0	0	3618	1572	1767	0	1572			
Grp Volume(v), veh/h	83	335	0	0	128	162	18	0	85			
Grp Sat Flow(s),veh/h/ln	1767	1763	0	0	1763	1572	1767	0	1572			
Q Serve(g_s), s	2.3	3.2	0.0	0.0	1.5	4.7	0.3	0.0	1.9			
Cycle Q Clear(g_c), s	2.3	3.2	0.0	0.0	1.5	4.7	0.3	0.0	1.9			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	144	1429	0	0	692	309	624	0	556			
V/C Ratio(X)	0.58	0.23	0.00	0.00	0.18	0.52	0.03	0.00	0.15			
Avail Cap(c_a), veh/h	208	1429	0	0	1246	556	624	0	556			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(l)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	22.6	10.0	0.0	0.0	17.1	18.3	10.8	0.0	11.3			
Incr Delay (d2), s/veh	3.6	0.1	0.0	0.0	0.1	1.4	0.1	0.0	0.6			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/lr	0.9	0.8	0.0	0.0	0.5	1.4	0.1	0.0	0.6			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.2	10.0	0.0	0.0	17.2	19.7	10.8	0.0	11.8			
LnGrp LOS	C	B	A	A	B	B	B	A	B			
Approach Vol, veh/h		418			290			103				
Approach Delay, s/veh		13.2			18.6			11.7				
Approach LOS		B			B			B				
Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		23.8		27.1			10.6	16.5				
Change Period (Y+Rc), s		5.8		6.5			6.5	6.5				
Max Green Setting (Gmax), s		18.0		20.0			6.0	18.0				
Max Q Clear Time (g_c+I1), s		3.9		5.2			4.3	6.7				
Green Ext Time (p_c), s		0.2		1.5			0.0	0.9				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay					15.0							
HCM 6th LOS					B							



**2030 Near Term Plus Project Without  
Campus Parkway AM Peak Hour**

Intersection	
Intersection Delay, s/veh	78.8
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	17	276	8	227	181	81	8	76	340	110	84	28
Future Vol, veh/h	17	276	8	227	181	81	8	76	340	110	84	28
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	18	300	9	247	197	88	9	83	370	120	91	30
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	37.2	139	66.5	26.4
HCM LOS	E	F	F	D

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	6%	46%	50%
Vol Thru, %	18%	92%	37%	38%
Vol Right, %	80%	3%	17%	13%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	424	301	489	222
LT Vol	8	17	227	110
Through Vol	76	276	181	84
RT Vol	340	8	81	28
Lane Flow Rate	461	327	532	241
Geometry Grp	1	1	1	1
Degree of Util (X)	0.977	0.773	1.206	0.601
Departure Headway (Hd)	8.247	9.148	8.166	9.742
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	442	399	446	374
Service Time	6.247	7.148	6.244	7.742
HCM Lane V/C Ratio	1.043	0.82	1.193	0.644
HCM Control Delay	66.5	37.2	139	26.4
HCM Lane LOS	F	E	F	D
HCM 95th-tile Q	12	6.5	20.8	3.8



# HCM 6th Signalized Intersection Summary

## 2: G Street & Bellevue Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	351	170	106	199	22	149	347	337	16	355	63
Future Volume (veh/h)	67	351	170	106	199	22	149	347	337	16	355	63
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	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	73	382	185	115	216	24	162	377	366	17	386	68
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	92	406	196	138	685	581	187	650	580	37	1001	446
Arrive On Green	0.05	0.34	0.34	0.08	0.37	0.37	0.11	0.37	0.37	0.02	0.28	0.28
Sat Flow, veh/h	1767	1181	572	1767	1856	1572	1767	1763	1572	1767	3526	1572
Grp Volume(v), veh/h	73	0	567	115	216	24	162	377	366	17	386	68
Grp Sat Flow(s),veh/h/ln	1767	0	1753	1767	1856	1572	1767	1763	1572	1767	1763	1572
Q Serve(g_s), s	5.6	0.0	43.2	8.8	11.4	1.3	12.4	23.6	26.4	1.3	12.1	4.5
Cycle Q Clear(g_c), s	5.6	0.0	43.2	8.8	11.4	1.3	12.4	23.6	26.4	1.3	12.1	4.5
Prop In Lane	1.00		0.33	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	92	0	602	138	685	581	187	650	580	37	1001	446
V/C Ratio(X)	0.79	0.00	0.94	0.83	0.32	0.04	0.87	0.58	0.63	0.46	0.39	0.15
Avail Cap(c_a), veh/h	166	0	679	179	732	621	238	650	580	78	1001	446
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	64.4	0.0	43.8	62.5	31.0	27.8	60.6	34.9	35.7	66.6	39.6	36.9
Incr Delay (d2), s/veh	13.8	0.0	20.3	22.1	0.3	0.0	23.0	3.8	5.2	8.7	1.1	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	0.0	21.1	4.7	5.0	0.5	6.6	10.3	10.4	0.7	5.2	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	78.2	0.0	64.1	84.6	31.2	27.8	83.5	38.6	40.9	75.3	40.7	37.6
LnGrp LOS	E	A	E	F	C	C	F	D	D	E	D	D
Approach Vol, veh/h		640			355			905			471	
Approach Delay, s/veh		65.7			48.3			47.6			41.5	
Approach LOS		E			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.4	57.2	17.3	53.7	21.0	45.5	13.7	57.3				
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5				
Max Green Setting (Gmax), s	50.7	13.9	53.3	18.5	38.3	12.9	54.3					
Max Q Clear Time (g_c+13), s	28.4	10.8	45.2	14.4	14.1	7.6	13.4					
Green Ext Time (p_c), s	0.0	4.2	0.1	2.0	0.1	2.3	0.0	1.1				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			51.4									
HCM 6th LOS			D									

# HCM 6th Signalized Intersection Summary

## 3: Lake Street/Lake Road & Bellevue Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	363	321	235	38	39	3	216	404	82	20	152	82
Future Volume (veh/h)	363	321	235	38	39	3	216	404	82	20	152	82
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	395	349	255	41	42	3	235	439	89	22	165	89
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	403	389	284	98	205	15	266	439	89	74	533	277
Arrive On Green	0.23	0.39	0.39	0.12	0.12	0.12	0.53	0.53	0.53	0.53	0.53	0.53
Sat Flow, veh/h	1767	996	728	809	1711	122	444	832	168	91	1010	524
Grp Volume(v), veh/h	395	0	604	41	0	45	763	0	0	276	0	0
Grp Sat Flow(s),veh/h/ln	1767	0	1724	809	0	1834	1445	0	0	1625	0	0
Q Serve(g_s), s	33.6	0.0	49.7	7.6	0.0	3.4	66.6	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	33.6	0.0	49.7	16.3	0.0	3.4	79.9	0.0	0.0	13.3	0.0	0.0
Prop In Lane	1.00		0.42	1.00		0.07	0.31		0.12	0.08		0.32
Lane Grp Cap(c), veh/h	403	0	674	98	0	219	794	0	0	884	0	0
V/C Ratio(X)	0.98	0.00	0.90	0.42	0.00	0.21	0.96	0.00	0.00	0.31	0.00	0.00
Avail Cap(c_a), veh/h	403	0	674	98	0	219	794	0	0	884	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	58.1	0.0	43.2	70.1	0.0	60.1	37.3	0.0	0.0	20.0	0.0	0.0
Incr Delay (d2), s/veh	39.5	0.0	14.8	2.8	0.0	0.5	23.7	0.0	0.0	0.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ft	8.9	0.0	22.8	1.6	0.0	1.5	32.2	0.0	0.0	5.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	97.5	0.0	58.0	72.9	0.0	60.6	61.1	0.0	0.0	20.9	0.0	0.0
LnGrp LOS	F	A	E	E	A	E	E	A	A	C	A	A
Approach Vol, veh/h		999			86			763			276	
Approach Delay, s/veh		73.6			66.5			61.1			20.9	
Approach LOS		E			E			E			C	
Timer - Assigned Phs		2		4		6	7	8				
Phs Duration (G+Y+Rc), s		85.7		65.6		85.7	41.0	24.6				
Change Period (Y+Rc), s		* 5.8		6.5		5.8	6.5	6.5				
Max Green Setting (Gmax), s		* 80		59.1		78.6	34.5	18.1				
Max Q Clear Time (g_c+I1), s		81.9		51.7		15.3	35.6	18.3				
Green Ext Time (p_c), s		0.0		2.1		1.7	0.0	0.0				

### Intersection Summary

HCM 6th Ctrl Delay	62.0
HCM 6th LOS	E

### Notes

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

# HCM 6th Signalized Intersection Summary

## 4: G Street & Cardella Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕		↖	↗		↖	↕	↗
Traffic Volume (veh/h)	123	0	64	2	0	8	32	767	0	4	865	56
Future Volume (veh/h)	123	0	64	2	0	8	32	767	0	4	865	56
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	134	0	70	2	0	9	35	834	0	4	940	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	125	0	269	29	17	74	55	1266	0	38	1248	
Arrive On Green	0.17	0.00	0.17	0.17	0.00	0.17	0.03	0.68	0.00	0.02	0.67	0.00
Sat Flow, veh/h	447	0	1572	0	97	435	1767	1856	0	1767	1856	1572
Grp Volume(v), veh/h	134	0	70	11	0	0	35	834	0	4	940	0
Grp Sat Flow(s),veh/h/ln	447	0	1572	532	0	0	1767	1856	0	1767	1856	1572
Q Serve(g_s), s	0.0	0.0	5.7	0.0	0.0	0.0	2.9	38.2	0.0	0.3	49.5	0.0
Cycle Q Clear(g_c), s	25.2	0.0	5.7	25.2	0.0	0.0	2.9	38.2	0.0	0.3	49.5	0.0
Prop In Lane	1.00		1.00	0.18		0.82	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	125	0	269	120	0	0	55	1266	0	38	1248	
V/C Ratio(X)	1.07	0.00	0.26	0.09	0.00	0.00	0.64	0.66	0.00	0.11	0.75	
Avail Cap(c_a), veh/h	125	0	269	120	0	0	89	1266	0	72	1248	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	65.9	0.0	52.9	51.9	0.0	0.0	70.5	13.5	0.0	70.6	16.0	0.0
Incr Delay (d2), s/veh	99.7	0.0	0.5	0.3	0.0	0.0	11.7	2.7	0.0	1.2	4.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/lr	8.2	0.0	2.3	0.3	0.0	0.0	1.4	14.5	0.0	0.2	19.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	165.6	0.0	53.4	52.2	0.0	0.0	82.2	16.2	0.0	71.8	20.2	0.0
LnGrp LOS	F	A	D	D	A	A	F	B	A	E	C	
Approach Vol, veh/h		204			11			869			944	A
Approach Delay, s/veh		127.1			52.2			18.9			20.4	
Approach LOS		F			D			B			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.7	106.9		30.6	11.1	105.5		30.6				
Change Period (Y+Rc), s	6.5	6.5		5.4	6.5	6.5		5.4				
Max Green Setting (Gmax), s	6.0	100.4		25.2	7.4	99.0		25.2				
Max Q Clear Time (g_c+1/3), s	12.3	40.2		27.2	4.9	51.5		27.2				
Green Ext Time (p_c), s	0.0	6.2		0.0	0.0	7.7		0.0				

### Intersection Summary

HCM 6th Ctrl Delay	30.7
HCM 6th LOS	C

### Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

# HCM 6th Signalized Intersection Summary

## 5: Lake Road & Cardella Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	30	1	98	30	39	2	984	78	39	420	9
Future Volume (veh/h)	11	30	1	98	30	39	2	984	78	39	420	9
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	12	33	1	107	33	42	2	1070	85	42	457	10
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	359	289	9	236	58	55	647	1238	1049	240	1206	26
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.67	0.67	0.67	0.67	0.67	0.67
Sat Flow, veh/h	1314	1791	54	785	358	343	919	1856	1572	483	1809	40
Grp Volume(v), veh/h	12	0	34	182	0	0	2	1070	85	42	0	467
Grp Sat Flow(s),veh/h/ln	1314	0	1846	1486	0	0	919	1856	1572	483	0	1848
Q Serve(g_s), s	0.0	0.0	0.8	5.3	0.0	0.0	0.1	23.8	1.0	3.9	0.0	5.9
Cycle Q Clear(g_c), s	0.4	0.0	0.8	6.1	0.0	0.0	6.0	23.8	1.0	27.7	0.0	5.9
Prop In Lane	1.00		0.03	0.59		0.23	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	359	0	298	349	0	0	647	1238	1049	240	0	1233
V/C Ratio(X)	0.03	0.00	0.11	0.52	0.00	0.00	0.00	0.86	0.08	0.17	0.00	0.38
Avail Cap(c_a), veh/h	599	0	634	618	0	0	963	1876	1590	406	0	1869
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.6	0.0	18.8	21.0	0.0	0.0	5.2	6.9	3.1	17.8	0.0	3.9
Incr Delay (d2), s/veh	0.0	0.0	0.2	1.2	0.0	0.0	0.0	2.9	0.0	0.3	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/lr	0.1	0.0	0.3	2.0	0.0	0.0	0.0	3.1	0.1	0.4	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.6	0.0	18.9	22.2	0.0	0.0	5.2	9.8	3.1	18.1	0.0	4.1
LnGrp LOS	B	A	B	C	A	A	A	A	A	B	A	A
Approach Vol, veh/h		46			182			1157			509	
Approach Delay, s/veh		18.9			22.2			9.3			5.2	
Approach LOS		B			C			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		39.5		13.0		39.5		13.0				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		53.0		18.0		53.0		18.0				
Max Q Clear Time (g_c+I1), s		25.8		2.8		29.7		8.1				
Green Ext Time (p_c), s		9.2		0.1		3.0		0.6				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				9.7								
HCM 6th LOS				A								

# HCM 6th Signalized Intersection Summary

## 6: Snelling Highway (SR 59) & Yosemite Avenue

02/23/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	215	398	347	220	488	412
Future Volume (veh/h)	215	398	347	220	488	412
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	234	433	377	239	530	448
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	353	314	505	428	564	1231
Arrive On Green	0.20	0.20	0.27	0.27	0.32	0.66
Sat Flow, veh/h	1767	1572	1856	1572	1767	1856
Grp Volume(v), veh/h	234	433	377	239	530	448
Grp Sat Flow(s),veh/h/ln	1767	1572	1856	1572	1767	1856
Q Serve(g_s), s	11.0	18.0	16.7	11.7	26.3	9.6
Cycle Q Clear(g_c), s	11.0	18.0	16.7	11.7	26.3	9.6
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	353	314	505	428	564	1231
V/C Ratio(X)	0.66	1.38	0.75	0.56	0.94	0.36
Avail Cap(c_a), veh/h	353	314	505	428	599	1231
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.2	36.0	29.9	28.1	29.8	6.7
Incr Delay (d2), s/veh	4.6	188.4	9.7	5.2	22.5	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	22.9	8.1	4.6	13.4	2.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	37.8	224.4	39.6	33.3	52.3	7.6
LnGrp LOS	D	F	D	C	D	A
Approach Vol, veh/h	667		616			978
Approach Delay, s/veh	158.9		37.1			31.8
Approach LOS	F		D			C
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	35.2	31.0			66.2	23.8
Change Period (Y+Rc), s	6.5	6.5			6.5	5.8
Max Green Setting (Gmax), s	30.5	22.7			59.7	18.0
Max Q Clear Time (g_c+20), s	29.3	18.7			11.6	20.0
Green Ext Time (p_c), s	0.4	1.1			2.5	0.0
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			70.8			
HCM 6th LOS			E			

# HCM 6th Signalized Intersection Summary

## 7: G Street & Yosemite Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	229	772	128	427	606	132	241	672	350	131	601	175
Future Volume (veh/h)	229	772	128	427	606	132	241	672	350	131	601	175
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	249	839	139	464	659	143	262	730	380	142	653	190
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	275	783	130	441	1243	555	251	853	381	158	669	298
Arrive On Green	0.16	0.26	0.26	0.25	0.35	0.35	0.14	0.24	0.24	0.09	0.19	0.19
Sat Flow, veh/h	1767	3027	501	1767	3526	1572	1767	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	249	489	489	464	659	143	262	730	380	142	653	190
Grp Sat Flow(s),veh/h/ln	1767	1763	1765	1767	1763	1572	1767	1763	1572	1767	1763	1572
Q Serve(g_s), s	20.1	37.5	37.5	36.2	21.6	9.4	20.6	28.7	19.8	11.5	26.7	16.1
Cycle Q Clear(g_c), s	20.1	37.5	37.5	36.2	21.6	9.4	20.6	28.7	19.8	11.5	26.7	16.1
Prop In Lane	1.00		0.28	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	275	456	457	441	1243	555	251	853	381	158	669	298
V/C Ratio(X)	0.91	1.07	1.07	1.05	0.53	0.26	1.04	0.86	1.00	0.90	0.98	0.64
Avail Cap(c_a), veh/h	391	456	457	441	1243	555	251	853	381	158	669	298
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	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	60.2	53.8	53.8	54.4	37.4	33.4	62.2	52.5	17.5	65.3	58.4	54.2
Incr Delay (d2), s/veh	18.7	62.7	62.7	57.1	0.4	0.2	68.6	10.7	45.7	42.9	29.5	10.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ft	0.3	24.1	24.1	22.7	9.2	3.6	13.8	13.7	11.7	7.0	14.4	7.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	78.9	116.5	116.4	111.5	37.8	33.7	130.8	63.2	63.2	108.2	88.0	64.1
LnGrp LOS	E	F	F	F	D	C	F	E	E	F	F	E
Approach Vol, veh/h		1227			1266			1372			985	
Approach Delay, s/veh		108.8			64.3			76.1			86.3	
Approach LOS		F			E			E			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	40.9	42.0	43.3	26.4	33.3	28.4	56.9					
Change Period (Y+Rc), s	5.8	5.8	5.8	5.8	5.8	5.8	5.8					
Max Green Setting (Gmax), s	35.1	36.2	37.5	20.6	27.5	32.1	41.6					
Max Q Clear Time (g_c+1/3), s	30.7	38.2	39.5	22.6	28.7	22.1	23.6					
Green Ext Time (p_c), s	0.0	2.3	0.0	0.0	0.0	0.0	0.5	4.3				

### Intersection Summary

HCM 6th Ctrl Delay	83.4
HCM 6th LOS	F

Intersection

Intersection Delay, s/veh 309.6

Intersection LOS F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↔			↕↔			↕↔			↕	↕
Traffic Vol, veh/h	48	852	125	21	835	28	206	47	34	51	133	67
Future Vol, veh/h	48	852	125	21	835	28	206	47	34	51	133	67
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	52	926	136	23	908	30	224	51	37	55	145	73
Number of Lanes	0	2	0	0	1	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	2	1
Conflicting Approach Left		NB	EB	WB
Conflicting Lanes Left	2	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	2
HCM Control Delay	186	618.1	50.8	23.8
HCM LOS	F	F	F	C

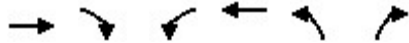
Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	72%	10%	0%	2%	28%	0%
Vol Thru, %	16%	90%	77%	94%	72%	0%
Vol Right, %	12%	0%	23%	3%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	287	474	551	884	184	67
LT Vol	206	48	0	21	51	0
Through Vol	47	426	426	835	133	0
RT Vol	34	0	125	28	0	67
Lane Flow Rate	312	515	599	961	200	73
Geometry Grp	6	7	7	6	7	7
Degree of Util (X)	0.803	1.213	1.375	2.314	0.527	0.175
Departure Headway (Hd)	12.214	10.893	10.671	8.776	11.703	10.807
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	299	340	347	423	310	334
Service Time	10.214	8.593	8.371	6.776	9.403	8.507
HCM Lane V/C Ratio	1.043	1.515	1.726	2.272	0.645	0.219
HCM Control Delay	50.8	152.3	214.9	618.1	26.7	15.8
HCM Lane LOS	F	F	F	F	D	C
HCM 95th-tile Q	6.5	17.4	23.3	72.3	2.9	0.6



# HCM 6th Signalized Intersection Summary

## 9: McKee Road & Yosemite Avenue

02/23/2022



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑	↵	↵
Traffic Volume (veh/h)	717	149	190	682	232	258
Future Volume (veh/h)	717	149	190	682	232	258
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	779	162	207	741	252	280
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	883	184	249	976	541	481
Arrive On Green	0.30	0.30	0.14	0.53	0.31	0.31
Sat Flow, veh/h	2998	604	1767	1856	1767	1572
Grp Volume(v), veh/h	473	468	207	741	252	280
Grp Sat Flow(s),veh/h/ln	1763	1747	1767	1856	1767	1572
Q Serve(g_s), s	18.2	18.2	8.2	22.5	8.3	10.8
Cycle Q Clear(g_c), s	18.2	18.2	8.2	22.5	8.3	10.8
Prop In Lane		0.35	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	536	531	249	976	541	481
V/C Ratio(X)	0.88	0.88	0.83	0.76	0.47	0.58
Avail Cap(c_a), veh/h	569	564	301	1066	541	481
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.7	23.7	29.9	13.4	20.1	21.0
Incr Delay (d2), s/veh	14.5	14.6	15.0	3.0	2.9	5.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.8	8.7	4.2	8.0	3.4	4.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	38.2	38.3	44.9	16.3	23.0	26.0
LnGrp LOS	D	D	D	B	C	C
Approach Vol, veh/h	941			948	532	
Approach Delay, s/veh	38.2			22.6	24.6	
Approach LOS	D			C	C	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		28.1	15.9	27.5		43.4
Change Period (Y+Rc), s		6.2	5.8	5.8		5.8
Max Green Setting (Gmax), s		21.9	12.2	23.1		41.1
Max Q Clear Time (g_c+I1), s		12.8	10.2	20.2		24.5
Green Ext Time (p_c), s		1.2	0.1	1.5		4.4
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			29.1			
HCM 6th LOS			C			

**Intersection**

Intersection Delay, s/veh 107.4  
 Intersection LOS F

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	603	292	253	255	129	310
Future Vol, veh/h	603	292	253	255	129	310
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	655	317	275	277	140	337
Number of Lanes	1	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left SB			WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	162.7	66.1	42.3
HCM LOS	F	F	E

Lane	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	100%	0%	0%	29%
Vol Thru, %	0%	100%	50%	0%
Vol Right, %	0%	0%	50%	71%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	603	292	508	439
LT Vol	603	0	0	129
Through Vol	0	292	253	0
RT Vol	0	0	255	310
Lane Flow Rate	655	317	552	477
Geometry Grp	7	7	5	2
Degree of Util (X)	1.436	0.65	1.002	0.881
Departure Headway (Hd)	7.998	7.483	6.893	7
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	459	486	530	520
Service Time	5.698	5.183	4.893	5
HCM Lane V/C Ratio	1.427	0.652	1.042	0.917
HCM Control Delay	230.4	23	66.1	42.3
HCM Lane LOS	F	C	F	E
HCM 95th-tile Q	32.1	4.6	14.1	9.8

# HCM 6th Signalized Intersection Summary

## 11: Snelling Highway (SR 59) & Santa Fe Drive/Olive Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷	↷	↶	↷	↷	↶	↷	↷	↶	↷	↷
Traffic Volume (veh/h)	160	891	135	210	617	69	81	489	258	89	457	78
Future Volume (veh/h)	160	891	135	210	617	69	81	489	258	89	457	78
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	174	968	147	228	671	75	88	532	280	97	497	85
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	200	1017	454	245	1106	493	103	590	500	112	599	508
Arrive On Green	0.11	0.29	0.29	0.14	0.31	0.31	0.06	0.32	0.32	0.06	0.32	0.32
Sat Flow, veh/h	1767	3526	1572	1767	3526	1572	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	174	968	147	228	671	75	88	532	280	97	497	85
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1572	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	12.1	33.6	7.2	15.9	20.1	4.3	6.2	34.2	18.4	6.8	30.9	3.3
Cycle Q Clear(g_c), s	12.1	33.6	7.2	15.9	20.1	4.3	6.2	34.2	18.4	6.8	30.9	3.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	200	1017	454	245	1106	493	103	590	500	112	599	508
V/C Ratio(X)	0.87	0.95	0.32	0.93	0.61	0.15	0.85	0.90	0.56	0.87	0.83	0.17
Avail Cap(c_a), veh/h	231	1023	456	245	1106	493	103	590	500	112	599	508
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.4	43.5	21.6	53.2	36.3	30.9	58.2	40.7	35.3	57.9	39.1	14.3
Incr Delay (d2), s/veh	25.5	17.7	0.4	39.1	1.0	0.1	45.5	19.4	4.5	46.7	12.6	0.7
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/lr	6.7	16.6	3.4	9.5	8.5	1.6	4.0	18.2	7.5	4.4	15.3	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	79.9	61.2	22.0	92.2	37.2	31.0	103.7	60.1	39.8	104.6	51.6	15.0
LnGrp LOS	E	E	C	F	D	C	F	E	D	F	D	B
Approach Vol, veh/h		1289			974			900			679	
Approach Delay, s/veh		59.3			49.6			58.0			54.6	
Approach LOS		E			D			E			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.4	45.5	23.1	41.8	13.1	46.8	19.9	45.0				
Change Period (Y+Rc), s	6.5	5.8	5.8	5.8	5.8	6.5	5.8	5.8				
Max Green Setting (Gmax), s	7.9	39.7	17.3	36.2	7.3	40.3	16.3	37.2				
Max Q Clear Time (g_c+1/3), s	13.8	36.2	17.9	35.6	8.2	32.9	14.1	22.1				
Green Ext Time (p_c), s	0.0	1.4	0.0	0.4	0.0	1.8	0.1	3.9				

### Intersection Summary

HCM 6th Ctrl Delay	55.7
HCM 6th LOS	E

# HCM 6th Signalized Intersection Summary

## 12: R Street & Olive Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑↑↑	↗	↖	↑↑↑	↗	↖	↑↑		↖	↑↑	↗
Traffic Volume (veh/h)	119	790	134	230	709	148	138	550	129	171	624	67
Future Volume (veh/h)	119	790	134	230	709	148	138	550	129	171	624	67
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	129	859	146	250	771	161	150	598	140	186	678	73
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	155	1009	313	268	1333	414	177	938	219	233	1278	570
Arrive On Green	0.09	0.20	0.20	0.15	0.26	0.26	0.10	0.33	0.33	0.13	0.36	0.36
Sat Flow, veh/h	1767	5066	1572	1767	5066	1572	1767	2837	663	1767	3526	1572
Grp Volume(v), veh/h	129	859	146	250	771	161	150	371	367	186	678	73
Grp Sat Flow(s),veh/h/ln	1767	1689	1572	1767	1689	1572	1767	1763	1736	1767	1763	1572
Q Serve(g_s), s	8.6	19.6	9.8	16.8	15.9	7.0	10.0	21.4	21.5	12.3	18.2	3.7
Cycle Q Clear(g_c), s	8.6	19.6	9.8	16.8	15.9	7.0	10.0	21.4	21.5	12.3	18.2	3.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.38	1.00		1.00
Lane Grp Cap(c), veh/h	155	1009	313	268	1333	414	177	583	574	233	1278	570
V/C Ratio(X)	0.83	0.85	0.47	0.93	0.58	0.39	0.85	0.64	0.64	0.80	0.53	0.13
Avail Cap(c_a), veh/h	174	1098	341	268	1368	425	206	583	574	233	1278	570
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.42	0.42	0.42	0.22	0.22	0.22	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.9	46.3	42.4	50.3	38.4	17.5	53.1	34.0	34.1	50.6	30.2	25.6
Incr Delay (d2), s/veh	12.5	2.7	0.5	12.9	0.1	0.1	24.1	5.2	5.4	17.7	1.6	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	8.2	3.8	8.2	6.4	3.6	5.6	9.8	9.7	6.5	7.8	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.4	49.1	42.9	63.2	38.5	17.6	77.2	39.3	39.4	68.2	31.8	26.0
LnGrp LOS	E	D	D	E	D	B	E	D	D	E	C	C
Approach Vol, veh/h		1134			1182			888			937	
Approach Delay, s/veh		50.2			40.9			45.7			38.6	
Approach LOS		D			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	31.2	45.1	24.0	29.7	17.4	48.9	16.3	37.4				
Change Period (Y+Rc), s	5.4	5.4	5.8	5.8	5.4	5.4	5.8	5.8				
Max Green Setting (Gmax), s	39.7	39.7	18.2	26.0	14.0	39.4	11.8	32.4				
Max Q Clear Time (g_c+1/3), s	11.4	23.5	18.8	21.6	12.0	20.2	10.6	17.9				
Green Ext Time (p_c), s	0.0	4.0	0.0	2.3	0.1	4.5	0.0	4.7				

### Intersection Summary

HCM 6th Ctrl Delay	44.0
HCM 6th LOS	D

# HCM 6th Signalized Intersection Summary

## 13: M Street & Olive Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↑↑↑	↘	↗	↑↑↑		↗	↑↑		↗	↑↑	
Traffic Volume (veh/h)	157	837	144	181	905	181	142	455	140	256	667	102
Future Volume (veh/h)	157	837	144	181	905	181	142	455	140	256	667	102
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	171	910	157	197	984	197	154	495	152	278	725	111
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	194	1148	357	224	1030	206	181	768	234	303	1096	168
Arrive On Green	0.11	0.23	0.23	0.13	0.24	0.24	0.10	0.29	0.29	0.17	0.36	0.36
Sat Flow, veh/h	1767	5066	1572	1767	4235	846	1767	2660	812	1767	3065	469
Grp Volume(v), veh/h	171	910	157	197	784	397	154	327	320	278	417	419
Grp Sat Flow(s),veh/h/ln	1767	1689	1572	1767	1689	1703	1767	1763	1709	1767	1763	1771
Q Serve(g_s), s	11.4	20.3	10.3	13.1	27.5	27.6	10.3	19.4	19.7	18.6	23.9	23.9
Cycle Q Clear(g_c), s	11.4	20.3	10.3	13.1	27.5	27.6	10.3	19.4	19.7	18.6	23.9	23.9
Prop In Lane	1.00		1.00	1.00		0.50	1.00		0.48	1.00		0.26
Lane Grp Cap(c), veh/h	194	1148	357	224	822	414	181	509	493	303	630	633
V/C Ratio(X)	0.88	0.79	0.44	0.88	0.95	0.96	0.85	0.64	0.65	0.92	0.66	0.66
Avail Cap(c_a), veh/h	194	1148	357	242	822	414	211	509	493	303	630	633
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.43	0.43	0.43	0.09	0.09	0.09	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.6	43.7	39.9	51.5	44.7	44.8	53.0	37.3	37.4	48.9	32.4	32.4
Incr Delay (d2), s/veh	17.8	1.7	0.4	3.6	3.3	6.2	24.2	6.1	6.5	31.3	5.4	5.4
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/lr	5.9	8.4	3.9	5.9	11.4	11.9	5.7	9.1	8.9	10.6	10.8	10.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	70.4	45.4	40.2	55.1	48.0	51.0	77.2	43.4	43.8	80.2	37.8	37.8
LnGrp LOS	E	D	D	E	D	D	E	D	D	F	D	D
Approach Vol, veh/h		1238			1378			801			1114	
Approach Delay, s/veh		48.2			49.9			50.1			48.4	
Approach LOS		D			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	36.0	40.0	21.0	33.0	17.7	48.3	19.0	35.0				
Change Period (Y+Rc), s	5.4	5.4	5.8	5.8	5.4	5.4	5.8	5.8				
Max Green Setting (Gmax), s	20.6	34.6	16.4	26.0	14.3	40.9	13.2	29.2				
Max Q Clear Time (g_c+Q), s	20.6	21.7	15.1	22.3	12.3	25.9	13.4	29.6				
Green Ext Time (p_c), s	0.0	3.1	0.1	2.1	0.1	4.4	0.0	0.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay											49.1	
HCM 6th LOS											D	

# HCM 6th Signalized Intersection Summary

## 14: Olive Avenue & G Street

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	350	401	226	231	681	88	277	1083	123	89	1009	464
Future Volume (veh/h)	350	401	226	231	681	88	277	1083	123	89	1009	464
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	380	436	246	251	740	96	301	1177	134	97	1097	504
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	317	838	374	266	656	85	251	1332	594	110	1050	468
Arrive On Green	0.18	0.24	0.24	0.15	0.21	0.21	0.14	0.38	0.38	0.06	0.30	0.30
Sat Flow, veh/h	1767	3526	1572	1767	3138	407	1767	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	380	436	246	251	416	420	301	1177	134	97	1097	504
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1782	1767	1763	1572	1767	1763	1572
Q Serve(g_s), s	24.2	14.5	19.1	19.0	28.2	28.2	19.2	42.1	7.8	7.4	40.2	25.0
Cycle Q Clear(g_c), s	24.2	14.5	19.1	19.0	28.2	28.2	19.2	42.1	7.8	7.4	40.2	25.0
Prop In Lane	1.00		1.00	1.00		0.23	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	317	838	374	266	368	372	251	1332	594	110	1050	468
V/C Ratio(X)	1.20	0.52	0.66	0.94	1.13	1.13	1.20	0.88	0.23	0.88	1.04	1.08
Avail Cap(c_a), veh/h	317	838	374	266	368	372	251	1332	594	110	1050	468
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.4	44.8	46.5	56.8	53.4	53.4	57.9	39.2	28.6	62.8	47.4	18.4
Incr Delay (d2), s/veh	116.2	0.6	4.2	40.3	86.5	86.6	120.9	8.8	0.9	50.9	40.3	63.6
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	20.7	6.3	7.7	11.3	21.0	21.2	16.8	19.1	3.0	4.8	22.9	16.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	171.6	45.3	50.7	97.1	139.9	140.0	178.8	48.0	29.4	113.8	87.7	82.0
LnGrp LOS	F	D	D	F	F	F	F	D	C	F	F	F
Approach Vol, veh/h	1062			1087			1612			1698		
Approach Delay, s/veh	91.7			130.1			70.9			87.5		
Approach LOS	F			F			E			F		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.2	56.8	26.1	37.9	25.0	46.0	30.0	34.0				
Change Period (Y+Rc), s	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8				
Max Green Setting (Gmax), s	51.0	20.3	32.1	19.2	40.2	24.2	28.2					
Max Q Clear Time (g_c+19.4), s	44.1	21.0	21.1	21.2	42.2	26.2	30.2					
Green Ext Time (p_c), s	0.0	4.2	0.0	2.6	0.0	0.0	0.0					
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay	91.9											
HCM 6th LOS	F											

**Intersection**

Intersection Delay, s/veh	288.8
Intersection LOS	F

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	378	768	321	367	389	420
Future Vol, veh/h	378	768	321	367	389	420
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	411	835	349	399	423	457
Number of Lanes	1	1	2	1	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	3	2	0
Conflicting Approach Left			WB
Conflicting Lanes Left	1	0	3
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	324.9	17.7	468.3
HCM LOS	F	C	F

Lane	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	100%	0%	0%	0%	0%	48%
Vol Thru, %	0%	100%	100%	100%	0%	0%
Vol Right, %	0%	0%	0%	0%	100%	52%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	378	768	161	161	367	809
LT Vol	378	0	0	0	0	389
Through Vol	0	768	161	161	0	0
RT Vol	0	0	0	0	367	420
Lane Flow Rate	411	835	174	174	399	879
Geometry Grp	8	8	7	7	7	7
Degree of Util (X)	0.996	1.908	0.379	0.379	0.595	1.977
Departure Headway (Hd)	11.262	10.717	9.053	9.053	6.431	8.787
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	325	351	400	400	566	422
Service Time	8.962	8.417	6.753	6.753	4.131	6.487
HCM Lane V/C Ratio	1.265	2.379	0.435	0.435	0.705	2.083
HCM Control Delay	84.1	443.4	17.2	17.2	18.1	468.3
HCM Lane LOS	F	F	C	C	C	F
HCM 95th-tile Q	10.8	43.6	1.7	1.7	3.9	55.5



HCM 6th TWSC  
 16: MLK JR Way & SR 99 NB Ramps

02/23/2022

Intersection												
Int Delay, s/veh	22.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕		↕	↑↑			↑↑	
Traffic Vol, veh/h	0	0	0	69	0	107	274	681	0	0	359	310
Future Vol, veh/h	0	0	0	69	0	107	274	681	0	0	359	310
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	75	-	-	-	-	-
Veh in Median Storage, #	-	2	-	-	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	0	0	0	75	0	116	298	740	0	0	390	337

Major/Minor	Minor1	Major1	Major2				
Conflicting Flow All	1531	2063	370	727	0	-	-
Stage 1	1336	1336	-	-	-	-	-
Stage 2	195	727	-	-	-	-	-
Critical Hdwy	6.86	6.56	6.96	4.16	-	-	-
Critical Hdwy Stg 1	5.86	5.56	-	-	-	-	-
Critical Hdwy Stg 2	5.86	5.56	-	-	-	-	-
Follow-up Hdwy	3.53	4.03	3.33	2.23	-	-	-
Pot Cap-1 Maneuver	107	53	624	866	-	0	0
Stage 1	208	219	-	-	-	0	0
Stage 2	816	425	-	-	-	0	0
Platoon blocked, %					-	-	-
Mov Cap-1 Maneuver	~ 70	0	624	866	-	-	-
Mov Cap-2 Maneuver	~ 70	0	-	-	-	-	-
Stage 1	136	0	-	-	-	-	-
Stage 2	816	0	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	216.5	3.2	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBTWBLn1	SBT	SBR
Capacity (veh/h)	866	-	152	-
HCM Lane V/C Ratio	0.344	-	1.259	-
HCM Control Delay (s)	11.3	-	216.5	-
HCM Lane LOS	B	-	F	-
HCM 95th %tile Q(veh)	1.5	-	11.3	-

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

Intersection												
Int Delay, s/veh	4.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙		↗		↕		↙	↕			↕	↗
Traffic Vol, veh/h	49	0	8	51	7	137	9	516	0	0	545	55
Future Vol, veh/h	49	0	8	51	7	137	9	516	0	0	545	55
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	-	-	-	75	-	-	-	-	-
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	53	0	9	55	8	149	10	561	0	0	592	60

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	927	-	326	877	1233	281	652	0	-	-	-	0
Stage 1	622	-	-	581	581	-	-	-	-	-	-	-
Stage 2	305	-	-	296	652	-	-	-	-	-	-	-
Critical Hdwy	7.56	-	6.96	7.56	6.56	6.96	4.16	-	-	-	-	-
Critical Hdwy Stg 1	6.56	-	-	6.56	5.56	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.56	-	-	6.56	5.56	-	-	-	-	-	-	-
Follow-up Hdwy	3.53	-	3.33	3.53	4.03	3.33	2.23	-	-	-	-	-
Pot Cap-1 Maneuver	222	0	667	241	174	713	924	-	0	0	-	-
Stage 1	439	0	-	464	495	-	-	-	0	0	-	-
Stage 2	677	0	-	685	460	-	-	-	0	0	-	-
Platoon blocked, %								-			-	
Mov Cap-1 Maneuver	168	-	667	236	172	713	924	-	-	-	-	-
Mov Cap-2 Maneuver	168	-	-	236	172	-	-	-	-	-	-	-
Stage 1	434	-	-	459	490	-	-	-	-	-	-	-
Stage 2	522	-	-	676	460	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	32.5		21		0.2		0	
HCM LOS	D		C					

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	WBLn1	SBT	SBR
Capacity (veh/h)	924	-	168	667	434	-	-
HCM Lane V/C Ratio	0.011	-	0.317	0.013	0.488	-	-
HCM Control Delay (s)	8.9	-	36.1	10.5	21	-	-
HCM Lane LOS	A	-	E	B	C	-	-
HCM 95th %tile Q(veh)	0	-	1.3	0	2.6	-	-

HCM 6th Roundabout  
18: Campus Parkway & Yosemite Avenue

02/23/2022

Intersection					
Intersection Delay, s/veh	5.4				
Intersection LOS	A				
Approach	EB		WB		NB
Entry Lanes	2		2		2
Conflicting Circle Lanes	2		2		2
Adj Approach Flow, veh/h	458		239		368
Demand Flow Rate, veh/h	472		246		379
Vehicles Circulating, veh/h	26		348		232
Vehicles Exiting, veh/h	568		263		266
Ped Vol Crossing Leg, #/h	0		0		0
Ped Cap Adj	1.000		1.000		1.000
Approach Delay, s/veh	4.2		6.3		6.3
Approach LOS	A		A		A
Lane	Left	Right	Left	Left	Right
Designated Moves	LT	TR	LT	L	TR
Assumed Moves	LT	R	LT	L	TR
RT Channelized					
Lane Util	0.492	0.508	1.000	0.918	0.082
Follow-Up Headway, s	2.667	2.535	2.667	2.667	2.535
Critical Headway, s	4.645	4.328	4.645	4.645	4.328
Entry Flow, veh/h	232	240	246	348	31
Cap Entry Lane, veh/h	1318	1389	980	1090	1166
Entry HV Adj Factor	0.971	0.971	0.970	0.971	0.968
Flow Entry, veh/h	225	233	239	338	30
Cap Entry, veh/h	1280	1349	951	1059	1128
V/C Ratio	0.176	0.173	0.251	0.319	0.027
Control Delay, s/veh	4.3	4.1	6.3	6.6	3.4
LOS	A	A	A	A	A
95th %tile Queue, veh	1	1	1	1	0

HCM 6th Roundabout  
 19: Campus Parkway & Olive Avenue

02/23/2022

Intersection									
Intersection Delay, s/veh 4.4									
Intersection LOS A									
Approach	EB		WB		NB		SB		
Entry Lanes	2		2		2		2		
Conflicting Circle Lanes	2		2		2		2		
Adj Approach Flow, veh/h	119		137		457		178		
Demand Flow Rate, veh/h	123		141		471		182		
Vehicles Circulating, veh/h	182		443		118		139		
Vehicles Exiting, veh/h	139		146		187		445		
Ped Vol Crossing Leg, #/h	0		0		0		0		
Ped Cap Adj	1.000		1.000		1.000		1.000		
Approach Delay, s/veh	3.6		4.7		4.6		4.2		
Approach LOS	A		A		A		A		
Lane	Left	Right	Left	Right	Left	Right	Left	Right	
Designated Moves	LT	TR	LT	TR	LT	TR	LT	R	
Assumed Moves	LT	TR	LT	TR	LT	TR	LT	R	
RT Channelized									
Lane Util	0.472	0.528	0.468	0.532	0.469	0.531	0.918	0.082	
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.667	2.535	2.667	2.535	
Critical Headway, s	4.645	4.328	4.645	4.328	4.645	4.328	4.645	4.328	
Entry Flow, veh/h	58	65	66	75	221	250	167	15	
Cap Entry Lane, veh/h	1142	1217	898	974	1211	1285	1188	1262	
Entry HV Adj Factor	0.963	0.969	0.975	0.967	0.973	0.970	0.974	1.000	
Flow Entry, veh/h	56	63	64	73	215	242	163	15	
Cap Entry, veh/h	1100	1179	875	942	1178	1246	1157	1262	
V/C Ratio	0.051	0.053	0.073	0.077	0.182	0.195	0.141	0.012	
Control Delay, s/veh	3.7	3.5	4.8	4.5	4.6	4.6	4.3	2.9	
LOS	A	A	A	A	A	A	A	A	
95th %tile Queue, veh	0	0	0	0	1	1	0	0	

# HCM 6th Signalized Intersection Summary

## 20: Campus Parkway & Connector Road

02/23/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖↗	↖	↕↕	↖	↖↗	↕↕
Traffic Volume (veh/h)	38	27	394	42	15	152
Future Volume (veh/h)	38	27	394	42	15	152
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	41	0	428	0	16	165
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	238		1912		82	2450
Arrive On Green	0.07	0.00	0.54	0.00	0.02	0.70
Sat Flow, veh/h	3428	1572	3618	1572	3428	3618
Grp Volume(v), veh/h	41	0	428	0	16	165
Grp Sat Flow(s),veh/h/ln	1714	1572	1763	1572	1714	1763
Q Serve(g_s), s	0.6	0.0	3.2	0.0	0.2	0.8
Cycle Q Clear(g_c), s	0.6	0.0	3.2	0.0	0.2	0.8
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	238		1912		82	2450
V/C Ratio(X)	0.17		0.22		0.20	0.07
Avail Cap(c_a), veh/h	2240		1912		407	2450
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	22.1	0.0	6.0	0.0	24.2	2.5
Incr Delay (d2), s/veh	0.3	0.0	0.3	0.0	1.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.7	0.0	0.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	22.5	0.0	6.3	0.0	25.3	2.5
LnGrp LOS	C		A		C	A
Approach Vol, veh/h	41	A	428	A		181
Approach Delay, s/veh	22.5		6.3			4.5
Approach LOS	C		A			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	7.7	33.9			41.6	8.9
Change Period (Y+Rc), s	6.5	6.5			6.5	5.4
Max Green Setting (Gmax), s	6.0	22.6			35.1	33.0
Max Q Clear Time (g_c+1/2), s	12.2	5.2			2.8	2.6
Green Ext Time (p_c), s	0.0	2.2			0.9	0.1

### Intersection Summary

HCM 6th Ctrl Delay		6.8
HCM 6th LOS		A

### Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

# HCM 6th Signalized Intersection Summary

## 21: SR 140 & Connector Road

02/23/2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations	↕	↗	↖	↗	↘	↗	
Traffic Volume (veh/h)	39	180	118	28	19	38	
Future Volume (veh/h)	39	180	118	28	19	38	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	
Adj Flow Rate, veh/h	42	196	128	30	21	41	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	3	3	3	3	3	3	
Cap, veh/h	93	701	364	309	684	609	
Arrive On Green	0.05	0.38	0.20	0.20	0.39	0.39	
Sat Flow, veh/h	1767	1856	1856	1572	1767	1572	
Grp Volume(v), veh/h	42	196	128	30	21	41	
Grp Sat Flow(s),veh/h/ln	1767	1856	1856	1572	1767	1572	
Q Serve(g_s), s	1.2	3.7	3.0	0.8	0.4	0.8	
Cycle Q Clear(g_c), s	1.2	3.7	3.0	0.8	0.4	0.8	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	93	701	364	309	684	609	
V/C Ratio(X)	0.45	0.28	0.35	0.10	0.03	0.07	
Avail Cap(c_a), veh/h	227	1412	935	792	684	609	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	23.3	11.0	17.6	16.7	9.6	9.8	
Incr Delay (d2), s/veh	3.4	0.2	0.6	0.1	0.1	0.2	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.5	1.1	1.1	0.2	0.1	0.0	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	26.6	11.2	18.1	16.8	9.7	10.0	
LnGrp LOS	C	B	B	B	A	A	
Approach Vol, veh/h		238	158		62		
Approach Delay, s/veh		13.9	17.9		9.9		
Approach LOS		B	B		A		
Timer - Assigned Phs			4		6	7	8
Phs Duration (G+Y+Rc), s			25.6		25.0	9.2	16.4
Change Period (Y+Rc), s			6.5		5.4	6.5	6.5
Max Green Setting (Gmax), s			38.5		19.6	6.5	25.5
Max Q Clear Time (g_c+I1), s			5.7		2.8	3.2	5.0
Green Ext Time (p_c), s			0.9		0.1	0.0	0.6
<b>Intersection Summary</b>							
HCM 6th Ctrl Delay			14.7				
HCM 6th LOS			B				

# HCM 6th Signalized Intersection Summary

## 22: Campus Parkway & Childs Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	113	85	89	115	8	66	410	36	17	157	16
Future Volume (veh/h)	18	113	85	89	115	8	66	410	36	17	157	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		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	20	123	92	97	125	9	72	446	39	18	171	17
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	49	421	188	132	624	278	227	1455	649	45	1312	585
Arrive On Green	0.03	0.12	0.12	0.07	0.18	0.18	0.07	0.41	0.41	0.03	0.37	0.37
Sat Flow, veh/h	1767	3526	1572	1767	3526	1572	3428	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	20	123	92	97	125	9	72	446	39	18	171	17
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1572	1714	1763	1572	1767	1763	1572
Q Serve(g_s), s	0.7	2.1	3.7	3.6	2.0	0.3	1.3	5.7	1.0	0.7	2.1	0.5
Cycle Q Clear(g_c), s	0.7	2.1	3.7	3.6	2.0	0.3	1.3	5.7	1.0	0.7	2.1	0.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	49	421	188	132	624	278	227	1455	649	45	1312	585
V/C Ratio(X)	0.41	0.29	0.49	0.73	0.20	0.03	0.32	0.31	0.06	0.40	0.13	0.03
Avail Cap(c_a), veh/h	158	2054	916	296	2328	1038	307	1455	649	158	1312	585
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.0	26.9	27.6	30.3	23.5	22.8	29.8	13.2	11.8	32.1	13.9	13.3
Incr Delay (d2), s/veh	5.3	0.4	2.0	7.6	0.2	0.0	0.8	0.5	0.2	5.6	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.9	1.4	1.7	0.8	0.1	0.5	1.9	0.3	0.3	0.7	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.3	27.3	29.5	37.9	23.7	22.8	30.6	13.8	12.0	37.7	14.1	13.4
LnGrp LOS	D	C	C	D	C	C	C	B	B	D	B	B
Approach Vol, veh/h		235			231			557			206	
Approach Delay, s/veh		29.0			29.6			15.8			16.1	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.2	34.1	10.8	13.8	10.9	31.4	7.0	17.6				
Change Period (Y+Rc), s	6.5	6.5	5.8	* 5.8	6.5	6.5	5.1	5.8				
Max Green Setting (Gmax), s	6.0	24.9	11.2	* 39	6.0	24.9	6.0	44.2				
Max Q Clear Time (g_c+1/2, s)	12.5	7.7	5.6	5.7	3.3	4.1	2.7	4.0				
Green Ext Time (p_c), s	0.0	2.4	0.1	1.0	0.0	0.8	0.0	0.7				

### Intersection Summary

HCM 6th Ctrl Delay	21.0
HCM 6th LOS	C

### Notes

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



# HCM 6th Signalized Intersection Summary

## 23: Campus Parkway & Gerard Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑	↗	↔↔	↑↑	↗	↔↔	↑↑	↗	↔↔	↑↑	↗
Traffic Volume (veh/h)	65	15	85	77	22	5	33	442	9	7	245	79
Future Volume (veh/h)	65	15	85	77	22	5	33	442	9	7	245	79
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	71	16	92	84	24	5	36	480	10	8	266	86
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	209	364	162	224	411	183	144	1692	755	42	1588	708
Arrive On Green	0.06	0.10	0.10	0.07	0.12	0.12	0.04	0.48	0.48	0.01	0.45	0.45
Sat Flow, veh/h	3428	3526	1572	3428	3526	1572	3428	3526	1572	3428	3526	1572
Grp Volume(v), veh/h	71	16	92	84	24	5	36	480	10	8	266	86
Grp Sat Flow(s),veh/h/ln	1714	1763	1572	1714	1763	1572	1714	1763	1572	1714	1763	1572
Q Serve(g_s), s	1.5	0.3	4.3	1.8	0.5	0.2	0.8	6.3	0.3	0.2	3.4	2.4
Cycle Q Clear(g_c), s	1.5	0.3	4.3	1.8	0.5	0.2	0.8	6.3	0.3	0.2	3.4	2.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	209	364	162	224	411	183	144	1692	755	42	1588	708
V/C Ratio(X)	0.34	0.04	0.57	0.38	0.06	0.03	0.25	0.28	0.01	0.19	0.17	0.12
Avail Cap(c_a), veh/h	277	1730	772	295	1749	780	268	1692	755	268	1588	708
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.5	30.9	32.7	34.3	30.1	30.0	35.5	12.0	10.4	37.5	12.5	12.2
Incr Delay (d2), s/veh	1.0	0.0	3.1	1.0	0.1	0.1	0.9	0.4	0.0	2.2	0.2	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.1	1.6	0.7	0.2	0.1	0.3	2.1	0.1	0.1	1.2	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.4	31.0	35.8	35.4	30.2	30.1	36.4	12.4	10.5	39.6	12.7	12.6
LnGrp LOS	D	C	D	D	C	C	D	B	B	D	B	B
Approach Vol, veh/h		179			113			526			360	
Approach Delay, s/veh		35.2			34.0			14.0			13.3	
Approach LOS		D			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.4	43.3	11.5	14.4	9.7	41.0	10.5	15.4				
Change Period (Y+Rc), s	6.5	6.5	6.5	* 6.5	6.5	6.5	5.8	6.5				
Max Green Setting (Gmax), s	6.0	34.5	6.6	* 38	6.0	34.5	6.2	38.0				
Max Q Clear Time (g_c+1/2), s	11.2	8.3	3.8	6.3	2.8	5.4	3.5	2.5				
Green Ext Time (p_c), s	0.0	2.8	0.0	0.3	0.0	1.7	0.0	0.1				

### Intersection Summary

HCM 6th Ctrl Delay	18.9
HCM 6th LOS	B

### Notes

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

# HCM 6th Signalized Intersection Summary

## 24: Coffee Street & Campus Parkway

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	113	356	52	33	359	15	110	33	14	321	128	103
Future Volume (veh/h)	113	356	52	33	359	15	110	33	14	321	128	103
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	123	387	57	36	390	16	120	36	15	349	139	112
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	152	676	301	51	476	212	174	1453	648	383	2039	909
Arrive On Green	0.03	0.06	0.06	0.03	0.14	0.14	0.05	0.41	0.41	0.22	0.58	0.58
Sat Flow, veh/h	1767	3526	1572	1767	3526	1572	3428	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	123	387	57	36	390	16	120	36	15	349	139	112
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1572	1714	1763	1572	1767	1763	1572
Q Serve(g_s), s	8.3	12.8	4.1	2.4	12.9	1.1	4.1	0.7	0.7	23.1	2.1	3.9
Cycle Q Clear(g_c), s	8.3	12.8	4.1	2.4	12.9	1.1	4.1	0.7	0.7	23.1	2.1	3.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	152	676	301	51	476	212	174	1453	648	383	2039	909
V/C Ratio(X)	0.81	0.57	0.19	0.70	0.82	0.08	0.69	0.02	0.02	0.91	0.07	0.12
Avail Cap(c_a), veh/h	272	984	439	110	661	295	271	1453	648	596	2039	909
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.93	0.93	0.93	0.99	0.99	0.99	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.3	51.4	47.4	57.7	50.5	45.4	56.0	20.9	20.9	45.8	11.1	11.5
Incr Delay (d2), s/veh	9.3	0.7	0.3	15.6	5.7	0.1	4.7	0.0	0.1	12.7	0.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	6.0	1.6	1.3	5.8	0.4	1.9	0.3	0.2	11.2	0.8	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.6	52.1	47.6	73.4	56.1	45.5	60.8	21.0	21.0	58.5	11.2	11.8
LnGrp LOS	E	D	D	E	E	D	E	C	C	E	B	B
Approach Vol, veh/h		567			442			171			600	
Approach Delay, s/veh		54.8			57.2			48.9			38.8	
Approach LOS		D			E			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	30.5	54.0	8.0	27.5	10.6	73.9	14.8	20.7				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	40.5	20.5	7.5	33.5	9.5	51.5	18.5	22.5				
Max Q Clear Time (g_c+Q), s	25.5	2.7	4.4	14.8	6.1	5.9	10.3	14.9				
Green Ext Time (p_c), s	0.9	0.1	0.0	2.2	0.1	1.2	0.2	1.3				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			49.4									
HCM 6th LOS			D									

# HCM 6th Signalized Intersection Summary

## 25: SR 99 NB Ramps & Campus Parkway

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	208	511	0	0	402	170	26	3	10	0	0	0
Future Volume (veh/h)	208	511	0	0	402	170	26	3	10	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1856	1856	0	0	1856	1856	1856	1856	1856			
Adj Flow Rate, veh/h	226	555	0	0	437	185	28	3	11			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	3	3	0	0	3	3	3	3	3			
Cap, veh/h	259	1283	0	0	576	257	856	92	839			
Arrive On Green	0.15	0.36	0.00	0.00	0.05	0.05	0.53	0.53	0.53			
Sat Flow, veh/h	1767	3618	0	0	3618	1572	1604	172	1572			
Grp Volume(v), veh/h	226	555	0	0	437	185	31	0	11			
Grp Sat Flow(s),veh/h/ln	1767	1763	0	0	1763	1572	1775	0	1572			
Q Serve(g_s), s	15.0	14.3	0.0	0.0	14.7	13.9	1.0	0.0	0.4			
Cycle Q Clear(g_c), s	15.0	14.3	0.0	0.0	14.7	13.9	1.0	0.0	0.4			
Prop In Lane	1.00		0.00	0.00		1.00	0.90		1.00			
Lane Grp Cap(c), veh/h	259	1283	0	0	576	257	947	0	839			
V/C Ratio(X)	0.87	0.43	0.00	0.00	0.76	0.72	0.03	0.00	0.01			
Avail Cap(c_a), veh/h	611	2483	0	0	1072	478	947	0	839			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	0.33	0.33	1.00	1.00	1.00			
Upstream Filter(l)	1.00	1.00	0.00	0.00	0.80	0.80	1.00	0.00	1.00			
Uniform Delay (d), s/veh	50.1	28.8	0.0	0.0	54.4	54.1	13.3	0.0	13.1			
Incr Delay (d2), s/veh	8.9	0.2	0.0	0.0	1.7	3.1	0.1	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	7.0	5.7	0.0	0.0	7.0	6.0	0.4	0.0	0.1			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.0	29.0	0.0	0.0	56.1	57.1	13.4	0.0	13.2			
LnGrp LOS	E	C	A	A	E	E	B	A	B			
Approach Vol, veh/h	781		622				42					
Approach Delay, s/veh	37.7		56.4				13.3					
Approach LOS	D		E				B					
Timer - Assigned Phs	2		4				7		8			
Phs Duration (G+Y+Rc), s	69.8		50.2				24.1		26.1			
Change Period (Y+Rc), s	5.8		6.5				6.5		6.5			
Max Green Setting (Gmax), s	23.2		84.5				41.5		36.5			
Max Q Clear Time (g_c+I1), s	3.0		16.3				17.0		16.7			
Green Ext Time (p_c), s	0.1		3.5				0.6		2.9			
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			45.1									
HCM 6th LOS			D									

# HCM 6th Signalized Intersection Summary

## 26: Lake Street & Meyers Gate Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	20	30	10	49	30	49	20	654	39	39	386	10
Future Volume (veh/h)	20	30	10	49	30	49	20	654	39	39	386	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	22	33	11	53	33	53	22	711	42	42	420	11
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	46	114	38	91	71	114	46	823	49	77	885	23
Arrive On Green	0.03	0.09	0.09	0.05	0.11	0.11	0.03	0.47	0.47	0.04	0.49	0.49
Sat Flow, veh/h	1767	1332	444	1767	641	1029	1767	1735	102	1767	1800	47
Grp Volume(v), veh/h	22	0	44	53	0	86	22	0	753	42	0	431
Grp Sat Flow(s),veh/h/ln	1767	0	1776	1767	0	1670	1767	0	1837	1767	0	1847
Q Serve(g_s), s	0.6	0.0	1.2	1.5	0.0	2.5	0.6	0.0	19.0	1.2	0.0	8.1
Cycle Q Clear(g_c), s	0.6	0.0	1.2	1.5	0.0	2.5	0.6	0.0	19.0	1.2	0.0	8.1
Prop In Lane	1.00		0.25	1.00		0.62	1.00		0.06	1.00		0.03
Lane Grp Cap(c), veh/h	46	0	151	91	0	185	46	0	872	77	0	909
V/C Ratio(X)	0.48	0.00	0.29	0.58	0.00	0.47	0.48	0.00	0.86	0.54	0.00	0.47
Avail Cap(c_a), veh/h	173	0	616	173	0	580	173	0	1187	173	0	1194
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.0	0.0	22.4	24.2	0.0	21.7	25.0	0.0	12.2	24.4	0.0	8.8
Incr Delay (d2), s/veh	7.4	0.0	1.0	5.8	0.0	1.8	7.4	0.0	5.2	5.8	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/lr	0.3	0.0	0.5	0.7	0.0	1.0	0.3	0.0	5.9	0.5	0.0	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.4	0.0	23.4	30.0	0.0	23.6	32.4	0.0	17.4	30.3	0.0	9.2
LnGrp LOS	C	A	C	C	A	C	C	A	B	C	A	A
Approach Vol, veh/h		66			139			775				473
Approach Delay, s/veh		26.4			26.0			17.8				11.0
Approach LOS		C			C			B				B
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.8	29.2	7.2	8.9	5.9	30.2	5.9	10.3				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.0	33.7	5.1	18.1	5.1	33.7	5.1	18.1				
Max Q Clear Time (g_c+1/3), s	13.2	21.0	3.5	3.2	2.6	10.1	2.6	4.5				
Green Ext Time (p_c), s	0.0	3.7	0.0	0.1	0.0	2.2	0.0	0.3				

### Intersection Summary

HCM 6th Ctrl Delay	16.8
HCM 6th LOS	B

HCM 6th Roundabout  
76: Campus Parkway & Meyers Gate Road

02/23/2022

Intersection				
Intersection Delay, s/veh	3.6			
Intersection LOS	A			
Approach	EB	WB	NB	
Entry Lanes	1	1	2	
Conflicting Circle Lanes	2	2	2	
Adj Approach Flow, veh/h	97	101	131	
Demand Flow Rate, veh/h	100	104	135	
Vehicles Circulating, veh/h	16	126	75	
Vehicles Exiting, veh/h	214	84	41	
Ped Vol Crossing Leg, #/h	20	20	20	
Ped Cap Adj	0.997	0.997	0.978	
Approach Delay, s/veh	3.2	3.6	3.8	
Approach LOS	A	A	A	
Lane	Left	Left	Left	Right
Designated Moves	TR	LT	L	TR
Assumed Moves	TR	LT	L	TR
RT Channelized				
Lane Util	1.000	1.000	0.933	0.067
Follow-Up Headway, s	2.535	2.535	2.667	2.535
Critical Headway, s	4.328	4.328	4.645	4.328
Entry Flow, veh/h	100	104	126	9
Cap Entry Lane, veh/h	1401	1276	1260	1332
Entry HV Adj Factor	0.968	0.975	0.968	1.000
Flow Entry, veh/h	97	101	122	9
Cap Entry, veh/h	1353	1241	1194	1304
V/C Ratio	0.072	0.082	0.102	0.007
Control Delay, s/veh	3.2	3.6	3.9	2.8
LOS	A	A	A	A
95th %tile Queue, veh	0	0	0	0

HCM 6th Signalized Intersection Summary  
 77: Lake Road & Virginia Smith Parkway

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↑	↕	↕	↑	↕	↕	↕	↕
Traffic Volume (veh/h)	20	30	10	146	30	98	20	595	117	78	357	10
Future Volume (veh/h)	20	30	10	146	30	98	20	595	117	78	357	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.90		0.90	1.00		0.93	1.00		0.95	1.00		0.95
Parking Bus, Adj	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	22	33	11	159	33	107	22	647	127	85	388	11
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	117	76	22	203	519	410	46	773	620	115	817	23
Arrive On Green	0.09	0.09	0.09	0.11	0.28	0.28	0.03	0.42	0.42	0.07	0.46	0.46
Sat Flow, veh/h	376	898	255	1767	1856	1466	1767	1856	1490	1767	1792	51
Grp Volume(v), veh/h	66	0	0	159	33	107	22	647	127	85	0	399
Grp Sat Flow(s),veh/h/ln	1529	0	0	1767	1856	1466	1767	1856	1490	1767	0	1843
Q Serve(g_s), s	1.1	0.0	0.0	4.9	0.7	3.2	0.7	17.7	3.1	2.7	0.0	8.5
Cycle Q Clear(g_c), s	2.2	0.0	0.0	4.9	0.7	3.2	0.7	17.7	3.1	2.7	0.0	8.5
Prop In Lane	0.33		0.17	1.00		1.00	1.00		1.00	1.00		0.03
Lane Grp Cap(c), veh/h	215	0	0	203	519	410	46	773	620	115	0	840
V/C Ratio(X)	0.31	0.00	0.00	0.78	0.06	0.26	0.48	0.84	0.20	0.74	0.00	0.48
Avail Cap(c_a), veh/h	556	0	0	328	1084	856	169	1215	976	203	0	1243
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.6	0.0	0.0	24.3	14.9	15.8	27.1	14.8	10.5	25.9	0.0	10.7
Incr Delay (d2), s/veh	0.8	0.0	0.0	6.5	0.1	0.3	7.7	3.1	0.2	8.8	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/lr	0.8	0.0	0.0	2.2	0.3	1.0	0.3	5.8	0.8	1.2	0.0	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.4	0.0	0.0	30.8	15.0	16.2	34.8	17.8	10.7	34.8	0.0	11.1
LnGrp LOS	C	A	A	C	B	B	C	B	B	C	A	B
Approach Vol, veh/h		66			299			796			484	
Approach Delay, s/veh		25.4			23.8			17.2			15.3	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	8.2	28.0	11.0	9.3	6.0	30.2		20.3				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	6.5	37.0	10.5	18.0	5.4	38.1		33.0				
Max Q Clear Time (g_c+14), s	14.7	19.7	6.9	4.2	2.7	10.5		5.2				
Green Ext Time (p_c), s	0.0	3.9	0.1	0.2	0.0	2.1		0.5				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				18.1								
HCM 6th LOS				B								

HCM 6th Roundabout  
78: Campus Parkway & Virginia Smith Parkway

02/23/2022

Intersection							
Intersection Delay, s/veh	4.1						
Intersection LOS	A						
Approach	EB	WB		NB		SB	
Entry Lanes	1	2		2		2	
Conflicting Circle Lanes	2	2		2		2	
Adj Approach Flow, veh/h	188	292		161		100	
Demand Flow Rate, veh/h	193	300		166		103	
Vehicles Circulating, veh/h	170	131		216		299	
Vehicles Exiting, veh/h	232	251		147		132	
Ped Vol Crossing Leg, #/h	20	20		20		20	
Ped Cap Adj	0.997	0.979		0.981		0.983	
Approach Delay, s/veh	4.4	4.1		3.9		4.0	
Approach LOS	A	A		A		A	
Lane	Left	Left	Right	Left	Right	Left	Right
Designated Moves	LTR	LT	TR	LT	TR	LT	TR
Assumed Moves	LTR	LT	TR	LT	TR	LT	TR
RT Channelized							
Lane Util	1.000	0.470	0.530	0.470	0.530	0.466	0.534
Follow-Up Headway, s	2.535	2.667	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.328	4.645	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	193	141	159	78	88	48	55
Cap Entry Lane, veh/h	1229	1197	1270	1107	1182	1025	1101
Entry HV Adj Factor	0.972	0.972	0.972	0.971	0.971	0.983	0.967
Flow Entry, veh/h	188	137	155	76	85	47	53
Cap Entry, veh/h	1192	1140	1210	1055	1126	990	1047
V/C Ratio	0.157	0.120	0.128	0.072	0.076	0.048	0.051
Control Delay, s/veh	4.4	4.2	4.0	4.0	3.8	4.1	3.9
LOS	A	A	A	A	A	A	A
95th %tile Queue, veh	1	0	0	0	0	0	0



HCM 6th TWSC  
79: Virginia Smith Parkway & Golden BObc

02/23/2022

Intersection												
Int Delay, s/veh	4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Vol, veh/h	28	159	37	24	155	15	36	21	24	15	21	21
Future Vol, veh/h	28	159	37	24	155	15	36	21	24	15	21	21
Conflicting Peds, #/hr	20	0	20	20	0	20	20	0	20	20	0	20
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	150	-	-	150	-	-
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	30	173	40	26	168	16	39	23	26	16	23	23

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	204	0	0	233	0	0	544	529	233	546	541	216
Stage 1	-	-	-	-	-	-	273	273	-	248	248	-
Stage 2	-	-	-	-	-	-	271	256	-	298	293	-
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	1362	-	-	1329	-	-	448	454	804	447	447	821
Stage 1	-	-	-	-	-	-	731	682	-	754	699	-
Stage 2	-	-	-	-	-	-	733	694	-	709	668	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1336	-	-	1304	-	-	388	419	774	386	412	790
Mov Cap-2 Maneuver	-	-	-	-	-	-	388	419	-	386	412	-
Stage 1	-	-	-	-	-	-	701	654	-	723	672	-
Stage 2	-	-	-	-	-	-	661	667	-	634	641	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1			1			13.5			12.9		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	388	555	1336	-	-	1304	-	-	386	542
HCM Lane V/C Ratio	0.101	0.088	0.023	-	-	0.02	-	-	0.042	0.084
HCM Control Delay (s)	15.3	12.1	7.8	-	-	7.8	-	-	14.7	12.3
HCM Lane LOS	C	B	A	-	-	A	-	-	B	B
HCM 95th %tile Q(veh)	0.3	0.3	0.1	-	-	0.1	-	-	0.1	0.3

HCM 6th Roundabout  
 80: Virginia Smith Parkway & Main Street

02/23/2022

Intersection				
Intersection Delay, s/veh	4.3			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	216	157	77	147
Demand Flow Rate, veh/h	222	161	79	151
Vehicles Circulating, veh/h	86	145	229	154
Vehicles Exiting, veh/h	219	163	79	152
Ped Vol Crossing Leg, #/h	20	20	20	20
Ped Cap Adj	0.997	0.997	0.997	0.997
Approach Delay, s/veh	4.4	4.3	4.0	4.2
Approach LOS	A	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	222	161	79	151
Cap Entry Lane, veh/h	1264	1190	1092	1179
Entry HV Adj Factor	0.972	0.974	0.974	0.973
Flow Entry, veh/h	216	157	77	147
Cap Entry, veh/h	1225	1156	1062	1145
V/C Ratio	0.176	0.136	0.073	0.128
Control Delay, s/veh	4.4	4.3	4.0	4.2
LOS	A	A	A	A
95th %tile Queue, veh	1	0	0	0

HCM 6th TWSC  
81: 4th street & Virginia Smith Parkway

02/23/2022

Intersection												
Int Delay, s/veh	5.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Vol, veh/h	33	26	47	15	21	8	50	4	8	9	4	32
Future Vol, veh/h	33	26	47	15	21	8	50	4	8	9	4	32
Conflicting Peds, #/hr	0	0	20	20	0	0	20	0	20	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	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	36	28	51	16	23	9	54	4	9	10	4	35

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	32	0	0	99	0	0	245	210	94	212	231	48
Stage 1	-	-	-	-	-	-	146	146	-	60	60	-
Stage 2	-	-	-	-	-	-	99	64	-	152	171	-
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	1574	-	-	1488	-	-	707	685	960	743	667	1018
Stage 1	-	-	-	-	-	-	854	774	-	949	843	-
Stage 2	-	-	-	-	-	-	905	840	-	848	755	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1574	-	-	1460	-	-	636	649	924	700	632	999
Mov Cap-2 Maneuver	-	-	-	-	-	-	636	649	-	700	632	-
Stage 1	-	-	-	-	-	-	819	741	-	927	834	-
Stage 2	-	-	-	-	-	-	843	831	-	800	723	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	2.3		2.6		10.9		9.2	
HCM LOS					B		A	

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	636	810	1574	-	-	1460	-	-	700	938
HCM Lane V/C Ratio	0.085	0.016	0.023	-	-	0.011	-	-	0.014	0.042
HCM Control Delay (s)	11.2	9.5	7.3	-	-	7.5	-	-	10.2	9
HCM Lane LOS	B	A	A	-	-	A	-	-	B	A
HCM 95th %tile Q(veh)	0.3	0	0.1	-	-	0	-	-	0	0.1

**2030 Near Term Plus Project Without  
Campus Parkway PM Peak Hour**

HCM 6th AWSC  
1: Snelling Highway (SR 59) & Bellevue Road

02/23/2022

Intersection	
Intersection Delay, s/veh	114.8
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	14	118	9	325	247	102	7	86	252	106	169	21
Future Vol, veh/h	14	118	9	325	247	102	7	86	252	106	169	21
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	15	128	10	353	268	111	8	93	274	115	184	23
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	16.6	217.7	29.2	27.2
HCM LOS	C	F	D	D

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	10%	48%	36%
Vol Thru, %	25%	84%	37%	57%
Vol Right, %	73%	6%	15%	7%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	345	141	674	296
LT Vol	7	14	325	106
Through Vol	86	118	247	169
RT Vol	252	9	102	21
Lane Flow Rate	375	153	733	322
Geometry Grp	1	1	1	1
Degree of Util (X)	0.723	0.342	1.414	0.667
Departure Headway (Hd)	7.985	9.013	6.948	8.582
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	458	402	527	425
Service Time	5.985	7.013	5	6.582
HCM Lane V/C Ratio	0.819	0.381	1.391	0.758
HCM Control Delay	29.2	16.6	217.7	27.2
HCM Lane LOS	D	C	F	D
HCM 95th-tile Q	5.7	1.5	34.5	4.7

# HCM 6th Signalized Intersection Summary

## 2: G Street & Bellevue Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	274	137	427	456	13	133	231	252	8	190	38
Future Volume (veh/h)	55	274	137	427	456	13	133	231	252	8	190	38
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		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	60	298	149	464	496	14	145	251	274	9	207	41
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	77	264	132	444	805	683	147	594	530	22	938	418
Arrive On Green	0.04	0.23	0.23	0.25	0.43	0.43	0.08	0.34	0.34	0.01	0.27	0.27
Sat Flow, veh/h	1767	1167	584	1767	1856	1572	1767	1763	1572	1767	3526	1572
Grp Volume(v), veh/h	60	0	447	464	496	14	145	251	274	9	207	41
Grp Sat Flow(s),veh/h/ln	1767	0	1751	1767	1856	1572	1767	1763	1572	1767	1763	1572
Q Serve(g_s), s	5.0	0.0	33.9	37.7	31.0	0.8	12.3	16.5	21.0	0.8	6.9	2.9
Cycle Q Clear(g_c), s	5.0	0.0	33.9	37.7	31.0	0.8	12.3	16.5	21.0	0.8	6.9	2.9
Prop In Lane	1.00		0.33	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	77	0	396	444	805	683	147	594	530	22	938	418
V/C Ratio(X)	0.78	0.00	1.13	1.04	0.62	0.02	0.98	0.42	0.52	0.41	0.22	0.10
Avail Cap(c_a), veh/h	138	0	396	444	805	683	147	594	530	71	938	418
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	71.1	0.0	58.1	56.2	32.8	24.2	68.7	38.5	39.9	73.5	42.9	41.5
Incr Delay (d2), s/veh	15.9	0.0	85.5	54.8	1.4	0.0	69.3	2.2	3.6	11.6	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	0.0	23.8	22.9	13.6	0.3	8.2	7.3	8.4	0.4	3.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	86.9	0.0	143.6	111.0	34.2	24.3	138.0	40.7	43.5	85.1	43.5	42.0
LnGrp LOS	F	A	F	F	C	C	F	D	D	F	D	D
Approach Vol, veh/h		507			974			670			257	
Approach Delay, s/veh		136.9			70.6			62.9			44.7	
Approach LOS		F			E			E			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.4	57.0	44.2	40.4	19.0	46.4	13.0	71.6				
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5				
Max Green Setting (Gmax), s	6.0	46.4	37.7	33.9	12.5	39.9	11.7	59.9				
Max Q Clear Time (g_c+1/2R), s	12.8	23.0	39.7	35.9	14.3	8.9	7.0	33.0				
Green Ext Time (p_c), s	0.0	2.8	0.0	0.0	0.0	1.2	0.0	2.8				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay											79.7	
HCM 6th LOS											E	

# HCM 6th Signalized Intersection Summary

## 3: Lake Street/Lake Road & Bellevue Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	205	107	237	79	221	24	280	255	33	15	405	333
Future Volume (veh/h)	205	107	237	79	221	24	280	255	33	15	405	333
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		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	223	116	258	86	240	26	304	277	36	16	440	362
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	193	144	320	118	212	23	233	180	23	36	618	500
Arrive On Green	0.11	0.28	0.28	0.13	0.13	0.13	0.64	0.64	0.64	0.64	0.64	0.64
Sat Flow, veh/h	1767	512	1139	1001	1645	178	309	282	37	18	968	783
Grp Volume(v), veh/h	223	0	374	86	0	266	617	0	0	818	0	0
Grp Sat Flow(s),veh/h/ln	1767	0	1651	1001	0	1823	628	0	0	1770	0	0
Q Serve(g_s), s	16.5	0.0	31.9	10.6	0.0	19.5	47.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	16.5	0.0	31.9	19.5	0.0	19.5	96.5	0.0	0.0	49.5	0.0	0.0
Prop In Lane	1.00		0.69	1.00		0.10	0.49		0.06	0.02		0.44
Lane Grp Cap(c), veh/h	193	0	464	118	0	235	436	0	0	1153	0	0
V/C Ratio(X)	1.16	0.00	0.81	0.73	0.00	1.13	1.42	0.00	0.00	0.71	0.00	0.00
Avail Cap(c_a), veh/h	193	0	464	118	0	235	436	0	0	1153	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	67.4	0.0	50.6	71.3	0.0	65.9	43.7	0.0	0.0	18.9	0.0	0.0
Incr Delay (d2), s/veh	113.5	0.0	10.1	20.4	0.0	98.8	200.0	0.0	0.0	3.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ft	3.3	0.0	14.0	3.9	0.0	15.2	41.1	0.0	0.0	19.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	180.9	0.0	60.7	91.7	0.0	164.7	243.8	0.0	0.0	22.6	0.0	0.0
LnGrp LOS	F	A	E	F	A	F	F	A	A	C	A	A
Approach Vol, veh/h		597			352			617			818	
Approach Delay, s/veh		105.6			146.9			243.8			22.6	
Approach LOS		F			F			F			C	
Timer - Assigned Phs		2		4		6	7	8				
Phs Duration (G+Y+Rc), s		102.3		49.0		102.3	23.0	26.0				
Change Period (Y+Rc), s		* 5.8		6.5		5.8	6.5	6.5				
Max Green Setting (Gmax), s		* 97		42.5		95.2	16.5	19.5				
Max Q Clear Time (g_c+I1), s		98.5		33.9		51.5	18.5	21.5				
Green Ext Time (p_c), s		0.0		1.3		7.0	0.0	0.0				

### Intersection Summary

HCM 6th Ctrl Delay	119.0
HCM 6th LOS	F

### Notes

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



# HCM 6th Signalized Intersection Summary

## 4: G Street & Cardella Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕		↖	↖		↖	↕	↗
Traffic Volume (veh/h)	75	0	55	0	1	5	61	829	0	9	810	81
Future Volume (veh/h)	75	0	55	0	1	5	61	829	0	9	810	81
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	82	0	60	0	1	5	66	901	0	10	880	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	168	0	125	0	21	107	85	1392	0	25	1329	
Arrive On Green	0.08	0.00	0.08	0.00	0.08	0.08	0.05	0.75	0.00	0.01	0.72	0.00
Sat Flow, veh/h	1338	0	1572	0	269	1345	1767	1856	0	1767	1856	1572
Grp Volume(v), veh/h	82	0	60	0	0	6	66	901	0	10	880	0
Grp Sat Flow(s),veh/h/ln	1338	0	1572	0	0	1614	1767	1856	0	1767	1856	1572
Q Serve(g_s), s	6.8	0.0	4.3	0.0	0.0	0.4	4.4	27.8	0.0	0.7	30.2	0.0
Cycle Q Clear(g_c), s	7.2	0.0	4.3	0.0	0.0	0.4	4.4	27.8	0.0	0.7	30.2	0.0
Prop In Lane	1.00		1.00	0.00		0.83	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	168	0	125	0	0	129	85	1392	0	25	1329	
V/C Ratio(X)	0.49	0.00	0.48	0.00	0.00	0.05	0.78	0.65	0.00	0.40	0.66	
Avail Cap(c_a), veh/h	259	0	228	0	0	234	157	1392	0	90	1329	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	53.5	0.0	51.9	0.0	0.0	50.1	55.5	7.2	0.0	57.7	9.0	0.0
Incr Delay (d2), s/veh	2.2	0.0	2.8	0.0	0.0	0.1	14.2	2.3	0.0	9.9	2.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	0.0	1.8	0.0	0.0	0.2	2.2	8.2	0.0	0.4	9.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.7	0.0	54.8	0.0	0.0	50.3	69.7	9.5	0.0	67.5	11.6	0.0
LnGrp LOS	E	A	D	A	A	D	E	A	A	E	B	
Approach Vol, veh/h		142			6			967			890	A
Approach Delay, s/veh		55.3			50.3			13.6			12.3	
Approach LOS		E			D			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.2	95.0		14.8	12.2	91.0		14.8				
Change Period (Y+Rc), s	6.5	6.5		5.4	6.5	6.5		5.4				
Max Green Setting (Gmax), s	6.0	88.5		17.1	10.5	84.0		17.1				
Max Q Clear Time (g_c+1/2), s	12.5	29.8		9.2	6.4	32.2		2.4				
Green Ext Time (p_c), s	0.0	7.2		0.3	0.0	6.8		0.0				

### Intersection Summary

HCM 6th Ctrl Delay	16.1
HCM 6th LOS	B

### Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary  
5: Lake Road & Cardella Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	30	3	113	30	57	1	586	0	0	1045	9
Future Volume (veh/h)	8	30	3	113	30	57	1	586	0	0	1045	9
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	9	33	3	123	33	62	1	637	0	0	1136	10
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	277	294	27	195	46	71	40	1344	0	80	1331	12
Arrive On Green	0.18	0.18	0.18	0.18	0.18	0.18	0.72	0.72	0.00	0.00	0.72	0.72
Sat Flow, veh/h	1290	1676	152	755	263	405	0	1854	0	785	1836	16
Grp Volume(v), veh/h	9	0	36	218	0	0	638	0	0	0	0	1146
Grp Sat Flow(s),veh/h/ln	1290	0	1828	1423	0	0	1855	0	0	785	0	1853
Q Serve(g_s), s	0.0	0.0	1.5	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	40.2
Cycle Q Clear(g_c), s	0.6	0.0	1.5	13.5	0.0	0.0	13.0	0.0	0.0	0.0	0.0	40.2
Prop In Lane	1.00		0.08	0.56		0.28	0.00		0.00	1.00		0.01
Lane Grp Cap(c), veh/h	277	0	321	312	0	0	1384	0	0	80	0	1343
V/C Ratio(X)	0.03	0.00	0.11	0.70	0.00	0.00	0.46	0.00	0.00	0.00	0.00	0.85
Avail Cap(c_a), veh/h	309	0	366	348	0	0	1384	0	0	80	0	1343
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.75
Uniform Delay (d), s/veh	30.9	0.0	31.2	36.4	0.0	0.0	5.2	0.0	0.0	0.0	0.0	8.9
Incr Delay (d2), s/veh	0.0	0.0	0.2	5.3	0.0	0.0	1.1	0.0	0.0	0.0	0.0	5.4
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	0.2	0.0	0.7	5.0	0.0	0.0	3.2	0.0	0.0	0.0	0.0	10.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.9	0.0	31.4	41.7	0.0	0.0	6.3	0.0	0.0	0.0	0.0	14.4
LnGrp LOS	C	A	C	D	A	A	A	A	A	A	A	B
Approach Vol, veh/h		45			218			638				1146
Approach Delay, s/veh		31.3			41.7			6.3				14.4
Approach LOS		C			D			A				B
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		69.7		20.3		69.7		20.3				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		63.0		18.0		63.0		18.0				
Max Q Clear Time (g_c+I1), s		15.0		3.5		42.2		15.5				
Green Ext Time (p_c), s		4.0		0.1		9.0		0.3				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				15.1								
HCM 6th LOS				B								

# HCM 6th Signalized Intersection Summary

## 6: Snelling Highway (SR 59) & Yosemite Avenue

02/23/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	240	422	450	263	407	515
Future Volume (veh/h)	240	422	450	263	407	515
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	261	459	489	286	442	560
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	353	314	598	507	475	1231
Arrive On Green	0.20	0.20	0.32	0.32	0.27	0.66
Sat Flow, veh/h	1767	1572	1856	1572	1767	1856
Grp Volume(v), veh/h	261	459	489	286	442	560
Grp Sat Flow(s),veh/h/ln	1767	1572	1856	1572	1767	1856
Q Serve(g_s), s	12.5	18.0	21.8	13.6	21.9	13.1
Cycle Q Clear(g_c), s	12.5	18.0	21.8	13.6	21.9	13.1
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	353	314	598	507	475	1231
V/C Ratio(X)	0.74	1.46	0.82	0.56	0.93	0.45
Avail Cap(c_a), veh/h	353	314	598	507	501	1231
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.8	36.0	28.1	25.3	32.1	7.3
Incr Delay (d2), s/veh	7.9	223.6	11.8	4.5	23.6	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/lr	5.8	26.0	10.5	5.2	11.5	4.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	41.7	259.6	39.9	29.8	55.6	8.5
LnGrp LOS	D	F	D	C	E	A
Approach Vol, veh/h	720		775			1002
Approach Delay, s/veh	180.6		36.1			29.3
Approach LOS	F		D			C
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	30.7	35.5			66.2	23.8
Change Period (Y+Rc), s	6.5	6.5			6.5	5.8
Max Green Setting (Gmax), s	25.5	27.7			59.7	18.0
Max Q Clear Time (g_c+Q), s	23.8	23.8			15.1	20.0
Green Ext Time (p_c), s	0.3	1.4			3.3	0.0
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			75.1			
HCM 6th LOS			E			

# HCM 6th Signalized Intersection Summary

## 7: G Street & Yosemite Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	219	906	153	427	778	91	273	749	513	152	624	311
Future Volume (veh/h)	219	906	153	427	778	91	273	749	513	152	624	311
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	238	985	166	464	846	99	297	814	558	165	678	338
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	261	858	144	380	1239	553	246	904	403	149	710	317
Arrive On Green	0.15	0.28	0.28	0.22	0.35	0.35	0.14	0.26	0.26	0.08	0.20	0.20
Sat Flow, veh/h	1767	3019	508	1767	3526	1572	1767	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	238	575	576	464	846	99	297	814	558	165	678	338
Grp Sat Flow(s),veh/h/ln	1767	1763	1764	1767	1763	1572	1767	1763	1572	1767	1763	1572
Q Serve(g_s), s	19.2	41.2	41.2	31.2	29.7	6.3	20.2	32.4	22.4	12.2	27.6	29.2
Cycle Q Clear(g_c), s	19.2	41.2	41.2	31.2	29.7	6.3	20.2	32.4	22.4	12.2	27.6	29.2
Prop In Lane	1.00		0.29	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	261	501	501	380	1239	553	246	904	403	149	710	317
V/C Ratio(X)	0.91	1.15	1.15	1.22	0.68	0.18	1.21	0.90	1.38	1.11	0.95	1.07
Avail Cap(c_a), veh/h	301	501	501	380	1239	553	246	904	403	149	710	317
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	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	60.8	51.9	51.9	56.9	40.1	32.5	62.4	52.1	19.6	66.4	57.2	57.9
Incr Delay (d2), s/veh	27.9	87.6	88.3	120.7	1.6	0.2	124.7	13.7	187.3	106.3	24.4	69.6
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/ft	0.5	29.9	30.0	26.3	12.8	2.4	17.4	15.7	28.9	9.8	14.4	17.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	88.7	139.5	140.2	177.6	41.7	32.7	187.1	65.8	206.8	172.7	81.6	127.5
LnGrp LOS	F	F	F	F	D	C	F	E	F	F	F	F
Approach Vol, veh/h		1389			1409			1669			1181	
Approach Delay, s/veh		131.1			85.8			134.6			107.5	
Approach LOS		F			F			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.0	43.0	37.0	47.0	26.0	35.0	27.2	56.8				
Change Period (Y+Rc), s	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8				
Max Green Setting (Gmax), s	12.2	37.2	31.2	41.2	20.2	29.2	24.7	47.7				
Max Q Clear Time (g_c+1/4), s	14.2	34.4	33.2	43.2	22.2	31.2	21.2	31.7				
Green Ext Time (p_c), s	0.0	1.9	0.0	0.0	0.0	0.0	0.2	5.2				

### Intersection Summary

HCM 6th Ctrl Delay	115.9
HCM 6th LOS	F

Intersection

Intersection Delay, s/veh 22.8

Intersection LOS F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕			↕			↕	↕
Traffic Vol, veh/h	95	975	168	48	1005	41	103	119	20	53	96	68
Future Vol, veh/h	95	975	168	48	1005	41	103	119	20	53	96	68
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	103	1060	183	52	1092	45	112	129	22	58	104	74
Number of Lanes	0	2	0	0	1	0	0	1	0	0	1	1

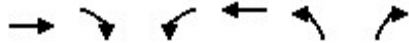
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	2
HCM Control Delay	254.2	779	36.1	19.8
HCM LOS	F	F	E	C

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	43%	16%	0%	4%	36%	0%
Vol Thru, %	49%	84%	74%	92%	64%	0%
Vol Right, %	8%	0%	26%	4%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	242	583	656	1094	149	68
LT Vol	103	95	0	48	53	0
Through Vol	119	488	488	1005	96	0
RT Vol	20	0	168	41	0	68
Lane Flow Rate	263	633	712	1189	162	74
Geometry Grp	6	7	7	6	7	7
Degree of Util (X)	0.658	1.405	1.53	2.679	0.417	0.172
Departure Headway (Hd)	12.282	10.633	10.355	7.948	11.326	10.386
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	297	348	356	476	321	347
Service Time	10.282	8.333	8.055	5.948	9.026	8.086
HCM Lane V/C Ratio	0.886	1.819	2	2.498	0.505	0.213
HCM Control Delay	36.1	227	278.4	779	21.9	15.2
HCM Lane LOS	E	F	F	F	C	C
HCM 95th-tile Q	4.3	24.4	29.7	99.6	2	0.6

# HCM 6th Signalized Intersection Summary

## 9: McKee Road & Yosemite Avenue

02/23/2022



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑	↵	↵
Traffic Volume (veh/h)	774	235	276	931	160	214
Future Volume (veh/h)	774	235	276	931	160	214
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	841	255	300	1012	174	233
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	908	275	338	1111	465	413
Arrive On Green	0.34	0.34	0.19	0.60	0.26	0.26
Sat Flow, veh/h	2758	808	1767	1856	1767	1572
Grp Volume(v), veh/h	556	540	300	1012	174	233
Grp Sat Flow(s),veh/h/ln	1763	1710	1767	1856	1767	1572
Q Serve(g_s), s	26.3	26.4	14.3	41.7	7.0	11.1
Cycle Q Clear(g_c), s	26.3	26.4	14.3	41.7	7.0	11.1
Prop In Lane		0.47	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	600	582	338	1111	465	413
V/C Ratio(X)	0.93	0.93	0.89	0.91	0.37	0.56
Avail Cap(c_a), veh/h	614	596	391	1181	465	413
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.5	27.6	34.2	15.4	26.1	27.7
Incr Delay (d2), s/veh	20.0	20.6	19.3	10.2	2.3	5.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ft	3.3	13.0	7.6	16.7	3.0	4.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	47.5	48.2	53.5	25.6	28.4	33.1
LnGrp LOS	D	D	D	C	C	C
Approach Vol, veh/h	1096			1312	407	
Approach Delay, s/veh	47.9			32.0	31.1	
Approach LOS	D			C	C	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		29.0	22.4	35.3		57.7
Change Period (Y+Rc), s		6.2	5.8	5.8		5.8
Max Green Setting (Gmax), s		22.8	19.2	30.2		55.2
Max Q Clear Time (g_c+I1), s		13.1	16.3	28.4		43.7
Green Ext Time (p_c), s		0.9	0.3	1.1		5.5
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			38.0			
HCM 6th LOS			D			

Intersection

Intersection Delay, s/veh 244

Intersection LOS F

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	419	260	327	180	645	277
Future Vol, veh/h	419	260	327	180	645	277
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	455	283	355	196	701	301
Number of Lanes	1	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	66.8	93.2	457.4
HCM LOS	F	F	F

Lane	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	100%	0%	0%	70%
Vol Thru, %	0%	100%	64%	0%
Vol Right, %	0%	0%	36%	30%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	419	260	507	922
LT Vol	419	0	0	645
Through Vol	0	260	327	0
RT Vol	0	0	180	277
Lane Flow Rate	455	283	551	1002
Geometry Grp	7	7	5	2
Degree of Util (X)	1.025	0.597	1.056	1.962
Departure Headway (Hd)	11.054	10.525	9.445	7.221
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	332	348	391	511
Service Time	8.754	8.225	7.445	5.221
HCM Lane V/C Ratio	1.37	0.813	1.409	1.961
HCM Control Delay	91	27.7	93.2	457.4
HCM Lane LOS	F	D	F	F
HCM 95th-tile Q	11.7	3.7	13.7	65.5



# HCM 6th Signalized Intersection Summary

## 11: Snelling Highway (SR 59) & Santa Fe Drive/Olive Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	153	908	159	324	918	144	106	576	373	153	545	122
Future Volume (veh/h)	153	908	159	324	918	144	106	576	373	153	545	122
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	166	987	173	352	998	157	115	626	405	166	592	133
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	179	880	393	319	1160	517	122	591	501	152	623	528
Arrive On Green	0.10	0.25	0.25	0.18	0.33	0.33	0.07	0.32	0.32	0.09	0.34	0.34
Sat Flow, veh/h	1767	3526	1572	1767	3526	1572	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	166	987	173	352	998	157	115	626	405	166	592	133
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1572	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	13.5	36.2	10.8	26.2	38.4	10.8	9.4	46.2	34.3	12.5	45.1	6.4
Cycle Q Clear(g_c), s	13.5	36.2	10.8	26.2	38.4	10.8	9.4	46.2	34.3	12.5	45.1	6.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	179	880	393	319	1160	517	122	591	501	152	623	528
V/C Ratio(X)	0.93	1.12	0.44	1.10	0.86	0.30	0.94	1.06	0.81	1.09	0.95	0.25
Avail Cap(c_a), veh/h	179	880	393	319	1160	517	122	591	501	152	623	528
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	64.6	54.4	29.5	59.4	45.5	36.3	67.2	49.4	45.3	66.3	47.0	18.1
Incr Delay (d2), s/veh	46.6	69.5	0.8	80.7	6.8	0.3	64.0	53.6	13.1	98.9	25.6	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.3	24.1	4.1	18.6	17.4	4.1	6.3	29.5	14.9	9.7	24.2	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	111.2	123.9	30.2	140.1	52.3	36.6	131.2	103.0	58.5	165.2	72.6	19.2
LnGrp LOS	F	F	C	F	D	D	F	F	E	F	E	B
Approach Vol, veh/h		1326			1507			1146			891	
Approach Delay, s/veh		110.1			71.2			90.1			81.9	
Approach LOS		F			E			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.0	52.0	32.0	42.0	15.8	55.2	20.5	53.5				
Change Period (Y+Rc), s	6.5	5.8	5.8	5.8	5.8	6.5	5.8	5.8				
Max Green Setting (Gmax), s	12.5	46.2	26.2	36.2	10.0	48.7	14.7	47.7				
Max Q Clear Time (g_c+14.5), s	14.5	48.2	28.2	38.2	11.4	47.1	15.5	40.4				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.6	0.0	3.9				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			88.2									
HCM 6th LOS			F									

# HCM 6th Signalized Intersection Summary

## 12: R Street & Olive Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑	↗	↘	↑↑↑	↗	↘	↑↑		↘	↑↑	↗
Traffic Volume (veh/h)	223	1095	211	282	1065	213	303	814	132	196	768	146
Future Volume (veh/h)	223	1095	211	282	1065	213	303	814	132	196	768	146
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	242	1190	229	307	1158	232	329	885	143	213	835	159
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	256	1174	364	307	1321	410	328	943	152	229	897	400
Arrive On Green	0.14	0.23	0.23	0.17	0.26	0.26	0.19	0.31	0.31	0.13	0.25	0.25
Sat Flow, veh/h	1767	5066	1572	1767	5066	1572	1767	3039	491	1767	3526	1572
Grp Volume(v), veh/h	242	1190	229	307	1158	232	329	513	515	213	835	159
Grp Sat Flow(s),veh/h/ln	1767	1689	1572	1767	1689	1572	1767	1763	1767	1767	1763	1572
Q Serve(g_s), s	19.7	33.6	19.0	25.2	31.8	13.4	26.9	41.1	41.1	17.3	33.5	12.2
Cycle Q Clear(g_c), s	19.7	33.6	19.0	25.2	31.8	13.4	26.9	41.1	41.1	17.3	33.5	12.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.28	1.00		1.00
Lane Grp Cap(c), veh/h	256	1174	364	307	1321	410	328	547	548	229	897	400
V/C Ratio(X)	0.95	1.01	0.63	1.00	0.88	0.57	1.00	0.94	0.94	0.93	0.93	0.40
Avail Cap(c_a), veh/h	256	1174	364	307	1321	410	328	547	548	229	897	400
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.4	55.7	50.1	59.9	51.4	24.1	59.1	48.6	48.7	62.4	52.8	44.8
Incr Delay (d2), s/veh	41.5	29.7	3.4	51.2	7.0	1.8	50.6	25.9	25.9	40.5	17.3	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	17.2	7.7	15.4	14.0	5.1	16.5	21.6	21.7	10.3	16.8	5.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	102.9	85.4	53.5	111.1	58.3	25.9	109.6	74.5	74.5	103.0	70.1	47.8
LnGrp LOS	F	F	D	F	E	C	F	E	E	F	E	D
Approach Vol, veh/h		1661			1697			1357			1207	
Approach Delay, s/veh		83.6			63.5			83.0			73.0	
Approach LOS		F			E			F			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	34.2	50.4	31.0	39.4	32.3	42.3	26.8	43.6				
Change Period (Y+Rc), s	5.4	5.4	5.8	5.8	5.4	5.4	5.8	5.8				
Max Green Setting (Gmax), s	45.0	45.0	25.2	33.6	26.9	36.9	21.0	37.8				
Max Q Clear Time (g_c+119), s	43.1	43.1	27.2	35.6	28.9	35.5	21.7	33.8				
Green Ext Time (p_c), s	0.0	1.1	0.0	0.0	0.0	0.8	0.0	2.7				

### Intersection Summary

HCM 6th Ctrl Delay	75.5
HCM 6th LOS	E

# HCM 6th Signalized Intersection Summary

## 13: M Street & Olive Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘ ↑↑↑	↑↑↑	↗	↘ ↑↑↑	↑↑↑		↘ ↑↑	↑↑		↘ ↑↑	↑↑	
Traffic Volume (veh/h)	203	1175	178	233	1086	121	278	798	167	344	673	182
Future Volume (veh/h)	203	1175	178	233	1086	121	278	798	167	344	673	182
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	221	1277	193	253	1180	132	302	867	182	374	732	198
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	221	1195	371	243	1146	128	317	804	169	353	817	221
Arrive On Green	0.13	0.24	0.24	0.14	0.25	0.25	0.18	0.28	0.28	0.20	0.30	0.30
Sat Flow, veh/h	1767	5066	1572	1767	4623	517	1767	2900	609	1767	2743	742
Grp Volume(v), veh/h	221	1277	193	253	862	450	302	527	522	374	470	460
Grp Sat Flow(s),veh/h/ln	1767	1689	1572	1767	1689	1762	1767	1763	1746	1767	1763	1722
Q Serve(g_s), s	18.8	35.4	16.0	20.6	37.2	37.2	25.4	41.6	41.6	30.0	38.3	38.3
Cycle Q Clear(g_c), s	18.8	35.4	16.0	20.6	37.2	37.2	25.4	41.6	41.6	30.0	38.3	38.3
Prop In Lane	1.00		1.00	1.00		0.29	1.00		0.35	1.00		0.43
Lane Grp Cap(c), veh/h	221	1195	371	243	838	437	317	489	484	353	525	513
V/C Ratio(X)	1.00	1.07	0.52	1.04	1.03	1.03	0.95	1.08	1.08	1.06	0.90	0.90
Avail Cap(c_a), veh/h	221	1195	371	243	838	437	317	489	484	353	525	513
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.6	57.3	49.9	64.7	56.4	56.4	60.9	54.2	54.2	60.0	50.4	50.4
Incr Delay (d2), s/veh	59.8	46.3	1.3	69.3	38.8	50.9	38.1	63.3	63.6	64.0	20.5	20.8
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/ft	2.0	19.9	6.4	13.8	20.0	22.3	14.6	26.7	26.5	19.5	19.6	19.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	125.4	103.6	51.2	134.0	95.2	107.3	99.0	117.5	117.8	124.0	70.9	71.3
LnGrp LOS	F	F	D	F	F	F	F	F	F	F	E	E
Approach Vol, veh/h		1691			1565			1351			1304	
Approach Delay, s/veh		100.5			104.9			113.4			86.3	
Approach LOS		F			F			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	35.4	47.0	26.4	41.2	32.3	50.1	24.6	43.0				
Change Period (Y+Rc), s	5.4	5.4	5.8	5.8	5.4	5.4	5.8	5.8				
Max Green Setting (Gmax), s	30.0	41.6	20.6	35.4	26.9	44.7	18.8	37.2				
Max Q Clear Time (g_c+Q), s	32.0	43.6	22.6	37.4	27.4	40.3	20.8	39.2				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	2.2	0.0	0.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			101.5									
HCM 6th LOS			F									

# HCM 6th Signalized Intersection Summary

## 14: Olive Avenue & G Street

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	523	790	302	199	562	98	239	1170	237	130	1135	472
Future Volume (veh/h)	523	790	302	199	562	98	239	1170	237	130	1135	472
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	568	859	328	216	611	107	260	1272	258	141	1234	513
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	417	1053	470	230	579	101	197	1225	547	112	1055	471
Arrive On Green	0.24	0.30	0.30	0.13	0.19	0.19	0.11	0.35	0.35	0.06	0.30	0.30
Sat Flow, veh/h	1767	3526	1572	1767	3000	524	1767	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	568	859	328	216	359	359	260	1272	258	141	1234	513
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1761	1767	1763	1572	1767	1763	1572
Q Serve(g_s), s	34.2	32.8	26.8	17.6	28.0	28.0	16.2	50.4	18.6	9.2	43.4	23.8
Cycle Q Clear(g_c), s	34.2	32.8	26.8	17.6	28.0	28.0	16.2	50.4	18.6	9.2	43.4	23.8
Prop In Lane	1.00		1.00	1.00		0.30	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	417	1053	470	230	340	340	197	1225	547	112	1055	471
V/C Ratio(X)	1.36	0.82	0.70	0.94	1.05	1.06	1.32	1.04	0.47	1.26	1.17	1.09
Avail Cap(c_a), veh/h	417	1053	470	230	340	340	197	1225	547	112	1055	471
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.4	47.2	45.1	62.5	58.5	58.5	64.4	47.3	36.9	67.9	50.8	15.3
Incr Delay (d2), s/veh	178.1	5.1	4.5	42.3	63.5	64.6	173.7	36.1	2.9	169.5	86.6	68.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	65.5	14.7	10.8	10.4	18.2	18.3	16.7	27.5	7.5	9.4	31.3	16.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	233.5	52.2	49.6	104.8	122.0	123.1	238.1	83.4	39.8	237.4	137.4	83.4
LnGrp LOS	F	D	D	F	F	F	F	F	D	F	F	F
Approach Vol, veh/h		1755			934			1790			1888	
Approach Delay, s/veh		110.4			118.4			99.6			130.2	
Approach LOS		F			F			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.0	56.2	24.7	49.1	22.0	49.2	40.0	33.8				
Change Period (Y+Rc), s	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8				
Max Green Setting (Gmax), s	5.8	50.4	18.9	43.3	16.2	43.4	34.2	28.0				
Max Q Clear Time (g_c+fl), s	5.8	52.4	19.6	34.8	18.2	45.4	36.2	30.0				
Green Ext Time (p_c), s	0.0	0.0	0.0	4.2	0.0	0.0	0.0	0.0				

### Intersection Summary

HCM 6th Ctrl Delay		114.4										
HCM 6th LOS			F									

HCM 6th AWSC  
 15: 16th Street & Snelling Highway (SR 59)

02/23/2022

Intersection

Intersection Delay, s/veh 252.6  
 Intersection LOS F

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	417	531	578	567	413	438
Future Vol, veh/h	417	531	578	567	413	438
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	453	577	628	616	449	476
Number of Lanes	1	1	2	1	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	3	2	0
Conflicting Approach Left SB			WB
Conflicting Lanes Left	1	0	3
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	208.3	38.5	590
HCM LOS	F	E	F

Lane	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	100%	0%	0%	0%	0%	49%
Vol Thru, %	0%	100%	100%	100%	0%	0%
Vol Right, %	0%	0%	0%	0%	100%	51%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	417	531	289	289	567	851
LT Vol	417	0	0	0	0	413
Through Vol	0	531	289	289	0	0
RT Vol	0	0	0	0	567	438
Lane Flow Rate	453	577	314	314	616	925
Geometry Grp	8	8	7	7	7	7
Degree of Util (X)	1.2	1.448	0.685	0.685	0.924	2.249
Departure Headway (Hd)	12.755	12.202	9.25	9.25	6.613	9.166
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	290	306	393	393	555	407
Service Time	10.455	9.902	6.95	6.95	4.313	6.866
HCM Lane V/C Ratio	1.562	1.886	0.799	0.799	1.11	2.273
HCM Control Delay	154.9	250.3	29.8	29.8	47.4	590
HCM Lane LOS	F	F	D	D	E	F
HCM 95th-tile Q	15.3	23.4	4.9	4.9	11.4	66.3

HCM 6th TWSC  
 16: MLK JR Way & SR 99 NB Ramps

02/23/2022

Intersection												
Int Delay, s/veh	16.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕		↕	↑↑			↑↑	
Traffic Vol, veh/h	0	0	0	37	0	82	290	708	0	0	644	446
Future Vol, veh/h	0	0	0	37	0	82	290	708	0	0	644	446
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	75	-	-	-	-	-
Veh in Median Storage, #	-	2	-	-	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	0	0	0	40	0	89	315	770	0	0	700	485

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1750	2585	385 1185 0 - - - 0
Stage 1	1400	1400	- - - - - - -
Stage 2	350	1185	- - - - - - -
Critical Hdwy	6.86	6.56	6.96 4.16 - - - - -
Critical Hdwy Stg 1	5.86	5.56	- - - - - - -
Critical Hdwy Stg 2	5.86	5.56	- - - - - - -
Follow-up Hdwy	3.53	4.03	3.33 2.23 - - - - -
Pot Cap-1 Maneuver	76	25	610 579 - 0 0 - -
Stage 1	192	204	- - - 0 0 - -
Stage 2	682	259	- - - 0 0 - -
Platoon blocked, %			- - - - -
Mov Cap-1 Maneuver	~ 35	0	610 579 - - - - -
Mov Cap-2 Maneuver	~ 35	0	- - - - - - -
Stage 1	88	0	- - - - - - -
Stage 2	682	0	- - - - - - -

Approach	WB	NB	SB
HCM Control Delay, s	266.1	5.3	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBTWBLn1	SBT	SBR
Capacity (veh/h)	579	-	100	-
HCM Lane V/C Ratio	0.544	-	1.293	-
HCM Control Delay (s)	18.4	-	266.1	-
HCM Lane LOS	C	-	F	-
HCM 95th %tile Q(veh)	3.3	-	9	-

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

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	60	0	8	16	9	125	11	593	0	0	608	75
Future Vol, veh/h	60	0	8	16	9	125	11	593	0	0	608	75
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	-	-	-	75	-	-	-	-	-
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	65	0	9	17	10	136	12	645	0	0	661	82

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	1054	-	372	1000	1412	323	743	0	-	-	-	0
Stage 1	702	-	-	669	669	-	-	-	-	-	-	-
Stage 2	352	-	-	331	743	-	-	-	-	-	-	-
Critical Hdwy	7.56	-	6.96	7.56	6.56	6.96	4.16	-	-	-	-	-
Critical Hdwy Stg 1	6.56	-	-	6.56	5.56	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.56	-	-	6.56	5.56	-	-	-	-	-	-	-
Follow-up Hdwy	3.53	-	3.33	3.53	4.03	3.33	2.23	-	-	-	-	-
Pot Cap-1 Maneuver	179	0	622	196	136	670	854	-	0	0	-	-
Stage 1	393	0	-	411	452	-	-	-	0	0	-	-
Stage 2	635	0	-	653	418	-	-	-	0	0	-	-
Platoon blocked, %								-			-	
Mov Cap-1 Maneuver	133	-	622	191	134	670	854	-	-	-	-	-
Mov Cap-2 Maneuver	133	-	-	191	134	-	-	-	-	-	-	-
Stage 1	387	-	-	405	446	-	-	-	-	-	-	-
Stage 2	488	-	-	644	418	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	50.4		17.7		0.2		0	
HCM LOS	F		C					

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	WBLn1	SBT	SBR
Capacity (veh/h)	854	-	133	622	444	-	-
HCM Lane V/C Ratio	0.014	-	0.49	0.014	0.367	-	-
HCM Control Delay (s)	9.3	-	55.7	10.9	17.7	-	-
HCM Lane LOS	A	-	F	B	C	-	-
HCM 95th %tile Q(veh)	0	-	2.3	0	1.7	-	-



HCM 6th Roundabout  
 18: Campus Parkway & Yosemite Avenue

02/23/2022

Intersection					
Intersection Delay, s/veh	5.6				
Intersection LOS	A				
Approach	EB		WB		NB
Entry Lanes	2		2		2
Conflicting Circle Lanes	2		2		2
Adj Approach Flow, veh/h	583		277		350
Demand Flow Rate, veh/h	601		285		361
Vehicles Circulating, veh/h	37		331		225
Vehicles Exiting, veh/h	579		255		413
Ped Vol Crossing Leg, #/h	0		0		0
Ped Cap Adj	1.000		1.000		1.000
Approach Delay, s/veh	4.8		6.6		6.1
Approach LOS	A		A		A
Lane	Left	Right	Left	Left	Right
Designated Moves	LT	TR	LT	L	TR
Assumed Moves	LT	R	LT	L	TR
RT Channelized					
Lane Util	0.374	0.626	1.000	0.917	0.083
Follow-Up Headway, s	2.667	2.535	2.667	2.667	2.535
Critical Headway, s	4.645	4.328	4.645	4.645	4.328
Entry Flow, veh/h	225	376	285	331	30
Cap Entry Lane, veh/h	1305	1376	996	1097	1173
Entry HV Adj Factor	0.971	0.971	0.971	0.970	0.967
Flow Entry, veh/h	218	365	277	321	29
Cap Entry, veh/h	1267	1336	967	1064	1134
V/C Ratio	0.172	0.273	0.286	0.302	0.026
Control Delay, s/veh	4.3	5.1	6.6	6.3	3.4
LOS	A	A	A	A	A
95th %tile Queue, veh	1	1	1	1	0

HCM 6th Roundabout  
19: Campus Parkway & Olive Avenue

02/23/2022

Intersection									
Intersection Delay, s/veh 5.1									
Intersection LOS A									
Approach	EB		WB		NB		SB		
Entry Lanes	2		2		2		2		
Conflicting Circle Lanes	2		2		2		2		
Adj Approach Flow, veh/h	161		121		362		403		
Demand Flow Rate, veh/h	167		125		373		416		
Vehicles Circulating, veh/h	408		370		169		146		
Vehicles Exiting, veh/h	154		172		406		349		
Ped Vol Crossing Leg, #/h	0		0		0		0		
Ped Cap Adj	1.000		1.000		1.000		1.000		
Approach Delay, s/veh	4.7		4.3		4.5		6.1		
Approach LOS	A		A		A		A		
Lane	Left	Right	Left	Right	Left	Right	Left	Right	
Designated Moves	LT	TR	LT	TR	LT	TR	LT	R	
Assumed Moves	LT	TR	LT	TR	LT	TR	LT	R	
RT Channelized									
Lane Util	0.467	0.533	0.472	0.528	0.469	0.531	0.928	0.072	
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.667	2.535	2.667	2.535	
Critical Headway, s	4.645	4.328	4.645	4.328	4.645	4.328	4.645	4.328	
Entry Flow, veh/h	78	89	59	66	175	198	386	30	
Cap Entry Lane, veh/h	927	1004	960	1037	1155	1230	1180	1254	
Entry HV Adj Factor	0.971	0.960	0.960	0.968	0.972	0.969	0.970	0.967	
Flow Entry, veh/h	76	85	57	64	170	192	374	29	
Cap Entry, veh/h	901	964	922	1004	1123	1192	1145	1213	
V/C Ratio	0.084	0.089	0.061	0.064	0.151	0.161	0.327	0.024	
Control Delay, s/veh	4.8	4.5	4.5	4.1	4.5	4.4	6.3	3.2	
LOS	A	A	A	A	A	A	A	A	
95th %tile Queue, veh	0	0	0	0	1	1	1	0	

# HCM 6th Signalized Intersection Summary

## 20: Campus Parkway & Connector Road

02/23/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖↗	↖	↕↕	↖	↖↗	↕↕
Traffic Volume (veh/h)	49	38	295	43	30	332
Future Volume (veh/h)	49	38	295	43	30	332
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	53	0	321	0	33	361
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	284		1813		150	2415
Arrive On Green	0.08	0.00	0.51	0.00	0.04	0.69
Sat Flow, veh/h	3428	1572	3618	1572	3428	3618
Grp Volume(v), veh/h	53	0	321	0	33	361
Grp Sat Flow(s),veh/h/ln	1714	1572	1763	1572	1714	1763
Q Serve(g_s), s	0.7	0.0	2.5	0.0	0.5	1.8
Cycle Q Clear(g_c), s	0.7	0.0	2.5	0.0	0.5	1.8
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	284		1813		150	2415
V/C Ratio(X)	0.19		0.18		0.22	0.15
Avail Cap(c_a), veh/h	2208		1813		435	2415
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	21.9	0.0	6.6	0.0	23.6	2.8
Incr Delay (d2), s/veh	0.3	0.0	0.2	0.0	0.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.6	0.0	0.2	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	22.2	0.0	6.9	0.0	24.4	3.0
LnGrp LOS	C		A		C	A
Approach Vol, veh/h	53	A	321	A		394
Approach Delay, s/veh	22.2		6.9			4.8
Approach LOS	C		A			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	8.7	32.9			41.6	9.6
Change Period (Y+Rc), s	6.5	6.5			6.5	5.4
Max Green Setting (Gmax), s	6.5	22.1			35.1	33.0
Max Q Clear Time (g_c+1/2), s	12.5	4.5			3.8	2.7
Green Ext Time (p_c), s	0.0	1.6			2.1	0.1

### Intersection Summary

HCM 6th Ctrl Delay	6.8
HCM 6th LOS	A

### Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

# HCM 6th Signalized Intersection Summary

## 21: SR 140 & Connector Road

02/23/2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations	↗	↗	↗	↗	↘	↗	
Traffic Volume (veh/h)	54	248	118	33	29	44	
Future Volume (veh/h)	54	248	118	33	29	44	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			0.50	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	
Adj Flow Rate, veh/h	59	270	128	36	32	48	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	3	3	3	3	3	3	
Cap, veh/h	118	720	361	153	672	598	
Arrive On Green	0.07	0.39	0.19	0.19	0.38	0.38	
Sat Flow, veh/h	1767	1856	1856	784	1767	1572	
Grp Volume(v), veh/h	59	270	128	36	32	48	
Grp Sat Flow(s),veh/h/ln	1767	1856	1856	784	1767	1572	
Q Serve(g_s), s	1.7	5.3	3.1	2.0	0.6	1.0	
Cycle Q Clear(g_c), s	1.7	5.3	3.1	2.0	0.6	1.0	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	118	720	361	153	672	598	
V/C Ratio(X)	0.50	0.38	0.35	0.24	0.05	0.08	
Avail Cap(c_a), veh/h	227	1396	923	390	672	598	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	23.1	11.2	17.9	17.4	10.0	10.2	
Incr Delay (d2), s/veh	3.3	0.3	0.6	0.8	0.1	0.3	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.7	1.6	1.1	0.3	0.2	1.2	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	26.4	11.6	18.5	18.2	10.2	10.4	
LnGrp LOS	C	B	B	B	B	B	
Approach Vol, veh/h		329	164		80		
Approach Delay, s/veh		14.2	18.4		10.3		
Approach LOS		B	B		B		
Timer - Assigned Phs			4		6	7	8
Phs Duration (G+Y+Rc), s			26.4		24.9	9.9	16.5
Change Period (Y+Rc), s			6.5		5.4	6.5	6.5
Max Green Setting (Gmax), s			38.6		19.5	6.6	25.5
Max Q Clear Time (g_c+I1), s			7.3		3.0	3.7	5.1
Green Ext Time (p_c), s			1.3		0.2	0.0	0.7
<b>Intersection Summary</b>							
HCM 6th Ctrl Delay			14.9				
HCM 6th LOS			B				

HCM 6th Signalized Intersection Summary  
 22: Campus Parkway & Childs Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	129	41	65	101	9	62	318	37	8	351	22
Future Volume (veh/h)	11	129	41	65	101	9	62	318	37	8	351	22
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	12	140	45	71	110	10	67	346	40	9	382	24
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	32	419	187	116	624	278	219	1536	685	24	1360	606
Arrive On Green	0.02	0.12	0.12	0.07	0.18	0.18	0.06	0.44	0.44	0.01	0.39	0.39
Sat Flow, veh/h	1767	3526	1572	1767	3526	1572	3428	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	12	140	45	71	110	10	67	346	40	9	382	24
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1572	1714	1763	1572	1767	1763	1572
Q Serve(g_s), s	0.5	2.4	1.7	2.6	1.8	0.4	1.3	4.1	1.0	0.3	5.0	0.6
Cycle Q Clear(g_c), s	0.5	2.4	1.7	2.6	1.8	0.4	1.3	4.1	1.0	0.3	5.0	0.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	32	419	187	116	624	278	219	1536	685	24	1360	606
V/C Ratio(X)	0.38	0.33	0.24	0.61	0.18	0.04	0.31	0.23	0.06	0.37	0.28	0.04
Avail Cap(c_a), veh/h	158	2047	913	268	2268	1011	306	1536	685	158	1360	606
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.6	27.2	26.8	30.5	23.5	22.9	30.0	11.9	11.0	32.8	14.2	12.9
Incr Delay (d2), s/veh	7.3	0.5	0.7	5.2	0.1	0.1	0.8	0.3	0.2	9.0	0.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.0	0.6	1.2	0.7	0.1	0.5	1.3	0.3	0.2	1.7	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.9	27.6	27.5	35.7	23.6	23.0	30.8	12.2	11.1	41.9	14.7	13.0
LnGrp LOS	D	C	C	D	C	C	C	B	B	D	B	B
Approach Vol, veh/h		197			191			453			415	
Approach Delay, s/veh		28.3			28.1			14.9			15.2	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.4	35.8	10.2	13.8	10.8	32.4	6.3	17.7				
Change Period (Y+Rc), s	6.5	6.5	5.8	* 5.8	6.5	6.5	5.1	5.8				
Max Green Setting (Gmax), s	6.0	25.9	10.2	* 39	6.0	25.9	6.0	43.2				
Max Q Clear Time (g_c+1/3), s	12.3	6.1	4.6	4.4	3.3	7.0	2.5	3.8				
Green Ext Time (p_c), s	0.0	1.9	0.1	1.0	0.0	2.0	0.0	0.6				

Intersection Summary

HCM 6th Ctrl Delay	19.1
HCM 6th LOS	B

Notes

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

# HCM 6th Signalized Intersection Summary

## 23: Campus Parkway & Gerard Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑↑	↖	↖↗	↑↑	↖	↖↗	↑↑	↖	↖↗	↑↑	↖
Traffic Volume (veh/h)	87	27	36	233	16	8	73	322	25	6	380	71
Future Volume (veh/h)	87	27	36	233	16	8	73	322	25	6	380	71
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	95	29	39	253	17	9	79	350	27	7	413	77
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	226	348	155	334	490	218	213	1647	735	37	1466	654
Arrive On Green	0.07	0.10	0.10	0.10	0.14	0.14	0.06	0.47	0.47	0.01	0.42	0.42
Sat Flow, veh/h	3428	3526	1572	3428	3526	1572	3428	3526	1572	3428	3526	1572
Grp Volume(v), veh/h	95	29	39	253	17	9	79	350	27	7	413	77
Grp Sat Flow(s),veh/h/ln	1714	1763	1572	1714	1763	1572	1714	1763	1572	1714	1763	1572
Q Serve(g_s), s	2.1	0.6	1.8	5.7	0.3	0.4	1.8	4.7	0.7	0.2	6.2	2.4
Cycle Q Clear(g_c), s	2.1	0.6	1.8	5.7	0.3	0.4	1.8	4.7	0.7	0.2	6.2	2.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	226	348	155	334	490	218	213	1647	735	37	1466	654
V/C Ratio(X)	0.42	0.08	0.25	0.76	0.03	0.04	0.37	0.21	0.04	0.19	0.28	0.12
Avail Cap(c_a), veh/h	301	1634	729	365	1701	759	258	1647	735	258	1466	654
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.8	32.7	33.2	35.1	29.7	29.8	35.9	12.6	11.5	39.1	15.4	14.3
Incr Delay (d2), s/veh	1.2	0.1	0.8	8.1	0.0	0.1	1.1	0.3	0.1	2.4	0.5	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.2	0.7	2.6	0.1	0.1	0.7	1.6	0.2	0.1	2.2	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.0	32.8	34.1	43.2	29.8	29.8	37.0	12.9	11.6	41.6	15.9	14.7
LnGrp LOS	D	C	C	D	C	C	D	B	B	D	B	B
Approach Vol, veh/h		163			279			456			497	
Approach Delay, s/veh		35.6			42.0			17.0			16.1	
Approach LOS		D			D			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.4	43.8	14.3	14.4	11.5	39.7	11.1	17.6				
Change Period (Y+Rc), s	6.5	6.5	6.5	* 6.5	6.5	6.5	5.8	6.5				
Max Green Setting (Gmax), s	6.0	33.2	8.5	* 37	6.0	33.2	7.0	38.5				
Max Q Clear Time (g_c+1/2), s	11.2	6.7	7.7	3.8	3.8	8.2	4.1	2.4				
Green Ext Time (p_c), s	0.0	2.0	0.1	0.2	0.0	2.5	0.1	0.1				

### Intersection Summary

HCM 6th Ctrl Delay	23.8
HCM 6th LOS	C

### Notes

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

HCM 6th Signalized Intersection Summary  
 24: Coffee Street & Campus Parkway

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	84	376	85	15	625	9	110	33	14	7	246	122
Future Volume (veh/h)	84	376	85	15	625	9	110	33	14	7	246	122
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	91	409	92	16	679	10	120	36	15	8	267	133
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	114	986	440	30	819	365	176	1916	855	17	1769	789
Arrive On Green	0.13	0.56	0.56	0.02	0.23	0.23	0.05	0.54	0.54	0.01	0.50	0.50
Sat Flow, veh/h	1767	3526	1572	1767	3526	1572	3428	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	91	409	92	16	679	10	120	36	15	8	267	133
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1572	1714	1763	1572	1767	1763	1572
Q Serve(g_s), s	6.0	8.0	3.5	1.1	22.0	0.6	4.1	0.6	0.5	0.5	4.9	5.5
Cycle Q Clear(g_c), s	6.0	8.0	3.5	1.1	22.0	0.6	4.1	0.6	0.5	0.5	4.9	5.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	114	986	440	30	819	365	176	1916	855	17	1769	789
V/C Ratio(X)	0.80	0.41	0.21	0.53	0.83	0.03	0.68	0.02	0.02	0.46	0.15	0.17
Avail Cap(c_a), veh/h	272	1601	714	125	1307	583	357	1916	855	110	1769	789
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.96	0.96	0.96	0.93	0.93	0.93	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.5	20.8	19.8	58.5	43.8	35.6	55.9	12.6	12.6	59.1	16.1	16.3
Incr Delay (d2), s/veh	11.6	0.3	0.2	12.4	2.4	0.0	4.6	0.0	0.0	18.2	0.2	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	2.7	1.2	0.6	9.4	0.2	1.9	0.2	0.2	0.3	2.0	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.1	21.1	20.0	70.9	46.1	35.6	60.5	12.7	12.7	77.3	16.3	16.7
LnGrp LOS	E	C	C	E	D	D	E	B	B	E	B	B
Approach Vol, veh/h		592			705			171			408	
Approach Delay, s/veh		27.4			46.6			46.2			17.6	
Approach LOS		C			D			D			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.7	69.7	6.6	38.1	10.7	64.7	12.2	32.4				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	7.5	31.5	8.5	54.5	12.5	26.5	18.5	44.5				
Max Q Clear Time (g_c+1), s	12.5	2.6	3.1	10.0	6.1	7.5	8.0	24.0				
Green Ext Time (p_c), s	0.0	0.2	0.0	2.7	0.2	1.9	0.1	3.9				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay											34.2	
HCM 6th LOS											C	



HCM 6th Signalized Intersection Summary  
 25: SR 99 NB Ramps & Campus Parkway

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	111	424	0	0	484	322	28	18	121	0	0	0
Future Volume (veh/h)	111	424	0	0	484	322	28	18	121	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1856	1856	0	0	1856	1856	1856	1856	1856			
Adj Flow Rate, veh/h	121	461	0	0	526	350	30	20	132			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	3	3	0	0	3	3	3	3	3			
Cap, veh/h	149	1413	0	0	924	412	537	358	781			
Arrive On Green	0.08	0.40	0.00	0.00	0.26	0.26	0.50	0.50	0.50			
Sat Flow, veh/h	1767	3618	0	0	3618	1572	1081	721	1572			
Grp Volume(v), veh/h	121	461	0	0	526	350	50	0	132			
Grp Sat Flow(s),veh/h/ln	1767	1763	0	0	1763	1572	1801	0	1572			
Q Serve(g_s), s	8.1	10.8	0.0	0.0	15.5	25.3	1.7	0.0	5.5			
Cycle Q Clear(g_c), s	8.1	10.8	0.0	0.0	15.5	25.3	1.7	0.0	5.5			
Prop In Lane	1.00		0.00	0.00		1.00	0.60		1.00			
Lane Grp Cap(c), veh/h	149	1413	0	0	924	412	895	0	781			
V/C Ratio(X)	0.81	0.33	0.00	0.00	0.57	0.85	0.06	0.00	0.17			
Avail Cap(c_a), veh/h	376	2336	0	0	1396	622	895	0	781			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(l)	1.00	1.00	0.00	0.00	0.71	0.71	1.00	0.00	1.00			
Uniform Delay (d), s/veh	54.0	24.8	0.0	0.0	38.4	42.0	15.6	0.0	16.6			
Incr Delay (d2), s/veh	10.1	0.1	0.0	0.0	0.4	5.1	0.1	0.0	0.5			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/lr	3.9	4.3	0.0	0.0	6.4	9.8	0.7	0.0	2.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.1	24.9	0.0	0.0	38.8	47.1	15.7	0.0	17.1			
LnGrp LOS	E	C	A	A	D	D	B	A	B			
Approach Vol, veh/h		582			876			182				
Approach Delay, s/veh		33.1			42.1			16.7				
Approach LOS		C			D			B				
Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		65.4		54.6			16.6	38.0				
Change Period (Y+Rc), s		5.8		6.5			6.5	6.5				
Max Green Setting (Gmax), s		28.2		79.5			25.5	47.5				
Max Q Clear Time (g_c+I1), s		7.5		12.8			10.1	27.3				
Green Ext Time (p_c), s		0.6		2.8			0.2	4.1				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay												36.1
HCM 6th LOS												D

# HCM 6th Signalized Intersection Summary

## 26: Lake Street & Meyers Gate Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	20	30	10	57	30	57	20	511	59	59	663	10
Future Volume (veh/h)	20	30	10	57	30	57	20	511	59	59	663	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	22	33	11	62	33	62	22	555	64	64	721	11
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	38	69	23	80	43	82	38	1154	133	82	1333	20
Arrive On Green	0.02	0.05	0.05	0.05	0.08	0.08	0.03	0.94	0.94	0.05	0.73	0.73
Sat Flow, veh/h	1767	1332	444	1767	577	1084	1767	1633	188	1767	1823	28
Grp Volume(v), veh/h	22	0	44	62	0	95	22	0	619	64	0	732
Grp Sat Flow(s),veh/h/ln	1767	0	1776	1767	0	1660	1767	0	1822	1767	0	1851
Q Serve(g_s), s	1.5	0.0	2.9	4.2	0.0	6.7	1.5	0.0	4.5	4.3	0.0	21.1
Cycle Q Clear(g_c), s	1.5	0.0	2.9	4.2	0.0	6.7	1.5	0.0	4.5	4.3	0.0	21.1
Prop In Lane	1.00		0.25	1.00		0.65	1.00		0.10	1.00		0.02
Lane Grp Cap(c), veh/h	38	0	92	80	0	125	38	0	1287	82	0	1353
V/C Ratio(X)	0.57	0.00	0.48	0.78	0.00	0.76	0.57	0.00	0.48	0.78	0.00	0.54
Avail Cap(c_a), veh/h	90	0	268	155	0	311	90	0	1287	155	0	1353
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	0.88	0.00	0.88	0.60	0.00	0.60
Uniform Delay (d), s/veh	58.2	0.0	55.3	56.7	0.0	54.4	57.7	0.0	1.2	56.6	0.0	7.2
Incr Delay (d2), s/veh	12.9	0.0	3.8	14.8	0.0	9.1	11.4	0.0	1.1	9.1	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/lr	0.8	0.0	1.4	2.2	0.0	3.1	0.8	0.0	1.2	2.1	0.0	6.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	71.0	0.0	59.1	71.5	0.0	63.5	69.1	0.0	2.3	65.7	0.0	8.1
LnGrp LOS	E	A	E	E	A	E	E	A	A	E	A	A
Approach Vol, veh/h		66			157			641			796	
Approach Delay, s/veh		63.1			66.7			4.6			12.7	
Approach LOS		E			E			A			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	0.1	89.3	9.9	10.7	7.1	92.3	7.1	13.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	10.5	62.9	10.5	18.1	6.1	67.3	6.1	22.5				
Max Q Clear Time (g_c+10), s	10.3	6.5	6.2	4.9	3.5	23.1	3.5	8.7				
Green Ext Time (p_c), s	0.0	3.9	0.0	0.1	0.0	4.9	0.0	0.3				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				16.7								
HCM 6th LOS				B								

HCM 6th Roundabout  
76: Campus Parkway & Meyers Gate Road

02/23/2022

Intersection				
Intersection Delay, s/veh	3.9			
Intersection LOS	A			
Approach	EB	WB	NB	
Entry Lanes	1	1	2	
Conflicting Circle Lanes	2	2	2	
Adj Approach Flow, veh/h	128	133	171	
Demand Flow Rate, veh/h	132	137	176	
Vehicles Circulating, veh/h	23	165	99	
Vehicles Exiting, veh/h	279	110	56	
Ped Vol Crossing Leg, #/h	20	20	20	
Ped Cap Adj	0.997	0.997	0.979	
Approach Delay, s/veh	3.4	4.0	4.2	
Approach LOS	A	A	A	
Lane	Left	Left	Left	Right
Designated Moves	TR	LT	L	TR
Assumed Moves	TR	LT	L	TR
RT Channelized				
Lane Util	1.000	1.000	0.938	0.062
Follow-Up Headway, s	2.535	2.535	2.667	2.535
Critical Headway, s	4.328	4.328	4.645	4.328
Entry Flow, veh/h	132	137	165	11
Cap Entry Lane, veh/h	1393	1234	1232	1305
Entry HV Adj Factor	0.971	0.968	0.970	1.000
Flow Entry, veh/h	128	133	160	11
Cap Entry, veh/h	1348	1192	1170	1278
V/C Ratio	0.095	0.111	0.137	0.009
Control Delay, s/veh	3.4	4.0	4.2	2.9
LOS	A	A	A	A
95th %tile Queue, veh	0	0	0	0

HCM 6th Signalized Intersection Summary  
 77: Lake Road & Virginia Smith Parkway

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↑	↕	↕	↑	↕	↕	↕	↕
Traffic Volume (veh/h)	20	30	10	170	30	113	20	457	176	118	602	10
Future Volume (veh/h)	20	30	10	170	30	113	20	457	176	118	602	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.87		0.86	1.00		0.92	1.00		0.96	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		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	22	33	11	185	33	123	22	497	191	128	654	11
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	62	53	15	214	407	317	38	1079	875	153	1175	20
Arrive On Green	0.06	0.06	0.06	0.12	0.22	0.22	0.02	0.58	0.58	0.17	1.00	1.00
Sat Flow, veh/h	368	871	248	1767	1856	1445	1767	1856	1505	1767	1818	31
Grp Volume(v), veh/h	66	0	0	185	33	123	22	497	191	128	0	665
Grp Sat Flow(s),veh/h/ln1487	0	0	0	1767	1856	1445	1767	1856	1505	1767	0	1849
Q Serve(g_s), s	3.5	0.0	0.0	12.3	1.7	8.7	1.5	18.4	7.3	8.4	0.0	0.0
Cycle Q Clear(g_c), s	5.1	0.0	0.0	12.3	1.7	8.7	1.5	18.4	7.3	8.4	0.0	0.0
Prop In Lane	0.33		0.17	1.00		1.00	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	130	0	0	214	407	317	38	1079	875	153	0	1195
V/C Ratio(X)	0.51	0.00	0.00	0.86	0.08	0.39	0.57	0.46	0.22	0.84	0.00	0.56
Avail Cap(c_a), veh/h	256	0	0	302	665	518	81	1079	875	239	0	1195
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	1.00	1.00	0.88	0.88	0.88	0.81	0.00	0.81
Uniform Delay (d), s/veh	55.2	0.0	0.0	51.8	37.2	40.0	58.2	14.3	12.0	48.8	0.0	0.0
Incr Delay (d2), s/veh	3.0	0.0	0.0	16.5	0.1	0.8	11.4	1.2	0.5	11.6	0.0	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/lr2.0	0.0	0.0	0.0	6.3	0.8	3.1	0.8	7.1	2.4	3.8	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.2	0.0	0.0	68.3	37.3	40.7	69.6	15.6	12.5	60.4	0.0	1.5
LnGrp LOS	E	A	A	E	D	D	E	B	B	E	A	A
Approach Vol, veh/h		66			341			710			793	
Approach Delay, s/veh		58.2			55.3			16.4			11.0	
Approach LOS		E			E			B			B	
Timer - Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	4.9	74.3	19.0	11.8	7.1	82.1		30.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	46.2	47.3	20.5	18.0	5.5	58.0		43.0				
Max Q Clear Time (g_c+110, s)	110.4	20.4	14.3	7.1	3.5	2.0		10.7				
Green Ext Time (p_c), s	0.1	3.4	0.2	0.2	0.0	4.3		0.6				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay											22.6	
HCM 6th LOS											C	

HCM 6th Roundabout  
78: Campus Parkway & Virginia Smith Parkway

02/23/2022

Intersection							
Intersection Delay, s/veh	4.6						
Intersection LOS	A						
Approach	EB	WB		NB		SB	
Entry Lanes	1	2		2		2	
Conflicting Circle Lanes	2	2		2		2	
Adj Approach Flow, veh/h	269	347		196		125	
Demand Flow Rate, veh/h	277	357		202		128	
Vehicles Circulating, veh/h	210	142		306		349	
Vehicles Exiting, veh/h	267	366		181		150	
Ped Vol Crossing Leg, #/h	20	20		20		20	
Ped Cap Adj	0.997	0.980		0.983		0.984	
Approach Delay, s/veh	5.3	4.4		4.4		4.2	
Approach LOS	A	A		A		A	
Lane	Left	Left	Right	Left	Right	Left	Right
Designated Moves	LTR	LT	TR	LT	TR	LT	TR
Assumed Moves	LTR	LT	TR	LT	TR	LT	TR
RT Channelized							
Lane Util	1.000	0.471	0.529	0.470	0.530	0.469	0.531
Follow-Up Headway, s	2.535	2.667	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.328	4.645	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	277	168	189	95	107	60	68
Cap Entry Lane, veh/h	1188	1185	1259	1019	1095	979	1056
Entry HV Adj Factor	0.970	0.970	0.972	0.970	0.971	0.980	0.975
Flow Entry, veh/h	269	163	184	92	104	59	66
Cap Entry, veh/h	1149	1126	1199	971	1045	944	1012
V/C Ratio	0.234	0.145	0.153	0.095	0.099	0.062	0.065
Control Delay, s/veh	5.3	4.5	4.3	4.6	4.3	4.4	4.1
LOS	A	A	A	A	A	A	A
95th %tile Queue, veh	1	1	1	0	0	0	0

HCM 6th TWSC  
79: Virginia Smith Parkway & Golden BObc

02/23/2022

Intersection												
Int Delay, s/veh	4.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Vol, veh/h	37	208	48	32	203	19	47	27	32	19	27	28
Future Vol, veh/h	37	208	48	32	203	19	47	27	32	19	27	28
Conflicting Peds, #/hr	20	0	20	20	0	20	20	0	20	20	0	20
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	150	-	-	150	-	-
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	40	226	52	35	221	21	51	29	35	21	29	30

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	262	0	0	298	0	0	703	684	292	706	700	272
Stage 1	-	-	-	-	-	-	352	352	-	322	322	-
Stage 2	-	-	-	-	-	-	351	332	-	384	378	-
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	1296	-	-	1258	-	-	351	370	745	349	362	764
Stage 1	-	-	-	-	-	-	663	630	-	688	649	-
Stage 2	-	-	-	-	-	-	664	643	-	637	613	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1271	-	-	1234	-	-	288	335	717	285	328	735
Mov Cap-2 Maneuver	-	-	-	-	-	-	288	335	-	285	328	-
Stage 1	-	-	-	-	-	-	630	599	-	654	619	-
Stage 2	-	-	-	-	-	-	578	613	-	548	583	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1			1			16.6			15.3		
HCM LOS							C			C		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	288	471	1271	-	-	1234	-	-	285	457
HCM Lane V/C Ratio	0.177	0.136	0.032	-	-	0.028	-	-	0.072	0.131
HCM Control Delay (s)	20.2	13.8	7.9	-	-	8	-	-	18.6	14.1
HCM Lane LOS	C	B	A	-	-	A	-	-	C	B
HCM 95th %tile Q(veh)	0.6	0.5	0.1	-	-	0.1	-	-	0.2	0.4

HCM 6th Roundabout  
80: Virginia Smith Parkway & Main Street

02/23/2022

Intersection				
Intersection Delay, s/veh	4.9			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	283	204	93	192
Demand Flow Rate, veh/h	291	210	96	197
Vehicles Circulating, veh/h	112	182	300	195
Vehicles Exiting, veh/h	280	214	103	197
Ped Vol Crossing Leg, #/h	20	20	20	20
Ped Cap Adj	0.997	0.997	0.997	0.997
Approach Delay, s/veh	5.1	4.9	4.5	4.8
Approach LOS	A	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	291	210	96	197
Cap Entry Lane, veh/h	1231	1146	1016	1131
Entry HV Adj Factor	0.972	0.971	0.966	0.973
Flow Entry, veh/h	283	204	93	192
Cap Entry, veh/h	1193	1109	979	1098
V/C Ratio	0.237	0.184	0.095	0.175
Control Delay, s/veh	5.1	4.9	4.5	4.8
LOS	A	A	A	A
95th %tile Queue, veh	1	1	0	1



HCM 6th TWSC  
81: 4th Street & Virginia Smith Parkway

02/23/2022

Intersection												
Int Delay, s/veh	5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Vol, veh/h	93	131	37	16	128	44	36	40	16	12	5	42
Future Vol, veh/h	93	131	37	16	128	44	36	40	16	12	5	42
Conflicting Peds, #/hr	0	0	20	20	0	0	20	0	20	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	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	101	142	40	17	139	48	39	43	17	13	5	46

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	187	0	0	202	0	0	627	605	202	611	601	183
Stage 1	-	-	-	-	-	-	384	384	-	197	197	-
Stage 2	-	-	-	-	-	-	243	221	-	414	404	-
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	1381	-	-	1364	-	-	395	411	836	404	413	857
Stage 1	-	-	-	-	-	-	637	610	-	803	736	-
Stage 2	-	-	-	-	-	-	758	719	-	614	597	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1381	-	-	1338	-	-	333	369	804	330	371	841
Mov Cap-2 Maneuver	-	-	-	-	-	-	333	369	-	330	371	-
Stage 1	-	-	-	-	-	-	579	554	-	744	726	-
Stage 2	-	-	-	-	-	-	689	710	-	503	543	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	2.8			0.7			15.6			11.5		
HCM LOS							C			B		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	333	436	1381	-	-	1338	-	-	330	741
HCM Lane V/C Ratio	0.118	0.14	0.073	-	-	0.013	-	-	0.04	0.069
HCM Control Delay (s)	17.2	14.6	7.8	-	-	7.7	-	-	16.4	10.2
HCM Lane LOS	C	B	A	-	-	A	-	-	C	B
HCM 95th %tile Q(veh)	0.4	0.5	0.2	-	-	0	-	-	0.1	0.2

# **2030 Near Term Plus Project With Campus Parkway AM Peak Hour**

HCM 6th AWSC  
1: Snelling Highway (SR 59) & Bellevue Road

02/23/2022

Intersection	
Intersection Delay, s/veh	78.8
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	17	276	8	227	181	81	8	76	340	110	84	28
Future Vol, veh/h	17	276	8	227	181	81	8	76	340	110	84	28
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	18	300	9	247	197	88	9	83	370	120	91	30
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	37.2	139	66.5	26.4
HCM LOS	E	F	F	D

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	6%	46%	50%
Vol Thru, %	18%	92%	37%	38%
Vol Right, %	80%	3%	17%	13%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	424	301	489	222
LT Vol	8	17	227	110
Through Vol	76	276	181	84
RT Vol	340	8	81	28
Lane Flow Rate	461	327	532	241
Geometry Grp	1	1	1	1
Degree of Util (X)	0.977	0.773	1.206	0.601
Departure Headway (Hd)	8.247	9.148	8.166	9.742
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	442	399	446	374
Service Time	6.247	7.148	6.244	7.742
HCM Lane V/C Ratio	1.043	0.82	1.193	0.644
HCM Control Delay	66.5	37.2	139	26.4
HCM Lane LOS	F	E	F	D
HCM 95th-tile Q	12	6.5	20.8	3.8

# HCM 6th Signalized Intersection Summary

## 2: G Street & Bellevue Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	351	170	106	199	22	149	347	337	16	355	63
Future Volume (veh/h)	67	351	170	106	199	22	149	347	337	16	355	63
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	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	73	382	185	115	216	24	162	377	366	17	386	68
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	92	406	196	138	685	581	187	650	580	37	1001	446
Arrive On Green	0.05	0.34	0.34	0.08	0.37	0.37	0.11	0.37	0.37	0.02	0.28	0.28
Sat Flow, veh/h	1767	1181	572	1767	1856	1572	1767	1763	1572	1767	3526	1572
Grp Volume(v), veh/h	73	0	567	115	216	24	162	377	366	17	386	68
Grp Sat Flow(s),veh/h/ln	1767	0	1753	1767	1856	1572	1767	1763	1572	1767	1763	1572
Q Serve(g_s), s	5.6	0.0	43.2	8.8	11.4	1.3	12.4	23.6	26.4	1.3	12.1	4.5
Cycle Q Clear(g_c), s	5.6	0.0	43.2	8.8	11.4	1.3	12.4	23.6	26.4	1.3	12.1	4.5
Prop In Lane	1.00		0.33	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	92	0	602	138	685	581	187	650	580	37	1001	446
V/C Ratio(X)	0.79	0.00	0.94	0.83	0.32	0.04	0.87	0.58	0.63	0.46	0.39	0.15
Avail Cap(c_a), veh/h	166	0	679	179	732	621	238	650	580	78	1001	446
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	64.4	0.0	43.8	62.5	31.0	27.8	60.6	34.9	35.7	66.6	39.6	36.9
Incr Delay (d2), s/veh	13.8	0.0	20.3	22.1	0.3	0.0	23.0	3.8	5.2	8.7	1.1	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	0.0	21.1	4.7	5.0	0.5	6.6	10.3	10.4	0.7	5.2	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	78.2	0.0	64.1	84.6	31.2	27.8	83.5	38.6	40.9	75.3	40.7	37.6
LnGrp LOS	E	A	E	F	C	C	F	D	D	E	D	D
Approach Vol, veh/h		640			355			905			471	
Approach Delay, s/veh		65.7			48.3			47.6			41.5	
Approach LOS		E			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.4	57.2	17.3	53.7	21.0	45.5	13.7	57.3				
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5				
Max Green Setting (Gmax), s	50.7	13.9	53.3	18.5	38.3	12.9	54.3					
Max Q Clear Time (g_c+13), s	28.4	10.8	45.2	14.4	14.1	7.6	13.4					
Green Ext Time (p_c), s	0.0	4.2	0.1	2.0	0.1	2.3	0.0	1.1				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			51.4									
HCM 6th LOS			D									

# HCM 6th Signalized Intersection Summary

## 3: Lake Street/Lake Road & Bellevue Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕		↖	↗	↗
Traffic Volume (veh/h)	363	321	235	38	39	3	216	404	82	20	152	82
Future Volume (veh/h)	363	321	235	38	39	3	216	404	82	20	152	82
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	395	349	255	41	42	3	235	439	89	22	165	89
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	417	391	286	105	187	13	265	435	88	349	1825	814
Arrive On Green	0.24	0.39	0.39	0.11	0.11	0.11	0.52	0.52	0.52	0.52	0.52	0.52
Sat Flow, veh/h	1767	996	728	809	1711	122	445	839	170	868	3526	1572
Grp Volume(v), veh/h	395	0	604	41	0	45	763	0	0	22	165	89
Grp Sat Flow(s),veh/h/ln	1767	0	1724	809	0	1834	1454	0	0	868	1763	1572
Q Serve(g_s), s	30.1	0.0	44.8	6.8	0.0	3.1	67.7	0.0	0.0	0.0	3.2	4.0
Cycle Q Clear(g_c), s	30.1	0.0	44.8	12.9	0.0	3.1	70.9	0.0	0.0	2.6	3.2	4.0
Prop In Lane	1.00		0.42	1.00		0.07	0.31		0.12	1.00		1.00
Lane Grp Cap(c), veh/h	417	0	677	105	0	200	787	0	0	349	1825	814
V/C Ratio(X)	0.95	0.00	0.89	0.39	0.00	0.22	0.97	0.00	0.00	0.06	0.09	0.11
Avail Cap(c_a), veh/h	432	0	732	124	0	242	787	0	0	349	1825	814
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.5	0.0	38.9	63.1	0.0	55.7	34.9	0.0	0.0	16.6	16.7	16.9
Incr Delay (d2), s/veh	29.8	0.0	12.7	2.3	0.0	0.6	25.4	0.0	0.0	0.3	0.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ft	6.2	0.0	20.1	1.4	0.0	1.4	29.8	0.0	0.0	0.4	1.3	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	81.3	0.0	51.6	65.4	0.0	56.3	60.3	0.0	0.0	16.9	16.8	17.2
LnGrp LOS	F	A	D	E	A	E	E	A	A	B	B	B
Approach Vol, veh/h		999			86			763			276	
Approach Delay, s/veh		63.3			60.6			60.3			16.9	
Approach LOS		E			E			E			B	
Timer - Assigned Phs		2		4		6	7	8				
Phs Duration (G+Y+Rc), s		76.7		60.3		76.7	38.8	21.4				
Change Period (Y+Rc), s		* 5.8		6.5		5.8	6.5	6.5				
Max Green Setting (Gmax), s		* 71		58.1		69.6	33.5	18.1				
Max Q Clear Time (g_c+I1), s		72.9		46.8		6.0	32.1	14.9				
Green Ext Time (p_c), s		0.0		2.7		1.4	0.2	0.1				

### Intersection Summary

HCM 6th Ctrl Delay	56.1
HCM 6th LOS	E

### Notes

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

# HCM 6th Signalized Intersection Summary

## 4: G Street & Cardella Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕		↖	↗		↖	↕	↗
Traffic Volume (veh/h)	123	0	64	2	0	8	32	767	0	4	865	56
Future Volume (veh/h)	123	0	64	2	0	8	32	767	0	4	865	56
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	134	0	70	2	0	9	35	834	0	4	940	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	125	0	269	29	17	74	55	1266	0	38	1248	
Arrive On Green	0.17	0.00	0.17	0.17	0.00	0.17	0.03	0.68	0.00	0.02	0.67	0.00
Sat Flow, veh/h	447	0	1572	0	97	435	1767	1856	0	1767	1856	1572
Grp Volume(v), veh/h	134	0	70	11	0	0	35	834	0	4	940	0
Grp Sat Flow(s),veh/h/ln	447	0	1572	532	0	0	1767	1856	0	1767	1856	1572
Q Serve(g_s), s	0.0	0.0	5.7	0.0	0.0	0.0	2.9	38.2	0.0	0.3	49.5	0.0
Cycle Q Clear(g_c), s	25.2	0.0	5.7	25.2	0.0	0.0	2.9	38.2	0.0	0.3	49.5	0.0
Prop In Lane	1.00		1.00	0.18		0.82	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	125	0	269	120	0	0	55	1266	0	38	1248	
V/C Ratio(X)	1.07	0.00	0.26	0.09	0.00	0.00	0.64	0.66	0.00	0.11	0.75	
Avail Cap(c_a), veh/h	125	0	269	120	0	0	89	1266	0	72	1248	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	65.9	0.0	52.9	51.9	0.0	0.0	70.5	13.5	0.0	70.6	16.0	0.0
Incr Delay (d2), s/veh	99.7	0.0	0.5	0.3	0.0	0.0	11.7	2.7	0.0	1.2	4.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/lr	8.2	0.0	2.3	0.3	0.0	0.0	1.4	14.5	0.0	0.2	19.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	165.6	0.0	53.4	52.2	0.0	0.0	82.2	16.2	0.0	71.8	20.2	0.0
LnGrp LOS	F	A	D	D	A	A	F	B	A	E	C	
Approach Vol, veh/h		204			11			869			944	A
Approach Delay, s/veh		127.1			52.2			18.9			20.4	
Approach LOS		F			D			B			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.7	106.9		30.6	11.1	105.5		30.6				
Change Period (Y+Rc), s	6.5	6.5		5.4	6.5	6.5		5.4				
Max Green Setting (Gmax), s	6.0	100.4		25.2	7.4	99.0		25.2				
Max Q Clear Time (g_c+1/3), s	12.3	40.2		27.2	4.9	51.5		27.2				
Green Ext Time (p_c), s	0.0	6.2		0.0	0.0	7.7		0.0				

### Intersection Summary

HCM 6th Ctrl Delay	30.7
HCM 6th LOS	C

### Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

# HCM 6th Signalized Intersection Summary

## 5: Lake Road & Cardella Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	10	1	8	10	9	2	14	7	9	20	5
Future Volume (veh/h)	11	10	1	8	10	9	2	14	7	9	20	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	12	11	1	9	11	10	2	15	8	10	22	5
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	582	113	10	341	36	33	923	618	524	931	487	111
Arrive On Green	0.07	0.07	0.07	0.07	0.07	0.07	0.33	0.33	0.33	0.33	0.33	0.33
Sat Flow, veh/h	1380	1676	152	436	533	484	1372	1856	1572	1377	1463	333
Grp Volume(v), veh/h	12	0	12	30	0	0	2	15	8	10	0	27
Grp Sat Flow(s),veh/h/ln	1380	0	1828	1453	0	0	1372	1856	1572	1377	0	1796
Q Serve(g_s), s	0.0	0.0	0.1	0.3	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.2
Cycle Q Clear(g_c), s	0.1	0.0	0.1	0.4	0.0	0.0	0.2	0.1	0.1	0.2	0.0	0.2
Prop In Lane	1.00		0.08	0.30		0.33	1.00		1.00	1.00		0.19
Lane Grp Cap(c), veh/h	582	0	123	409	0	0	923	618	524	931	0	598
V/C Ratio(X)	0.02	0.00	0.10	0.07	0.00	0.00	0.00	0.02	0.02	0.01	0.00	0.05
Avail Cap(c_a), veh/h	2144	0	2193	2220	0	0	2112	2225	1886	2124	0	2154
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.6	0.0	6.6	6.7	0.0	0.0	3.4	3.4	3.4	3.4	0.0	3.4
Incr Delay (d2), s/veh	0.0	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/lr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.6	0.0	6.9	6.8	0.0	0.0	3.4	3.4	3.4	3.4	0.0	3.4
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		24			30			25			37	
Approach Delay, s/veh		6.8			6.8			3.4			3.4	
Approach LOS		A			A			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		9.5		5.5		9.5		5.5				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		18.0		18.0		18.0		18.0				
Max Q Clear Time (g_c+I1), s		2.2		2.1		2.2		2.4				
Green Ext Time (p_c), s		0.0		0.0		0.1		0.1				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				5.0								
HCM 6th LOS				A								



# HCM 6th Signalized Intersection Summary

## 6: Snelling Highway (SR 59) & Yosemite Avenue

02/23/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	215	398	347	220	488	412
Future Volume (veh/h)	215	398	347	220	488	412
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	234	433	377	239	530	448
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	353	314	505	428	564	1231
Arrive On Green	0.20	0.20	0.27	0.27	0.32	0.66
Sat Flow, veh/h	1767	1572	1856	1572	1767	1856
Grp Volume(v), veh/h	234	433	377	239	530	448
Grp Sat Flow(s),veh/h/ln	1767	1572	1856	1572	1767	1856
Q Serve(g_s), s	11.0	18.0	16.7	11.7	26.3	9.6
Cycle Q Clear(g_c), s	11.0	18.0	16.7	11.7	26.3	9.6
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	353	314	505	428	564	1231
V/C Ratio(X)	0.66	1.38	0.75	0.56	0.94	0.36
Avail Cap(c_a), veh/h	353	314	505	428	599	1231
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.2	36.0	29.9	28.1	29.8	6.7
Incr Delay (d2), s/veh	4.6	188.4	9.7	5.2	22.5	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	22.9	8.1	4.6	13.4	2.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	37.8	224.4	39.6	33.3	52.3	7.6
LnGrp LOS	D	F	D	C	D	A
Approach Vol, veh/h	667		616			978
Approach Delay, s/veh	158.9		37.1			31.8
Approach LOS	F		D			C
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	35.2	31.0			66.2	23.8
Change Period (Y+Rc), s	6.5	6.5			6.5	5.8
Max Green Setting (Gmax), s	30.5	22.7			59.7	18.0
Max Q Clear Time (g_c+20), s	29.3	18.7			11.6	20.0
Green Ext Time (p_c), s	0.4	1.1			2.5	0.0
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			70.8			
HCM 6th LOS			E			

# HCM 6th Signalized Intersection Summary

## 7: G Street & Yosemite Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	229	772	128	427	606	132	241	672	350	131	601	175
Future Volume (veh/h)	229	772	128	427	606	132	241	672	350	131	601	175
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	249	839	139	464	659	143	262	730	380	142	653	190
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	275	783	130	441	1243	555	251	853	381	158	669	298
Arrive On Green	0.16	0.26	0.26	0.25	0.35	0.35	0.14	0.24	0.24	0.09	0.19	0.19
Sat Flow, veh/h	1767	3027	501	1767	3526	1572	1767	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	249	489	489	464	659	143	262	730	380	142	653	190
Grp Sat Flow(s),veh/h/ln	1767	1763	1765	1767	1763	1572	1767	1763	1572	1767	1763	1572
Q Serve(g_s), s	20.1	37.5	37.5	36.2	21.6	9.4	20.6	28.7	19.8	11.5	26.7	16.1
Cycle Q Clear(g_c), s	20.1	37.5	37.5	36.2	21.6	9.4	20.6	28.7	19.8	11.5	26.7	16.1
Prop In Lane	1.00		0.28	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	275	456	457	441	1243	555	251	853	381	158	669	298
V/C Ratio(X)	0.91	1.07	1.07	1.05	0.53	0.26	1.04	0.86	1.00	0.90	0.98	0.64
Avail Cap(c_a), veh/h	391	456	457	441	1243	555	251	853	381	158	669	298
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	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	60.2	53.8	53.8	54.4	37.4	33.4	62.2	52.5	17.5	65.3	58.4	54.2
Incr Delay (d2), s/veh	18.7	62.7	62.7	57.1	0.4	0.2	68.6	10.7	45.7	42.9	29.5	10.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ft	0.3	24.1	24.1	22.7	9.2	3.6	13.8	13.7	11.7	7.0	14.4	7.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	78.9	116.5	116.4	111.5	37.8	33.7	130.8	63.2	63.2	108.2	88.0	64.1
LnGrp LOS	E	F	F	F	D	C	F	E	E	F	F	E
Approach Vol, veh/h		1227			1266			1372			985	
Approach Delay, s/veh		108.8			64.3			76.1			86.3	
Approach LOS		F			E			E			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	40.9	42.0	43.3	26.4	33.3	28.4	56.9					
Change Period (Y+Rc), s	5.8	5.8	5.8	5.8	5.8	5.8	5.8					
Max Green Setting (Gmax), s	35.1	36.2	37.5	20.6	27.5	32.1	41.6					
Max Q Clear Time (g_c+1/3), s	30.7	38.2	39.5	22.6	28.7	22.1	23.6					
Green Ext Time (p_c), s	0.0	2.3	0.0	0.0	0.0	0.0	0.5	4.3				

### Intersection Summary

HCM 6th Ctrl Delay	83.4
HCM 6th LOS	F

Intersection

Intersection Delay, s/veh 309.6

Intersection LOS F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	↔
Traffic Vol, veh/h	48	852	125	21	835	28	206	47	34	51	133	67
Future Vol, veh/h	48	852	125	21	835	28	206	47	34	51	133	67
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	52	926	136	23	908	30	224	51	37	55	145	73
Number of Lanes	0	2	0	0	1	0	0	1	0	0	1	1

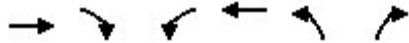
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	2
HCM Control Delay	186	618.1	50.8	23.8
HCM LOS	F	F	F	C

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	72%	10%	0%	2%	28%	0%
Vol Thru, %	16%	90%	77%	94%	72%	0%
Vol Right, %	12%	0%	23%	3%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	287	474	551	884	184	67
LT Vol	206	48	0	21	51	0
Through Vol	47	426	426	835	133	0
RT Vol	34	0	125	28	0	67
Lane Flow Rate	312	515	599	961	200	73
Geometry Grp	6	7	7	6	7	7
Degree of Util (X)	0.803	1.213	1.375	2.314	0.527	0.175
Departure Headway (Hd)	12.214	10.893	10.671	8.776	11.703	10.807
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	299	340	347	423	310	334
Service Time	10.214	8.593	8.371	6.776	9.403	8.507
HCM Lane V/C Ratio	1.043	1.515	1.726	2.272	0.645	0.219
HCM Control Delay	50.8	152.3	214.9	618.1	26.7	15.8
HCM Lane LOS	F	F	F	F	D	C
HCM 95th-tile Q	6.5	17.4	23.3	72.3	2.9	0.6

# HCM 6th Signalized Intersection Summary

## 9: McKee Road & Yosemite Avenue

02/23/2022



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↖	↑	↖	↖
Traffic Volume (veh/h)	717	149	190	682	232	258
Future Volume (veh/h)	717	149	190	682	232	258
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	779	162	207	741	252	280
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	883	184	249	976	541	481
Arrive On Green	0.30	0.30	0.14	0.53	0.31	0.31
Sat Flow, veh/h	2998	604	1767	1856	1767	1572
Grp Volume(v), veh/h	473	468	207	741	252	280
Grp Sat Flow(s),veh/h/ln	1763	1747	1767	1856	1767	1572
Q Serve(g_s), s	18.2	18.2	8.2	22.5	8.3	10.8
Cycle Q Clear(g_c), s	18.2	18.2	8.2	22.5	8.3	10.8
Prop In Lane		0.35	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	536	531	249	976	541	481
V/C Ratio(X)	0.88	0.88	0.83	0.76	0.47	0.58
Avail Cap(c_a), veh/h	569	564	301	1066	541	481
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.7	23.7	29.9	13.4	20.1	21.0
Incr Delay (d2), s/veh	14.5	14.6	15.0	3.0	2.9	5.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/lr	8.8	8.7	4.2	8.0	3.4	4.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	38.2	38.3	44.9	16.3	23.0	26.0
LnGrp LOS	D	D	D	B	C	C
Approach Vol, veh/h	941			948	532	
Approach Delay, s/veh	38.2			22.6	24.6	
Approach LOS	D			C	C	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		28.1	15.9	27.5		43.4
Change Period (Y+Rc), s		6.2	5.8	5.8		5.8
Max Green Setting (Gmax), s		21.9	12.2	23.1		41.1
Max Q Clear Time (g_c+I1), s		12.8	10.2	20.2		24.5
Green Ext Time (p_c), s		1.2	0.1	1.5		4.4
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			29.1			
HCM 6th LOS			C			

**Intersection**

Intersection Delay, s/veh 20.2

Intersection LOS F

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	24	871	499	9	13	31
Future Vol, veh/h	24	871	499	9	13	31
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	26	947	542	10	14	34
Number of Lanes	1	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left SB			WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	180.3	23.8	10.6
HCM LOS	F	C	B

Lane	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	100%	0%	0%	30%
Vol Thru, %	0%	100%	98%	0%
Vol Right, %	0%	0%	2%	70%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	24	871	508	44
LT Vol	24	0	0	13
Through Vol	0	871	499	0
RT Vol	0	0	9	31
Lane Flow Rate	26	947	552	48
Geometry Grp	7	7	5	2
Degree of Util (X)	0.041	1.354	0.768	0.085
Departure Headway (Hd)	5.652	5.147	5.359	6.991
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	634	710	679	516
Service Time	3.385	2.881	3.359	4.991
HCM Lane V/C Ratio	0.041	1.334	0.813	0.093
HCM Control Delay	8.6	185	23.8	10.6
HCM Lane LOS	A	F	C	B
HCM 95th-tile Q	0.1	39.6	7.2	0.3

# HCM 6th Signalized Intersection Summary

## 11: Snelling Highway (SR 59) & Santa Fe Drive/Olive Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	891	135	210	617	69	81	489	258	89	457	78
Future Volume (veh/h)	160	891	135	210	617	69	81	489	258	89	457	78
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	174	968	147	228	671	75	88	532	280	97	497	85
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	200	1017	454	245	1106	493	103	590	500	112	599	508
Arrive On Green	0.11	0.29	0.29	0.14	0.31	0.31	0.06	0.32	0.32	0.06	0.32	0.32
Sat Flow, veh/h	1767	3526	1572	1767	3526	1572	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	174	968	147	228	671	75	88	532	280	97	497	85
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1572	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	12.1	33.6	7.2	15.9	20.1	4.3	6.2	34.2	18.4	6.8	30.9	3.3
Cycle Q Clear(g_c), s	12.1	33.6	7.2	15.9	20.1	4.3	6.2	34.2	18.4	6.8	30.9	3.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	200	1017	454	245	1106	493	103	590	500	112	599	508
V/C Ratio(X)	0.87	0.95	0.32	0.93	0.61	0.15	0.85	0.90	0.56	0.87	0.83	0.17
Avail Cap(c_a), veh/h	231	1023	456	245	1106	493	103	590	500	112	599	508
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.4	43.5	21.6	53.2	36.3	30.9	58.2	40.7	35.3	57.9	39.1	14.3
Incr Delay (d2), s/veh	25.5	17.7	0.4	39.1	1.0	0.1	45.5	19.4	4.5	46.7	12.6	0.7
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	6.7	16.6	3.4	9.5	8.5	1.6	4.0	18.2	7.5	4.4	15.3	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	79.9	61.2	22.0	92.2	37.2	31.0	103.7	60.1	39.8	104.6	51.6	15.0
LnGrp LOS	E	E	C	F	D	C	F	E	D	F	D	B
Approach Vol, veh/h		1289			974			900			679	
Approach Delay, s/veh		59.3			49.6			58.0			54.6	
Approach LOS		E			D			E			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.4	45.5	23.1	41.8	13.1	46.8	19.9	45.0				
Change Period (Y+Rc), s	6.5	5.8	5.8	5.8	5.8	6.5	5.8	5.8				
Max Green Setting (Gmax), s	7.9	39.7	17.3	36.2	7.3	40.3	16.3	37.2				
Max Q Clear Time (g_c+I), s	13.8	36.2	17.9	35.6	8.2	32.9	14.1	22.1				
Green Ext Time (p_c), s	0.0	1.4	0.0	0.4	0.0	1.8	0.1	3.9				

### Intersection Summary

HCM 6th Ctrl Delay	55.7
HCM 6th LOS	E

# HCM 6th Signalized Intersection Summary

## 12: R Street & Olive Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑↑↑	↗	↖	↑↑↑	↗	↖	↑↑		↖	↑↑	↗
Traffic Volume (veh/h)	119	790	134	230	709	148	138	550	129	171	624	67
Future Volume (veh/h)	119	790	134	230	709	148	138	550	129	171	624	67
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	129	859	146	250	771	161	150	598	140	186	678	73
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	155	1009	313	268	1333	414	177	938	219	233	1278	570
Arrive On Green	0.09	0.20	0.20	0.15	0.26	0.26	0.10	0.33	0.33	0.13	0.36	0.36
Sat Flow, veh/h	1767	5066	1572	1767	5066	1572	1767	2837	663	1767	3526	1572
Grp Volume(v), veh/h	129	859	146	250	771	161	150	371	367	186	678	73
Grp Sat Flow(s),veh/h/ln	1767	1689	1572	1767	1689	1572	1767	1763	1736	1767	1763	1572
Q Serve(g_s), s	8.6	19.6	9.8	16.8	15.9	7.0	10.0	21.4	21.5	12.3	18.2	3.7
Cycle Q Clear(g_c), s	8.6	19.6	9.8	16.8	15.9	7.0	10.0	21.4	21.5	12.3	18.2	3.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.38	1.00		1.00
Lane Grp Cap(c), veh/h	155	1009	313	268	1333	414	177	583	574	233	1278	570
V/C Ratio(X)	0.83	0.85	0.47	0.93	0.58	0.39	0.85	0.64	0.64	0.80	0.53	0.13
Avail Cap(c_a), veh/h	174	1098	341	268	1368	425	206	583	574	233	1278	570
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.42	0.42	0.42	0.22	0.22	0.22	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.9	46.3	42.4	50.3	38.4	17.5	53.1	34.0	34.1	50.6	30.2	25.6
Incr Delay (d2), s/veh	12.5	2.7	0.5	12.9	0.1	0.1	24.1	5.2	5.4	17.7	1.6	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	8.2	3.8	8.2	6.4	3.6	5.6	9.8	9.7	6.5	7.8	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.4	49.1	42.9	63.2	38.5	17.6	77.2	39.3	39.4	68.2	31.8	26.0
LnGrp LOS	E	D	D	E	D	B	E	D	D	E	C	C
Approach Vol, veh/h		1134			1182			888			937	
Approach Delay, s/veh		50.2			40.9			45.7			38.6	
Approach LOS		D			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	31.2	45.1	24.0	29.7	17.4	48.9	16.3	37.4				
Change Period (Y+Rc), s	5.4	5.4	5.8	5.8	5.4	5.4	5.8	5.8				
Max Green Setting (Gmax), s	39.7	39.7	18.2	26.0	14.0	39.4	11.8	32.4				
Max Q Clear Time (g_c+1/3), s	11.4	23.5	18.8	21.6	12.0	20.2	10.6	17.9				
Green Ext Time (p_c), s	0.0	4.0	0.0	2.3	0.1	4.5	0.0	4.7				

### Intersection Summary

HCM 6th Ctrl Delay	44.0
HCM 6th LOS	D



# HCM 6th Signalized Intersection Summary

## 13: M Street & Olive Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑↑↑	↗	↖	↑↑↑		↖	↑↑		↖	↑↑	
Traffic Volume (veh/h)	157	837	144	181	905	181	142	455	140	256	667	102
Future Volume (veh/h)	157	837	144	181	905	181	142	455	140	256	667	102
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	171	910	157	197	984	197	154	495	152	278	725	111
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	194	1148	357	224	1030	206	181	768	234	303	1096	168
Arrive On Green	0.11	0.23	0.23	0.13	0.24	0.24	0.10	0.29	0.29	0.17	0.36	0.36
Sat Flow, veh/h	1767	5066	1572	1767	4235	846	1767	2660	812	1767	3065	469
Grp Volume(v), veh/h	171	910	157	197	784	397	154	327	320	278	417	419
Grp Sat Flow(s),veh/h/ln	1767	1689	1572	1767	1689	1703	1767	1763	1709	1767	1763	1771
Q Serve(g_s), s	11.4	20.3	10.3	13.1	27.5	27.6	10.3	19.4	19.7	18.6	23.9	23.9
Cycle Q Clear(g_c), s	11.4	20.3	10.3	13.1	27.5	27.6	10.3	19.4	19.7	18.6	23.9	23.9
Prop In Lane	1.00		1.00	1.00		0.50	1.00		0.48	1.00		0.26
Lane Grp Cap(c), veh/h	194	1148	357	224	822	414	181	509	493	303	630	633
V/C Ratio(X)	0.88	0.79	0.44	0.88	0.95	0.96	0.85	0.64	0.65	0.92	0.66	0.66
Avail Cap(c_a), veh/h	194	1148	357	242	822	414	211	509	493	303	630	633
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.43	0.43	0.43	0.09	0.09	0.09	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.6	43.7	39.9	51.5	44.7	44.8	53.0	37.3	37.4	48.9	32.4	32.4
Incr Delay (d2), s/veh	17.8	1.7	0.4	3.6	3.3	6.2	24.2	6.1	6.5	31.3	5.4	5.4
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/lr	5.9	8.4	3.9	5.9	11.4	11.9	5.7	9.1	8.9	10.6	10.8	10.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	70.4	45.4	40.2	55.1	48.0	51.0	77.2	43.4	43.8	80.2	37.8	37.8
LnGrp LOS	E	D	D	E	D	D	E	D	D	F	D	D
Approach Vol, veh/h		1238			1378			801			1114	
Approach Delay, s/veh		48.2			49.9			50.1			48.4	
Approach LOS		D			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	36.0	40.0	21.0	33.0	17.7	48.3	19.0	35.0				
Change Period (Y+Rc), s	5.4	5.4	5.8	5.8	5.4	5.4	5.8	5.8				
Max Green Setting (Gmax), s	20.6	34.6	16.4	26.0	14.3	40.9	13.2	29.2				
Max Q Clear Time (g_c+Q), s	20.6	21.7	15.1	22.3	12.3	25.9	13.4	29.6				
Green Ext Time (p_c), s	0.0	3.1	0.1	2.1	0.1	4.4	0.0	0.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay											49.1	
HCM 6th LOS											D	

# HCM 6th Signalized Intersection Summary

## 14: Olive Avenue & G Street

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑		↘	↑↑	↗	↘	↑↑	↗
Traffic Volume (veh/h)	350	401	226	231	681	88	277	1083	123	89	1009	464
Future Volume (veh/h)	350	401	226	231	681	88	277	1083	123	89	1009	464
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	380	436	246	251	740	96	301	1177	134	97	1097	504
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	317	838	374	266	656	85	251	1332	594	110	1050	468
Arrive On Green	0.18	0.24	0.24	0.15	0.21	0.21	0.14	0.38	0.38	0.06	0.30	0.30
Sat Flow, veh/h	1767	3526	1572	1767	3138	407	1767	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	380	436	246	251	416	420	301	1177	134	97	1097	504
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1782	1767	1763	1572	1767	1763	1572
Q Serve(g_s), s	24.2	14.5	19.1	19.0	28.2	28.2	19.2	42.1	7.8	7.4	40.2	25.0
Cycle Q Clear(g_c), s	24.2	14.5	19.1	19.0	28.2	28.2	19.2	42.1	7.8	7.4	40.2	25.0
Prop In Lane	1.00		1.00	1.00		0.23	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	317	838	374	266	368	372	251	1332	594	110	1050	468
V/C Ratio(X)	1.20	0.52	0.66	0.94	1.13	1.13	1.20	0.88	0.23	0.88	1.04	1.08
Avail Cap(c_a), veh/h	317	838	374	266	368	372	251	1332	594	110	1050	468
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.4	44.8	46.5	56.8	53.4	53.4	57.9	39.2	28.6	62.8	47.4	18.4
Incr Delay (d2), s/veh	116.2	0.6	4.2	40.3	86.5	86.6	120.9	8.8	0.9	50.9	40.3	63.6
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	20.7	6.3	7.7	11.3	21.0	21.2	16.8	19.1	3.0	4.8	22.9	16.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	171.6	45.3	50.7	97.1	139.9	140.0	178.8	48.0	29.4	113.8	87.7	82.0
LnGrp LOS	F	D	D	F	F	F	F	D	C	F	F	F
Approach Vol, veh/h		1062			1087			1612			1698	
Approach Delay, s/veh		91.7			130.1			70.9			87.5	
Approach LOS		F			F			E			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.2	56.8	26.1	37.9	25.0	46.0	30.0	34.0				
Change Period (Y+Rc), s	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8				
Max Green Setting (Gmax), s	3.4	51.0	20.3	32.1	19.2	40.2	24.2	28.2				
Max Q Clear Time (g_c+19.4), s	19.4	44.1	21.0	21.1	21.2	42.2	26.2	30.2				
Green Ext Time (p_c), s	0.0	4.2	0.0	2.6	0.0	0.0	0.0	0.0				

### Intersection Summary

HCM 6th Ctrl Delay	91.9
HCM 6th LOS	F

**Intersection**

Intersection Delay, s/veh	288.8
Intersection LOS	F

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	378	768	321	367	389	420
Future Vol, veh/h	378	768	321	367	389	420
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	411	835	349	399	423	457
Number of Lanes	1	1	2	1	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	3	2	0
Conflicting Approach Left			WB
Conflicting Lanes Left	1	0	3
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	324.9	17.7	468.3
HCM LOS	F	C	F

Lane	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	100%	0%	0%	0%	0%	48%
Vol Thru, %	0%	100%	100%	100%	0%	0%
Vol Right, %	0%	0%	0%	0%	100%	52%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	378	768	161	161	367	809
LT Vol	378	0	0	0	0	389
Through Vol	0	768	161	161	0	0
RT Vol	0	0	0	0	367	420
Lane Flow Rate	411	835	174	174	399	879
Geometry Grp	8	8	7	7	7	7
Degree of Util (X)	0.996	1.908	0.379	0.379	0.595	1.977
Departure Headway (Hd)	11.262	10.717	9.053	9.053	6.431	8.787
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	325	351	400	400	566	422
Service Time	8.962	8.417	6.753	6.753	4.131	6.487
HCM Lane V/C Ratio	1.265	2.379	0.435	0.435	0.705	2.083
HCM Control Delay	84.1	443.4	17.2	17.2	18.1	468.3
HCM Lane LOS	F	F	C	C	C	F
HCM 95th-tile Q	10.8	43.6	1.7	1.7	3.9	55.5

HCM 6th TWSC  
16: MLK JR Way & SR 99 NB Ramps

02/23/2022

Intersection												
Int Delay, s/veh	22.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕		↕	↑↑			↑↑	
Traffic Vol, veh/h	0	0	0	69	0	107	274	681	0	0	359	310
Future Vol, veh/h	0	0	0	69	0	107	274	681	0	0	359	310
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	75	-	-	-	-	-
Veh in Median Storage, #	-	2	-	-	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	0	0	0	75	0	116	298	740	0	0	390	337

Major/Minor	Minor1		Major1		Major2		
Conflicting Flow All	1531	2063	370	727	0	-	0
Stage 1	1336	1336	-	-	-	-	-
Stage 2	195	727	-	-	-	-	-
Critical Hdwy	6.86	6.56	6.96	4.16	-	-	-
Critical Hdwy Stg 1	5.86	5.56	-	-	-	-	-
Critical Hdwy Stg 2	5.86	5.56	-	-	-	-	-
Follow-up Hdwy	3.53	4.03	3.33	2.23	-	-	-
Pot Cap-1 Maneuver	107	53	624	866	-	0	0
Stage 1	208	219	-	-	-	0	0
Stage 2	816	425	-	-	-	0	0
Platoon blocked, %					-	-	-
Mov Cap-1 Maneuver	~ 70	0	624	866	-	-	-
Mov Cap-2 Maneuver	~ 70	0	-	-	-	-	-
Stage 1	136	0	-	-	-	-	-
Stage 2	816	0	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	216.5	3.2	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBTWBLn1	SBT	SBR
Capacity (veh/h)	866	-	152	-
HCM Lane V/C Ratio	0.344	-	1.259	-
HCM Control Delay (s)	11.3	-	216.5	-
HCM Lane LOS	B	-	F	-
HCM 95th %tile Q(veh)	1.5	-	11.3	-

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

HCM 6th TWSC

17: G Street & 14th Street/SR 99 NB Off Ramp

02/23/2022

Intersection												
Int Delay, s/veh	4.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙		↗		↕		↙	↕			↕	↗
Traffic Vol, veh/h	49	0	8	51	7	137	9	516	0	0	545	55
Future Vol, veh/h	49	0	8	51	7	137	9	516	0	0	545	55
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	-	-	-	75	-	-	-	-	-
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	53	0	9	55	8	149	10	561	0	0	592	60

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	927	-	326	877	1233	281	652	0	-	-	-	0
Stage 1	622	-	-	581	581	-	-	-	-	-	-	-
Stage 2	305	-	-	296	652	-	-	-	-	-	-	-
Critical Hdwy	7.56	-	6.96	7.56	6.56	6.96	4.16	-	-	-	-	-
Critical Hdwy Stg 1	6.56	-	-	6.56	5.56	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.56	-	-	6.56	5.56	-	-	-	-	-	-	-
Follow-up Hdwy	3.53	-	3.33	3.53	4.03	3.33	2.23	-	-	-	-	-
Pot Cap-1 Maneuver	222	0	667	241	174	713	924	-	0	0	-	-
Stage 1	439	0	-	464	495	-	-	-	0	0	-	-
Stage 2	677	0	-	685	460	-	-	-	0	0	-	-
Platoon blocked, %								-			-	
Mov Cap-1 Maneuver	168	-	667	236	172	713	924	-	-	-	-	-
Mov Cap-2 Maneuver	168	-	-	236	172	-	-	-	-	-	-	-
Stage 1	434	-	-	459	490	-	-	-	-	-	-	-
Stage 2	522	-	-	676	460	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	32.5		21		0.2		0	
HCM LOS	D		C					

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	WBLn1	SBT	SBR
Capacity (veh/h)	924	-	168	667	434	-	-
HCM Lane V/C Ratio	0.011	-	0.317	0.013	0.488	-	-
HCM Control Delay (s)	8.9	-	36.1	10.5	21	-	-
HCM Lane LOS	A	-	E	B	C	-	-
HCM 95th %tile Q(veh)	0	-	1.3	0	2.6	-	-

HCM 6th Roundabout  
18: Campus Parkway & Yosemite Avenue

02/23/2022

Intersection									
Intersection Delay, s/veh	8.6								
Intersection LOS	A								
Approach	EB		WB		NB		SB		
Entry Lanes	2		2		2		2		
Conflicting Circle Lanes	2		2		2		2		
Adj Approach Flow, veh/h	766		214		431		477		
Demand Flow Rate, veh/h	789		220		444		491		
Vehicles Circulating, veh/h	193		1061		791		214		
Vehicles Exiting, veh/h	512		174		191		1067		
Ped Vol Crossing Leg, #/h	0		0		0		0		
Ped Cap Adj	1.000		1.000		1.000		1.000		
Approach Delay, s/veh	9.3		11.9		9.5		5.3		
Approach LOS	A		B		A		A		
Lane	Left	Right	Left	Right	Left	Right	Left	Right	
Designated Moves	LT	TR	LT	R	LT	TR	LT	TR	
Assumed Moves	L	TR	LT	R	LT	TR	LT	R	
RT Channelized									
Lane Util	0.821	0.179	0.814	0.186	0.471	0.529	0.365	0.635	
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.667	2.535	2.667	2.535	
Critical Headway, s	4.645	4.328	4.645	4.328	4.645	4.328	4.645	4.328	
Entry Flow, veh/h	648	141	179	41	209	235	179	312	
Cap Entry Lane, veh/h	1130	1205	509	576	652	725	1109	1184	
Entry HV Adj Factor	0.971	0.970	0.973	0.976	0.969	0.972	0.971	0.971	
Flow Entry, veh/h	629	137	174	40	203	228	174	303	
Cap Entry, veh/h	1097	1169	495	562	632	705	1076	1150	
V/C Ratio	0.573	0.117	0.352	0.071	0.321	0.324	0.161	0.264	
Control Delay, s/veh	10.5	4.1	12.9	7.2	10.0	9.2	4.8	5.6	
LOS	B	A	B	A	A	A	A	A	
95th %tile Queue, veh	4	0	2	0	1	1	1	1	

HCM 6th Roundabout  
19: Campus Parkway & Olive Avenue

02/23/2022

Intersection									
Intersection Delay, s/veh 4.4									
Intersection LOS A									
Approach	EB		WB		NB		SB		
Entry Lanes	2		2		2		2		
Conflicting Circle Lanes	2		2		2		2		
Adj Approach Flow, veh/h	119		137		457		178		
Demand Flow Rate, veh/h	123		141		471		182		
Vehicles Circulating, veh/h	182		443		118		139		
Vehicles Exiting, veh/h	139		146		187		445		
Ped Vol Crossing Leg, #/h	0		0		0		0		
Ped Cap Adj	1.000		1.000		1.000		1.000		
Approach Delay, s/veh	3.6		4.7		4.6		4.2		
Approach LOS	A		A		A		A		
Lane	Left	Right	Left	Right	Left	Right	Left	Right	
Designated Moves	LT	TR	LT	TR	LT	TR	LT	R	
Assumed Moves	LT	TR	LT	TR	LT	TR	LT	R	
RT Channelized									
Lane Util	0.472	0.528	0.468	0.532	0.469	0.531	0.918	0.082	
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.667	2.535	2.667	2.535	
Critical Headway, s	4.645	4.328	4.645	4.328	4.645	4.328	4.645	4.328	
Entry Flow, veh/h	58	65	66	75	221	250	167	15	
Cap Entry Lane, veh/h	1142	1217	898	974	1211	1285	1188	1262	
Entry HV Adj Factor	0.963	0.969	0.975	0.967	0.973	0.970	0.974	1.000	
Flow Entry, veh/h	56	63	64	73	215	242	163	15	
Cap Entry, veh/h	1100	1179	875	942	1178	1246	1157	1262	
V/C Ratio	0.051	0.053	0.073	0.077	0.182	0.195	0.141	0.012	
Control Delay, s/veh	3.7	3.5	4.8	4.5	4.6	4.6	4.3	2.9	
LOS	A	A	A	A	A	A	A	A	
95th %tile Queue, veh	0	0	0	0	1	1	0	0	



# HCM 6th Signalized Intersection Summary

## 20: Campus Parkway & Connector Road

02/23/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔↔	↔	↕↕	↔	↔↔	↕↕
Traffic Volume (veh/h)	38	27	394	42	15	152
Future Volume (veh/h)	38	27	394	42	15	152
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	41	0	428	0	16	165
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	238		1912		82	2450
Arrive On Green	0.07	0.00	0.54	0.00	0.02	0.70
Sat Flow, veh/h	3428	1572	3618	1572	3428	3618
Grp Volume(v), veh/h	41	0	428	0	16	165
Grp Sat Flow(s),veh/h/ln	1714	1572	1763	1572	1714	1763
Q Serve(g_s), s	0.6	0.0	3.2	0.0	0.2	0.8
Cycle Q Clear(g_c), s	0.6	0.0	3.2	0.0	0.2	0.8
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	238		1912		82	2450
V/C Ratio(X)	0.17		0.22		0.20	0.07
Avail Cap(c_a), veh/h	2240		1912		407	2450
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	22.1	0.0	6.0	0.0	24.2	2.5
Incr Delay (d2), s/veh	0.3	0.0	0.3	0.0	1.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.7	0.0	0.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	22.5	0.0	6.3	0.0	25.3	2.5
LnGrp LOS	C		A		C	A
Approach Vol, veh/h	41	A	428	A		181
Approach Delay, s/veh	22.5		6.3			4.5
Approach LOS	C		A			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	7.7	33.9			41.6	8.9
Change Period (Y+Rc), s	6.5	6.5			6.5	5.4
Max Green Setting (Gmax), s	6.0	22.6			35.1	33.0
Max Q Clear Time (g_c+1/2), s	12.2	5.2			2.8	2.6
Green Ext Time (p_c), s	0.0	2.2			0.9	0.1

### Intersection Summary

HCM 6th Ctrl Delay		6.8	
HCM 6th LOS		A	

### Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

# HCM 6th Signalized Intersection Summary

## 21: SR 140 & Connector Road

02/23/2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↶	↷	↶	↷	↶	↷
Traffic Volume (veh/h)	39	180	118	28	19	38
Future Volume (veh/h)	39	180	118	28	19	38
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	42	196	128	30	21	41
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	93	701	364	309	684	609
Arrive On Green	0.05	0.38	0.20	0.20	0.39	0.39
Sat Flow, veh/h	1767	1856	1856	1572	1767	1572
Grp Volume(v), veh/h	42	196	128	30	21	41
Grp Sat Flow(s),veh/h/ln	1767	1856	1856	1572	1767	1572
Q Serve(g_s), s	1.2	3.7	3.0	0.8	0.4	0.8
Cycle Q Clear(g_c), s	1.2	3.7	3.0	0.8	0.4	0.8
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	93	701	364	309	684	609
V/C Ratio(X)	0.45	0.28	0.35	0.10	0.03	0.07
Avail Cap(c_a), veh/h	227	1412	935	792	684	609
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.3	11.0	17.6	16.7	9.6	9.8
Incr Delay (d2), s/veh	3.4	0.2	0.6	0.1	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.1	1.1	0.2	0.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	26.6	11.2	18.1	16.8	9.7	10.0
LnGrp LOS	C	B	B	B	A	A
Approach Vol, veh/h		238	158		62	
Approach Delay, s/veh		13.9	17.9		9.9	
Approach LOS		B	B		A	
Timer - Assigned Phs			4		6	7 8
Phs Duration (G+Y+Rc), s			25.6		25.0	9.2 16.4
Change Period (Y+Rc), s			6.5		5.4	6.5 6.5
Max Green Setting (Gmax), s			38.5		19.6	6.5 25.5
Max Q Clear Time (g_c+I1), s			5.7		2.8	3.2 5.0
Green Ext Time (p_c), s			0.9		0.1	0.0 0.6
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			14.7			
HCM 6th LOS			B			

# HCM 6th Signalized Intersection Summary

## 22: Campus Parkway & Childs Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	113	85	89	115	8	66	410	36	17	157	16
Future Volume (veh/h)	18	113	85	89	115	8	66	410	36	17	157	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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	20	123	92	97	125	9	72	446	39	18	171	17
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	49	421	188	132	624	278	227	1455	649	45	1312	585
Arrive On Green	0.03	0.12	0.12	0.07	0.18	0.18	0.07	0.41	0.41	0.03	0.37	0.37
Sat Flow, veh/h	1767	3526	1572	1767	3526	1572	3428	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	20	123	92	97	125	9	72	446	39	18	171	17
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1572	1714	1763	1572	1767	1763	1572
Q Serve(g_s), s	0.7	2.1	3.7	3.6	2.0	0.3	1.3	5.7	1.0	0.7	2.1	0.5
Cycle Q Clear(g_c), s	0.7	2.1	3.7	3.6	2.0	0.3	1.3	5.7	1.0	0.7	2.1	0.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	49	421	188	132	624	278	227	1455	649	45	1312	585
V/C Ratio(X)	0.41	0.29	0.49	0.73	0.20	0.03	0.32	0.31	0.06	0.40	0.13	0.03
Avail Cap(c_a), veh/h	158	2054	916	296	2328	1038	307	1455	649	158	1312	585
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.0	26.9	27.6	30.3	23.5	22.8	29.8	13.2	11.8	32.1	13.9	13.3
Incr Delay (d2), s/veh	5.3	0.4	2.0	7.6	0.2	0.0	0.8	0.5	0.2	5.6	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.9	1.4	1.7	0.8	0.1	0.5	1.9	0.3	0.3	0.7	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.3	27.3	29.5	37.9	23.7	22.8	30.6	13.8	12.0	37.7	14.1	13.4
LnGrp LOS	D	C	C	D	C	C	C	B	B	D	B	B
Approach Vol, veh/h		235			231			557			206	
Approach Delay, s/veh		29.0			29.6			15.8			16.1	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.2	34.1	10.8	13.8	10.9	31.4	7.0	17.6				
Change Period (Y+Rc), s	6.5	6.5	5.8	* 5.8	6.5	6.5	5.1	5.8				
Max Green Setting (Gmax), s	6.0	24.9	11.2	* 39	6.0	24.9	6.0	44.2				
Max Q Clear Time (g_c+1/2, s)	11.2	7.7	5.6	5.7	3.3	4.1	2.7	4.0				
Green Ext Time (p_c), s	0.0	2.4	0.1	1.0	0.0	0.8	0.0	0.7				

### Intersection Summary

HCM 6th Ctrl Delay	21.0
HCM 6th LOS	C

### Notes

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

# HCM 6th Signalized Intersection Summary

## 23: Campus Parkway & Gerard Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑↑	↖	↖↗	↑↑	↖	↖↗	↑↑	↖	↖↗	↑↑	↖
Traffic Volume (veh/h)	65	15	85	77	22	5	33	442	9	7	245	79
Future Volume (veh/h)	65	15	85	77	22	5	33	442	9	7	245	79
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	71	16	92	84	24	5	36	480	10	8	266	86
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	209	364	162	224	411	183	144	1692	755	42	1588	708
Arrive On Green	0.06	0.10	0.10	0.07	0.12	0.12	0.04	0.48	0.48	0.01	0.45	0.45
Sat Flow, veh/h	3428	3526	1572	3428	3526	1572	3428	3526	1572	3428	3526	1572
Grp Volume(v), veh/h	71	16	92	84	24	5	36	480	10	8	266	86
Grp Sat Flow(s),veh/h/ln	1714	1763	1572	1714	1763	1572	1714	1763	1572	1714	1763	1572
Q Serve(g_s), s	1.5	0.3	4.3	1.8	0.5	0.2	0.8	6.3	0.3	0.2	3.4	2.4
Cycle Q Clear(g_c), s	1.5	0.3	4.3	1.8	0.5	0.2	0.8	6.3	0.3	0.2	3.4	2.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	209	364	162	224	411	183	144	1692	755	42	1588	708
V/C Ratio(X)	0.34	0.04	0.57	0.38	0.06	0.03	0.25	0.28	0.01	0.19	0.17	0.12
Avail Cap(c_a), veh/h	277	1730	772	295	1749	780	268	1692	755	268	1588	708
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.5	30.9	32.7	34.3	30.1	30.0	35.5	12.0	10.4	37.5	12.5	12.2
Incr Delay (d2), s/veh	1.0	0.0	3.1	1.0	0.1	0.1	0.9	0.4	0.0	2.2	0.2	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.1	1.6	0.7	0.2	0.1	0.3	2.1	0.1	0.1	1.2	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.4	31.0	35.8	35.4	30.2	30.1	36.4	12.4	10.5	39.6	12.7	12.6
LnGrp LOS	D	C	D	D	C	C	D	B	B	D	B	B
Approach Vol, veh/h		179			113			526			360	
Approach Delay, s/veh		35.2			34.0			14.0			13.3	
Approach LOS		D			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.4	43.3	11.5	14.4	9.7	41.0	10.5	15.4				
Change Period (Y+Rc), s	6.5	6.5	6.5	* 6.5	6.5	6.5	5.8	6.5				
Max Green Setting (Gmax), s	6.0	34.5	6.6	* 38	6.0	34.5	6.2	38.0				
Max Q Clear Time (g_c+1/2), s	11.2	8.3	3.8	6.3	2.8	5.4	3.5	2.5				
Green Ext Time (p_c), s	0.0	2.8	0.0	0.3	0.0	1.7	0.0	0.1				

### Intersection Summary

HCM 6th Ctrl Delay	18.9
HCM 6th LOS	B

### Notes

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

# HCM 6th Signalized Intersection Summary

## 24: Coffee Street & Campus Parkway

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	113	356	52	33	359	15	110	33	14	321	128	103
Future Volume (veh/h)	113	356	52	33	359	15	110	33	14	321	128	103
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	123	387	57	36	390	16	120	36	15	349	139	112
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	152	676	301	51	476	212	174	1453	648	383	2039	909
Arrive On Green	0.03	0.06	0.06	0.03	0.14	0.14	0.05	0.41	0.41	0.22	0.58	0.58
Sat Flow, veh/h	1767	3526	1572	1767	3526	1572	3428	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	123	387	57	36	390	16	120	36	15	349	139	112
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1572	1714	1763	1572	1767	1763	1572
Q Serve(g_s), s	8.3	12.8	4.1	2.4	12.9	1.1	4.1	0.7	0.7	23.1	2.1	3.9
Cycle Q Clear(g_c), s	8.3	12.8	4.1	2.4	12.9	1.1	4.1	0.7	0.7	23.1	2.1	3.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	152	676	301	51	476	212	174	1453	648	383	2039	909
V/C Ratio(X)	0.81	0.57	0.19	0.70	0.82	0.08	0.69	0.02	0.02	0.91	0.07	0.12
Avail Cap(c_a), veh/h	272	984	439	110	661	295	271	1453	648	596	2039	909
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.93	0.93	0.93	0.99	0.99	0.99	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.3	51.4	47.4	57.7	50.5	45.4	56.0	20.9	20.9	45.8	11.1	11.5
Incr Delay (d2), s/veh	9.3	0.7	0.3	15.6	5.7	0.1	4.7	0.0	0.1	12.7	0.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	6.0	1.6	1.3	5.8	0.4	1.9	0.3	0.2	11.2	0.8	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.6	52.1	47.6	73.4	56.1	45.5	60.8	21.0	21.0	58.5	11.2	11.8
LnGrp LOS	E	D	D	E	E	D	E	C	C	E	B	B
Approach Vol, veh/h		567			442			171			600	
Approach Delay, s/veh		54.8			57.2			48.9			38.8	
Approach LOS		D			E			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	30.5	54.0	8.0	27.5	10.6	73.9	14.8	20.7				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	40.5	20.5	7.5	33.5	9.5	51.5	18.5	22.5				
Max Q Clear Time (g_c+Q), s	25.5	2.7	4.4	14.8	6.1	5.9	10.3	14.9				
Green Ext Time (p_c), s	0.9	0.1	0.0	2.2	0.1	1.2	0.2	1.3				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			49.4									
HCM 6th LOS			D									

HCM 6th Signalized Intersection Summary  
 25: SR 99 NB Ramps & Campus Parkway

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	208	511	0	0	402	170	26	3	10	0	0	0
Future Volume (veh/h)	208	511	0	0	402	170	26	3	10	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1856	1856	0	0	1856	1856	1856	1856	1856			
Adj Flow Rate, veh/h	226	555	0	0	437	185	28	3	11			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	3	3	0	0	3	3	3	3	3			
Cap, veh/h	259	1283	0	0	576	257	856	92	839			
Arrive On Green	0.15	0.36	0.00	0.00	0.05	0.05	0.53	0.53	0.53			
Sat Flow, veh/h	1767	3618	0	0	3618	1572	1604	172	1572			
Grp Volume(v), veh/h	226	555	0	0	437	185	31	0	11			
Grp Sat Flow(s),veh/h/ln	1767	1763	0	0	1763	1572	1775	0	1572			
Q Serve(g_s), s	15.0	14.3	0.0	0.0	14.7	13.9	1.0	0.0	0.4			
Cycle Q Clear(g_c), s	15.0	14.3	0.0	0.0	14.7	13.9	1.0	0.0	0.4			
Prop In Lane	1.00		0.00	0.00		1.00	0.90		1.00			
Lane Grp Cap(c), veh/h	259	1283	0	0	576	257	947	0	839			
V/C Ratio(X)	0.87	0.43	0.00	0.00	0.76	0.72	0.03	0.00	0.01			
Avail Cap(c_a), veh/h	611	2483	0	0	1072	478	947	0	839			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	0.33	0.33	1.00	1.00	1.00			
Upstream Filter(l)	1.00	1.00	0.00	0.00	0.80	0.80	1.00	0.00	1.00			
Uniform Delay (d), s/veh	50.1	28.8	0.0	0.0	54.4	54.1	13.3	0.0	13.1			
Incr Delay (d2), s/veh	8.9	0.2	0.0	0.0	1.7	3.1	0.1	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	7.0	5.7	0.0	0.0	7.0	6.0	0.4	0.0	0.1			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.0	29.0	0.0	0.0	56.1	57.1	13.4	0.0	13.2			
LnGrp LOS	E	C	A	A	E	E	B	A	B			
Approach Vol, veh/h		781			622			42				
Approach Delay, s/veh		37.7			56.4			13.3				
Approach LOS		D			E			B				
Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		69.8		50.2			24.1	26.1				
Change Period (Y+Rc), s		5.8		6.5			6.5	6.5				
Max Green Setting (Gmax), s		23.2		84.5			41.5	36.5				
Max Q Clear Time (g_c+I1), s		3.0		16.3			17.0	16.7				
Green Ext Time (p_c), s		0.1		3.5			0.6	2.9				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay					45.1							
HCM 6th LOS					D							

HCM 6th Signalized Intersection Summary  
 26: Lake Street & Meyers Gate Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	30	10	49	30	49	20	654	39	39	386	10
Future Volume (veh/h)	20	30	10	49	30	49	20	654	39	39	386	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	22	33	11	53	33	53	22	711	42	42	420	11
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	46	114	38	91	71	114	46	823	49	77	885	23
Arrive On Green	0.03	0.09	0.09	0.05	0.11	0.11	0.03	0.47	0.47	0.04	0.49	0.49
Sat Flow, veh/h	1767	1332	444	1767	641	1029	1767	1735	102	1767	1800	47
Grp Volume(v), veh/h	22	0	44	53	0	86	22	0	753	42	0	431
Grp Sat Flow(s),veh/h/ln	1767	0	1776	1767	0	1670	1767	0	1837	1767	0	1847
Q Serve(g_s), s	0.6	0.0	1.2	1.5	0.0	2.5	0.6	0.0	19.0	1.2	0.0	8.1
Cycle Q Clear(g_c), s	0.6	0.0	1.2	1.5	0.0	2.5	0.6	0.0	19.0	1.2	0.0	8.1
Prop In Lane	1.00		0.25	1.00		0.62	1.00		0.06	1.00		0.03
Lane Grp Cap(c), veh/h	46	0	151	91	0	185	46	0	872	77	0	909
V/C Ratio(X)	0.48	0.00	0.29	0.58	0.00	0.47	0.48	0.00	0.86	0.54	0.00	0.47
Avail Cap(c_a), veh/h	173	0	616	173	0	580	173	0	1187	173	0	1194
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.0	0.0	22.4	24.2	0.0	21.7	25.0	0.0	12.2	24.4	0.0	8.8
Incr Delay (d2), s/veh	7.4	0.0	1.0	5.8	0.0	1.8	7.4	0.0	5.2	5.8	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/lr	0.3	0.0	0.5	0.7	0.0	1.0	0.3	0.0	5.9	0.5	0.0	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.4	0.0	23.4	30.0	0.0	23.6	32.4	0.0	17.4	30.3	0.0	9.2
LnGrp LOS	C	A	C	C	A	C	C	A	B	C	A	A
Approach Vol, veh/h		66			139			775				473
Approach Delay, s/veh		26.4			26.0			17.8				11.0
Approach LOS		C			C			B				B
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.8	29.2	7.2	8.9	5.9	30.2	5.9	10.3				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.1	33.7	5.1	18.1	5.1	33.7	5.1	18.1				
Max Q Clear Time (g_c+1/3), s	13.2	21.0	3.5	3.2	2.6	10.1	2.6	4.5				
Green Ext Time (p_c), s	0.0	3.7	0.0	0.1	0.0	2.2	0.0	0.3				

Intersection Summary

HCM 6th Ctrl Delay	16.8
HCM 6th LOS	B



HCM 6th Roundabout  
76: Campus Parkway & Meyers Gate Road

02/23/2022

Intersection						
Intersection Delay, s/veh	6.2					
Intersection LOS	A					
Approach	EB	WB	NB		SB	
Entry Lanes	1	1	2		2	
Conflicting Circle Lanes	2	2	2		2	
Adj Approach Flow, veh/h	119	112	914		416	
Demand Flow Rate, veh/h	123	115	941		428	
Vehicles Circulating, veh/h	433	953	121		129	
Vehicles Exiting, veh/h	124	109	435		939	
Ped Vol Crossing Leg, #/h	20	20	20		0	
Ped Cap Adj	0.997	1.000	0.979		1.000	
Approach Delay, s/veh	5.0	8.0	6.9		4.5	
Approach LOS	A	A	A		A	
Lane	Left	Left	Left	Right	Left	Right
Designated Moves	LTR	LTR	LT	TR	LT	TR
Assumed Moves	LTR	LTR	LT	TR	LT	TR
RT Channelized						
Lane Util	1.000	1.000	0.470	0.530	0.470	0.530
Follow-Up Headway, s	2.535	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.328	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	123	115	442	499	201	227
Cap Entry Lane, veh/h	983	632	1208	1281	1199	1273
Entry HV Adj Factor	0.966	0.978	0.972	0.970	0.972	0.970
Flow Entry, veh/h	119	112	429	484	195	220
Cap Entry, veh/h	947	618	1149	1218	1165	1235
V/C Ratio	0.125	0.182	0.374	0.398	0.168	0.178
Control Delay, s/veh	5.0	8.0	6.9	6.9	4.6	4.4
LOS	A	A	A	A	A	A
95th %tile Queue, veh	0	1	2	2	1	1

HCM 6th Signalized Intersection Summary  
 77: Lake Road & Virginia Smith Parkway

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	30	10	146	30	98	20	595	117	78	357	10
Future Volume (veh/h)	20	30	10	146	30	98	20	595	117	78	357	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.90		0.90	1.00		0.93	1.00		0.95	1.00		0.95
Parking Bus, Adj	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	22	33	11	159	33	107	22	647	127	85	388	11
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	223	110	37	203	519	410	46	773	620	115	817	23
Arrive On Green	0.09	0.09	0.09	0.11	0.28	0.28	0.03	0.42	0.42	0.07	0.46	0.46
Sat Flow, veh/h	1119	1291	430	1767	1856	1466	1767	1856	1490	1767	1792	51
Grp Volume(v), veh/h	22	0	44	159	33	107	22	647	127	85	0	399
Grp Sat Flow(s),veh/h/ln	1119	0	1721	1767	1856	1466	1767	1856	1490	1767	0	1843
Q Serve(g_s), s	1.0	0.0	1.4	4.9	0.7	3.2	0.7	17.7	3.1	2.7	0.0	8.5
Cycle Q Clear(g_c), s	1.0	0.0	1.4	4.9	0.7	3.2	0.7	17.7	3.1	2.7	0.0	8.5
Prop In Lane	1.00		0.25	1.00		1.00	1.00		1.00	1.00		0.03
Lane Grp Cap(c), veh/h	223	0	146	203	519	410	46	773	620	115	0	840
V/C Ratio(X)	0.10	0.00	0.30	0.78	0.06	0.26	0.48	0.84	0.20	0.74	0.00	0.48
Avail Cap(c_a), veh/h	484	0	548	328	1084	856	169	1215	976	203	0	1243
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.1	0.0	24.3	24.3	14.9	15.8	27.1	14.8	10.5	25.9	0.0	10.7
Incr Delay (d2), s/veh	0.2	0.0	1.1	6.5	0.1	0.3	7.7	3.1	0.2	8.8	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.5	2.2	0.3	1.0	0.3	5.8	0.8	1.2	0.0	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.3	0.0	25.4	30.8	15.0	16.2	34.8	17.8	10.7	34.8	0.0	11.1
LnGrp LOS	C	A	C	C	B	B	C	B	B	C	A	B
Approach Vol, veh/h		66			299			796			484	
Approach Delay, s/veh		25.0			23.8			17.2			15.3	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	8					
Phs Duration (G+Y+Rc), s	8.2	28.0	11.0	9.3	6.0	30.2		20.3				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	6.5	37.0	10.5	18.0	5.4	38.1		33.0				
Max Q Clear Time (g_c+14), s	14.7	19.7	6.9	3.4	2.7	10.5		5.2				
Green Ext Time (p_c), s	0.0	3.9	0.1	0.2	0.0	2.1		0.5				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				18.1								
HCM 6th LOS				B								

HCM 6th Roundabout  
78: Campus Parkway & Virginia Smith Parkway

02/23/2022

Intersection							
Intersection Delay, s/veh	8.1						
Intersection LOS	A						
Approach	EB	WB		NB		SB	
Entry Lanes	1	2		2		2	
Conflicting Circle Lanes	2	2		2		2	
Adj Approach Flow, veh/h	188	292		912		806	
Demand Flow Rate, veh/h	193	300		939		830	
Vehicles Circulating, veh/h	897	904		216		299	
Vehicles Exiting, veh/h	232	251		874		905	
Ped Vol Crossing Leg, #/h	20	20		20		20	
Ped Cap Adj	1.000	0.999		0.981		0.983	
Approach Delay, s/veh	9.3	9.0		7.7		7.8	
Approach LOS	A	A		A		A	
Lane	Left	Left	Right	Left	Right	Left	Right
Designated Moves	LTR	LT	TR	LT	TR	LT	TR
Assumed Moves	LTR	LT	TR	LT	TR	LT	TR
RT Channelized							
Lane Util	1.000	0.470	0.530	0.470	0.530	0.470	0.530
Follow-Up Headway, s	2.535	2.667	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.328	4.645	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	193	141	159	441	498	390	440
Cap Entry Lane, veh/h	662	588	659	1107	1182	1025	1101
Entry HV Adj Factor	0.972	0.972	0.972	0.972	0.970	0.972	0.971
Flow Entry, veh/h	188	137	155	429	483	379	427
Cap Entry, veh/h	644	571	640	1055	1125	979	1051
V/C Ratio	0.291	0.240	0.242	0.406	0.430	0.387	0.407
Control Delay, s/veh	9.3	9.5	8.6	7.8	7.7	7.9	7.8
LOS	A	A	A	A	A	A	A
95th %tile Queue, veh	1	1	1	2	2	2	2

HCM 6th TWSC  
79: Virginia Smith Parkway & Golden BObc

02/23/2022

Intersection												
Int Delay, s/veh	4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷		↶	↷		↶	↷	
Traffic Vol, veh/h	28	159	37	24	155	15	36	21	24	15	21	21
Future Vol, veh/h	28	159	37	24	155	15	36	21	24	15	21	21
Conflicting Peds, #/hr	20	0	20	20	0	20	20	0	20	20	0	20
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	150	-	-	150	-	-
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	30	173	40	26	168	16	39	23	26	16	23	23

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	204	0	0	233	0	0	544	529	233	546	541	216
Stage 1	-	-	-	-	-	-	273	273	-	248	248	-
Stage 2	-	-	-	-	-	-	271	256	-	298	293	-
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	1362	-	-	1329	-	-	448	454	804	447	447	821
Stage 1	-	-	-	-	-	-	731	682	-	754	699	-
Stage 2	-	-	-	-	-	-	733	694	-	709	668	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1336	-	-	1304	-	-	388	419	774	386	412	790
Mov Cap-2 Maneuver	-	-	-	-	-	-	388	419	-	386	412	-
Stage 1	-	-	-	-	-	-	701	654	-	723	672	-
Stage 2	-	-	-	-	-	-	661	667	-	634	641	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1			1			13.5			12.9		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	388	555	1336	-	-	1304	-	-	386	542
HCM Lane V/C Ratio	0.101	0.088	0.023	-	-	0.02	-	-	0.042	0.084
HCM Control Delay (s)	15.3	12.1	7.8	-	-	7.8	-	-	14.7	12.3
HCM Lane LOS	C	B	A	-	-	A	-	-	B	B
HCM 95th %tile Q(veh)	0.3	0.3	0.1	-	-	0.1	-	-	0.1	0.3

HCM 6th Roundabout  
80: Virginia Smith Parkway & Main Street

02/23/2022

Intersection				
Intersection Delay, s/veh	4.3			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	216	157	77	147
Demand Flow Rate, veh/h	222	161	79	151
Vehicles Circulating, veh/h	86	145	229	154
Vehicles Exiting, veh/h	219	163	79	152
Ped Vol Crossing Leg, #/h	20	20	20	20
Ped Cap Adj	0.997	0.997	0.997	0.997
Approach Delay, s/veh	4.4	4.3	4.0	4.2
Approach LOS	A	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	222	161	79	151
Cap Entry Lane, veh/h	1264	1190	1092	1179
Entry HV Adj Factor	0.972	0.974	0.974	0.973
Flow Entry, veh/h	216	157	77	147
Cap Entry, veh/h	1225	1156	1062	1145
V/C Ratio	0.176	0.136	0.073	0.128
Control Delay, s/veh	4.4	4.3	4.0	4.2
LOS	A	A	A	A
95th %tile Queue, veh	1	0	0	0

HCM 6th TWSC  
81: 4th Street & Virginia Smith Parkway

02/23/2022

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	0	26	47	15	21	0	50	0	8	0	0	0
Future Vol, veh/h	0	26	47	15	21	0	50	0	8	0	0	0
Conflicting Peds, #/hr	0	0	20	20	0	0	20	0	20	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	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	0	28	51	16	23	0	54	0	9	0	0	0

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	23	0	0	99	0	0	149	129	94	133	154	43
Stage 1	-	-	-	-	-	-	74	74	-	55	55	-
Stage 2	-	-	-	-	-	-	75	55	-	78	99	-
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	1586	-	-	1488	-	-	817	760	960	837	736	1025
Stage 1	-	-	-	-	-	-	933	831	-	955	847	-
Stage 2	-	-	-	-	-	-	932	847	-	928	811	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1586	-	-	1460	-	-	779	737	924	807	714	1005
Mov Cap-2 Maneuver	-	-	-	-	-	-	779	737	-	807	714	-
Stage 1	-	-	-	-	-	-	915	815	-	955	838	-
Stage 2	-	-	-	-	-	-	904	838	-	902	796	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	0		3.1		9.8		0	
HCM LOS					A		A	

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	779	924	1586	-	-	1460	-	-	-	-
HCM Lane V/C Ratio	0.07	0.009	-	-	-	0.011	-	-	-	-
HCM Control Delay (s)	10	8.9	0	-	-	7.5	-	-	0	0
HCM Lane LOS	B	A	A	-	-	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	0	0	-	-	0	-	-	-	-

# **2030 Near Term Plus Project With Campus Parkway PM Peak Hour**



HCM 6th AWSC  
1: Snelling Highway (SR 59) & Bellevue Road

02/23/2022

Intersection	
Intersection Delay, s/veh	114.8
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	14	118	9	325	247	102	7	86	252	106	169	21
Future Vol, veh/h	14	118	9	325	247	102	7	86	252	106	169	21
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	15	128	10	353	268	111	8	93	274	115	184	23
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	16.6	217.7	29.2	27.2
HCM LOS	C	F	D	D

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	10%	48%	36%
Vol Thru, %	25%	84%	37%	57%
Vol Right, %	73%	6%	15%	7%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	345	141	674	296
LT Vol	7	14	325	106
Through Vol	86	118	247	169
RT Vol	252	9	102	21
Lane Flow Rate	375	153	733	322
Geometry Grp	1	1	1	1
Degree of Util (X)	0.723	0.342	1.414	0.667
Departure Headway (Hd)	7.985	9.013	6.948	8.582
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	458	402	527	425
Service Time	5.985	7.013	5	6.582
HCM Lane V/C Ratio	0.819	0.381	1.391	0.758
HCM Control Delay	29.2	16.6	217.7	27.2
HCM Lane LOS	D	C	F	D
HCM 95th-tile Q	5.7	1.5	34.5	4.7

# HCM 6th Signalized Intersection Summary

## 2: G Street & Bellevue Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↖	↖	↗		↖	↗	↖
Traffic Volume (veh/h)	55	274	137	427	456	13	133	231	252	8	190	38
Future Volume (veh/h)	55	274	137	427	456	13	133	231	252	8	190	38
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		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	60	298	149	464	496	14	145	251	274	9	207	41
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	77	264	132	444	805	683	147	594	530	22	938	418
Arrive On Green	0.04	0.23	0.23	0.25	0.43	0.43	0.08	0.34	0.34	0.01	0.27	0.27
Sat Flow, veh/h	1767	1167	584	1767	1856	1572	1767	1763	1572	1767	3526	1572
Grp Volume(v), veh/h	60	0	447	464	496	14	145	251	274	9	207	41
Grp Sat Flow(s),veh/h/ln	1767	0	1751	1767	1856	1572	1767	1763	1572	1767	1763	1572
Q Serve(g_s), s	5.0	0.0	33.9	37.7	31.0	0.8	12.3	16.5	21.0	0.8	6.9	2.9
Cycle Q Clear(g_c), s	5.0	0.0	33.9	37.7	31.0	0.8	12.3	16.5	21.0	0.8	6.9	2.9
Prop In Lane	1.00		0.33	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	77	0	396	444	805	683	147	594	530	22	938	418
V/C Ratio(X)	0.78	0.00	1.13	1.04	0.62	0.02	0.98	0.42	0.52	0.41	0.22	0.10
Avail Cap(c_a), veh/h	138	0	396	444	805	683	147	594	530	71	938	418
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	71.1	0.0	58.1	56.2	32.8	24.2	68.7	38.5	39.9	73.5	42.9	41.5
Incr Delay (d2), s/veh	15.9	0.0	85.5	54.8	1.4	0.0	69.3	2.2	3.6	11.6	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	0.0	23.8	22.9	13.6	0.3	8.2	7.3	8.4	0.4	3.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	86.9	0.0	143.6	111.0	34.2	24.3	138.0	40.7	43.5	85.1	43.5	42.0
LnGrp LOS	F	A	F	F	C	C	F	D	D	F	D	D
Approach Vol, veh/h		507			974			670			257	
Approach Delay, s/veh		136.9			70.6			62.9			44.7	
Approach LOS		F			E			E			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.4	57.0	44.2	40.4	19.0	46.4	13.0	71.6				
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5				
Max Green Setting (Gmax), s	6.0	46.4	37.7	33.9	12.5	39.9	11.7	59.9				
Max Q Clear Time (g_c+1/2), s	12.8	23.0	39.7	35.9	14.3	8.9	7.0	33.0				
Green Ext Time (p_c), s	0.0	2.8	0.0	0.0	0.0	1.2	0.0	2.8				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay											79.7	
HCM 6th LOS											E	

# HCM 6th Signalized Intersection Summary

## 3: Lake Street/Lake Road & Bellevue Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	205	107	237	79	221	24	280	255	33	15	405	333
Future Volume (veh/h)	205	107	237	79	221	24	280	255	33	15	405	333
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	223	116	258	86	240	26	304	277	36	16	440	362
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	234	180	401	226	265	29	278	209	27	556	1895	845
Arrive On Green	0.13	0.35	0.35	0.16	0.16	0.16	0.54	0.54	0.54	0.54	0.54	0.54
Sat Flow, veh/h	1767	512	1139	1001	1645	178	428	390	51	1058	3526	1572
Grp Volume(v), veh/h	223	0	374	86	0	266	617	0	0	16	440	362
Grp Sat Flow(s),veh/h/ln	1767	0	1651	1001	0	1823	868	0	0	1058	1763	1572
Q Serve(g_s), s	13.9	0.0	21.1	8.8	0.0	15.9	52.5	0.0	0.0	0.0	7.3	15.4
Cycle Q Clear(g_c), s	13.9	0.0	21.1	8.8	0.0	15.9	59.8	0.0	0.0	0.9	7.3	15.4
Prop In Lane	1.00		0.69	1.00		0.10	0.49		0.06	1.00		1.00
Lane Grp Cap(c), veh/h	234	0	581	226	0	294	515	0	0	556	1895	845
V/C Ratio(X)	0.95	0.00	0.64	0.38	0.00	0.90	1.20	0.00	0.00	0.03	0.23	0.43
Avail Cap(c_a), veh/h	234	0	582	227	0	295	515	0	0	556	1895	845
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.9	0.0	30.2	42.8	0.0	45.8	31.9	0.0	0.0	12.1	13.6	15.5
Incr Delay (d2), s/veh	46.3	0.0	2.4	1.1	0.0	29.1	107.0	0.0	0.0	0.1	0.3	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.8	0.0	8.1	2.1	0.0	9.2	29.2	0.0	0.0	0.2	2.8	5.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	94.2	0.0	32.6	43.9	0.0	75.0	138.9	0.0	0.0	12.2	13.9	17.0
LnGrp LOS	F	A	C	D	A	E	F	A	A	B	B	B
Approach Vol, veh/h		597			352			617			818	
Approach Delay, s/veh		55.6			67.4			138.9			15.2	
Approach LOS		E			E			F			B	
Timer - Assigned Phs		2		4		6	7	8				
Phs Duration (G+Y+Rc), s		65.6		45.6		65.6	21.2	24.4				
Change Period (Y+Rc), s		* 5.8		6.5		5.8	6.5	6.5				
Max Green Setting (Gmax), s		* 60		39.2		58.5	14.7	18.0				
Max Q Clear Time (g_c+I1), s		61.8		23.1		17.4	15.9	17.9				
Green Ext Time (p_c), s		0.0		1.8		4.3	0.0	0.0				

### Intersection Summary

HCM 6th Ctrl Delay	65.1
HCM 6th LOS	E

### Notes

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

# HCM 6th Signalized Intersection Summary

## 4: G Street & Cardella Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕		↖	↖		↖	↕	↗
Traffic Volume (veh/h)	75	0	55	0	1	5	61	829	0	9	810	81
Future Volume (veh/h)	75	0	55	0	1	5	61	829	0	9	810	81
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	82	0	60	0	1	5	66	901	0	10	880	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	168	0	125	0	21	107	85	1392	0	25	1329	
Arrive On Green	0.08	0.00	0.08	0.00	0.08	0.08	0.05	0.75	0.00	0.01	0.72	0.00
Sat Flow, veh/h	1338	0	1572	0	269	1345	1767	1856	0	1767	1856	1572
Grp Volume(v), veh/h	82	0	60	0	0	6	66	901	0	10	880	0
Grp Sat Flow(s),veh/h/ln	1338	0	1572	0	0	1614	1767	1856	0	1767	1856	1572
Q Serve(g_s), s	6.8	0.0	4.3	0.0	0.0	0.4	4.4	27.8	0.0	0.7	30.2	0.0
Cycle Q Clear(g_c), s	7.2	0.0	4.3	0.0	0.0	0.4	4.4	27.8	0.0	0.7	30.2	0.0
Prop In Lane	1.00		1.00	0.00		0.83	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	168	0	125	0	0	129	85	1392	0	25	1329	
V/C Ratio(X)	0.49	0.00	0.48	0.00	0.00	0.05	0.78	0.65	0.00	0.40	0.66	
Avail Cap(c_a), veh/h	259	0	228	0	0	234	157	1392	0	90	1329	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	53.5	0.0	51.9	0.0	0.0	50.1	55.5	7.2	0.0	57.7	9.0	0.0
Incr Delay (d2), s/veh	2.2	0.0	2.8	0.0	0.0	0.1	14.2	2.3	0.0	9.9	2.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	0.0	1.8	0.0	0.0	0.2	2.2	8.2	0.0	0.4	9.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.7	0.0	54.8	0.0	0.0	50.3	69.7	9.5	0.0	67.5	11.6	0.0
LnGrp LOS	E	A	D	A	A	D	E	A	A	E	B	
Approach Vol, veh/h		142			6			967			890	A
Approach Delay, s/veh		55.3			50.3			13.6			12.3	
Approach LOS		E			D			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.2	95.0		14.8	12.2	91.0		14.8				
Change Period (Y+Rc), s	6.5	6.5		5.4	6.5	6.5		5.4				
Max Green Setting (Gmax), s	6.0	88.5		17.1	10.5	84.0		17.1				
Max Q Clear Time (g_c+1/2), s	12.5	29.8		9.2	6.4	32.2		2.4				
Green Ext Time (p_c), s	0.0	7.2		0.3	0.0	6.8		0.0				

### Intersection Summary

HCM 6th Ctrl Delay	16.1
HCM 6th LOS	B

### Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary  
5: Lake Road & Cardella Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	10	1	8	10	9	2	22	9	11	15	12
Future Volume (veh/h)	6	10	1	8	10	9	2	22	9	11	15	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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	7	11	1	9	11	10	2	24	10	12	16	13
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	577	103	9	340	32	30	926	622	527	928	317	258
Arrive On Green	0.06	0.06	0.06	0.06	0.06	0.06	0.34	0.34	0.34	0.34	0.34	0.34
Sat Flow, veh/h	1380	1676	152	432	527	479	1370	1856	1572	1364	947	770
Grp Volume(v), veh/h	7	0	12	30	0	0	2	24	10	12	0	29
Grp Sat Flow(s),veh/h/ln	1380	0	1828	1438	0	0	1370	1856	1572	1364	0	1717
Q Serve(g_s), s	0.0	0.0	0.1	0.3	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.2
Cycle Q Clear(g_c), s	0.1	0.0	0.1	0.4	0.0	0.0	0.2	0.1	0.1	0.2	0.0	0.2
Prop In Lane	1.00		0.08	0.30		0.33	1.00		1.00	1.00		0.45
Lane Grp Cap(c), veh/h	577	0	113	402	0	0	926	622	527	928	0	575
V/C Ratio(X)	0.01	0.00	0.11	0.07	0.00	0.00	0.00	0.04	0.02	0.01	0.00	0.05
Avail Cap(c_a), veh/h	2157	0	2206	2234	0	0	2120	2239	1897	2116	0	2072
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.6	0.0	6.6	6.8	0.0	0.0	3.4	3.3	3.3	3.4	0.0	3.4
Incr Delay (d2), s/veh	0.0	0.0	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/lr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.6	0.0	7.0	6.9	0.0	0.0	3.4	3.4	3.3	3.4	0.0	3.4
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		19			30			36			41	
Approach Delay, s/veh		6.9			6.9			3.4			3.4	
Approach LOS		A			A			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		9.5		5.4		9.5		5.4				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		18.0		18.0		18.0		18.0				
Max Q Clear Time (g_c+I1), s		2.2		2.1		2.2		2.4				
Green Ext Time (p_c), s		0.1		0.0		0.1		0.1				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				4.7								
HCM 6th LOS				A								

# HCM 6th Signalized Intersection Summary

## 6: Snelling Highway (SR 59) & Yosemite Avenue

02/23/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	240	422	450	263	407	515
Future Volume (veh/h)	240	422	450	263	407	515
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	261	459	489	286	442	560
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	353	314	598	507	475	1231
Arrive On Green	0.20	0.20	0.32	0.32	0.27	0.66
Sat Flow, veh/h	1767	1572	1856	1572	1767	1856
Grp Volume(v), veh/h	261	459	489	286	442	560
Grp Sat Flow(s),veh/h/ln	1767	1572	1856	1572	1767	1856
Q Serve(g_s), s	12.5	18.0	21.8	13.6	21.9	13.1
Cycle Q Clear(g_c), s	12.5	18.0	21.8	13.6	21.9	13.1
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	353	314	598	507	475	1231
V/C Ratio(X)	0.74	1.46	0.82	0.56	0.93	0.45
Avail Cap(c_a), veh/h	353	314	598	507	501	1231
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.8	36.0	28.1	25.3	32.1	7.3
Incr Delay (d2), s/veh	7.9	223.6	11.8	4.5	23.6	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	26.0	10.5	5.2	11.5	4.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	41.7	259.6	39.9	29.8	55.6	8.5
LnGrp LOS	D	F	D	C	E	A
Approach Vol, veh/h	720		775			1002
Approach Delay, s/veh	180.6		36.1			29.3
Approach LOS	F		D			C
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	30.7	35.5			66.2	23.8
Change Period (Y+Rc), s	6.5	6.5			6.5	5.8
Max Green Setting (Gmax), s	25.5	27.7			59.7	18.0
Max Q Clear Time (g_c+Q), s	23.8	23.8			15.1	20.0
Green Ext Time (p_c), s	0.3	1.4			3.3	0.0
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			75.1			
HCM 6th LOS			E			

# HCM 6th Signalized Intersection Summary

## 7: G Street & Yosemite Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	219	906	153	427	778	91	273	749	513	152	624	311
Future Volume (veh/h)	219	906	153	427	778	91	273	749	513	152	624	311
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	238	985	166	464	846	99	297	814	558	165	678	338
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	261	858	144	380	1239	553	246	904	403	149	710	317
Arrive On Green	0.15	0.28	0.28	0.22	0.35	0.35	0.14	0.26	0.26	0.08	0.20	0.20
Sat Flow, veh/h	1767	3019	508	1767	3526	1572	1767	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	238	575	576	464	846	99	297	814	558	165	678	338
Grp Sat Flow(s),veh/h/ln	1767	1763	1764	1767	1763	1572	1767	1763	1572	1767	1763	1572
Q Serve(g_s), s	19.2	41.2	41.2	31.2	29.7	6.3	20.2	32.4	22.4	12.2	27.6	29.2
Cycle Q Clear(g_c), s	19.2	41.2	41.2	31.2	29.7	6.3	20.2	32.4	22.4	12.2	27.6	29.2
Prop In Lane	1.00		0.29	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	261	501	501	380	1239	553	246	904	403	149	710	317
V/C Ratio(X)	0.91	1.15	1.15	1.22	0.68	0.18	1.21	0.90	1.38	1.11	0.95	1.07
Avail Cap(c_a), veh/h	301	501	501	380	1239	553	246	904	403	149	710	317
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	60.8	51.9	51.9	56.9	40.1	32.5	62.4	52.1	19.6	66.4	57.2	57.9
Incr Delay (d2), s/veh	27.9	87.6	88.3	120.7	1.6	0.2	124.7	13.7	187.3	106.3	24.4	69.6
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/ft	0.5	29.9	30.0	26.3	12.8	2.4	17.4	15.7	28.9	9.8	14.4	17.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	88.7	139.5	140.2	177.6	41.7	32.7	187.1	65.8	206.8	172.7	81.6	127.5
LnGrp LOS	F	F	F	F	D	C	F	E	F	F	F	F
Approach Vol, veh/h		1389			1409			1669			1181	
Approach Delay, s/veh		131.1			85.8			134.6			107.5	
Approach LOS		F			F			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.0	43.0	37.0	47.0	26.0	35.0	27.2	56.8				
Change Period (Y+Rc), s	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8				
Max Green Setting (Gmax), s	12.2	37.2	31.2	41.2	20.2	29.2	24.7	47.7				
Max Q Clear Time (g_c+1/4), s	14.2	34.4	33.2	43.2	22.2	31.2	21.2	31.7				
Green Ext Time (p_c), s	0.0	1.9	0.0	0.0	0.0	0.0	0.2	5.2				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay											115.9	
HCM 6th LOS											F	



**Intersection**

Intersection Delay, s/veh 22.8

Intersection LOS F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↔			↕↔			↕↔			↕	↕
Traffic Vol, veh/h	95	975	168	48	1005	41	103	119	20	53	96	68
Future Vol, veh/h	95	975	168	48	1005	41	103	119	20	53	96	68
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	103	1060	183	52	1092	45	112	129	22	58	104	74
Number of Lanes	0	2	0	0	1	0	0	1	0	0	1	1

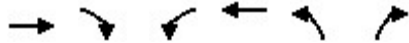
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	2	1
Conflicting Approach Left		NB	EB	WB
Conflicting Lanes Left	2	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	2
HCM Control Delay	254.2	779	36.1	19.8
HCM LOS	F	F	E	C

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	43%	16%	0%	4%	36%	0%
Vol Thru, %	49%	84%	74%	92%	64%	0%
Vol Right, %	8%	0%	26%	4%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	242	583	656	1094	149	68
LT Vol	103	95	0	48	53	0
Through Vol	119	488	488	1005	96	0
RT Vol	20	0	168	41	0	68
Lane Flow Rate	263	633	712	1189	162	74
Geometry Grp	6	7	7	6	7	7
Degree of Util (X)	0.658	1.405	1.53	2.679	0.417	0.172
Departure Headway (Hd)	12.282	10.633	10.355	7.948	11.326	10.386
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	297	348	356	476	321	347
Service Time	10.282	8.333	8.055	5.948	9.026	8.086
HCM Lane V/C Ratio	0.886	1.819	2	2.498	0.505	0.213
HCM Control Delay	36.1	227	278.4	779	21.9	15.2
HCM Lane LOS	E	F	F	F	C	C
HCM 95th-tile Q	4.3	24.4	29.7	99.6	2	0.6



HCM 6th Signalized Intersection Summary  
 9: McKee Road & Yosemite Avenue

02/23/2022



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑	↵	↵
Traffic Volume (veh/h)	774	235	276	931	160	214
Future Volume (veh/h)	774	235	276	931	160	214
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	841	255	300	1012	174	233
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	908	275	338	1111	465	413
Arrive On Green	0.34	0.34	0.19	0.60	0.26	0.26
Sat Flow, veh/h	2758	808	1767	1856	1767	1572
Grp Volume(v), veh/h	556	540	300	1012	174	233
Grp Sat Flow(s),veh/h/ln	1763	1710	1767	1856	1767	1572
Q Serve(g_s), s	26.3	26.4	14.3	41.7	7.0	11.1
Cycle Q Clear(g_c), s	26.3	26.4	14.3	41.7	7.0	11.1
Prop In Lane		0.47	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	600	582	338	1111	465	413
V/C Ratio(X)	0.93	0.93	0.89	0.91	0.37	0.56
Avail Cap(c_a), veh/h	614	596	391	1181	465	413
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.5	27.6	34.2	15.4	26.1	27.7
Incr Delay (d2), s/veh	20.0	20.6	19.3	10.2	2.3	5.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ft	3.3	13.0	7.6	16.7	3.0	4.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	47.5	48.2	53.5	25.6	28.4	33.1
LnGrp LOS	D	D	D	C	C	C
Approach Vol, veh/h	1096			1312	407	
Approach Delay, s/veh	47.9			32.0	31.1	
Approach LOS	D			C	C	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		29.0	22.4	35.3		57.7
Change Period (Y+Rc), s		6.2	5.8	5.8		5.8
Max Green Setting (Gmax), s		22.8	19.2	30.2		55.2
Max Q Clear Time (g_c+I1), s		13.1	16.3	28.4		43.7
Green Ext Time (p_c), s		0.9	0.3	1.1		5.5
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			38.0			
HCM 6th LOS			D			

HCM 6th AWSC  
 10: Yosemite Avenue & Lake Road

02/23/2022

Intersection

Intersection Delay, s/veh 49.1

Intersection LOS F

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	34	550	963	15	10	26
Future Vol, veh/h	34	550	963	15	10	26
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	37	598	1047	16	11	28
Number of Lanes	1	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left SB			WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	30.9	224.8	10.8
HCM LOS	D	F	B

Lane	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	100%	0%	0%	28%
Vol Thru, %	0%	100%	98%	0%
Vol Right, %	0%	0%	2%	72%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	34	550	978	36
LT Vol	34	0	0	10
Through Vol	0	550	963	0
RT Vol	0	0	15	26
Lane Flow Rate	37	598	1063	39
Geometry Grp	7	7	5	2
Degree of Util (X)	0.058	0.856	1.449	0.071
Departure Headway (Hd)	6.054	5.547	4.907	7.231
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	595	658	744	499
Service Time	3.754	3.247	2.919	5.231
HCM Lane V/C Ratio	0.062	0.909	1.429	0.078
HCM Control Delay	9.1	32.3	224.8	10.8
HCM Lane LOS	A	D	F	B
HCM 95th-tile Q	0.2	9.7	49.2	0.2

# HCM 6th Signalized Intersection Summary

## 11: Snelling Highway (SR 59) & Santa Fe Drive/Olive Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗	↘	↑	↗	↘	↑	↗
Traffic Volume (veh/h)	153	908	159	324	918	144	106	576	373	153	545	122
Future Volume (veh/h)	153	908	159	324	918	144	106	576	373	153	545	122
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	166	987	173	352	998	157	115	626	405	166	592	133
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	179	880	393	319	1160	517	122	591	501	152	623	528
Arrive On Green	0.10	0.25	0.25	0.18	0.33	0.33	0.07	0.32	0.32	0.09	0.34	0.34
Sat Flow, veh/h	1767	3526	1572	1767	3526	1572	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	166	987	173	352	998	157	115	626	405	166	592	133
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1572	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	13.5	36.2	10.8	26.2	38.4	10.8	9.4	46.2	34.3	12.5	45.1	6.4
Cycle Q Clear(g_c), s	13.5	36.2	10.8	26.2	38.4	10.8	9.4	46.2	34.3	12.5	45.1	6.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	179	880	393	319	1160	517	122	591	501	152	623	528
V/C Ratio(X)	0.93	1.12	0.44	1.10	0.86	0.30	0.94	1.06	0.81	1.09	0.95	0.25
Avail Cap(c_a), veh/h	179	880	393	319	1160	517	122	591	501	152	623	528
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	64.6	54.4	29.5	59.4	45.5	36.3	67.2	49.4	45.3	66.3	47.0	18.1
Incr Delay (d2), s/veh	46.6	69.5	0.8	80.7	6.8	0.3	64.0	53.6	13.1	98.9	25.6	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/lr	8.3	24.1	4.1	18.6	17.4	4.1	6.3	29.5	14.9	9.7	24.2	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	111.2	123.9	30.2	140.1	52.3	36.6	131.2	103.0	58.5	165.2	72.6	19.2
LnGrp LOS	F	F	C	F	D	D	F	F	E	F	E	B
Approach Vol, veh/h		1326			1507			1146			891	
Approach Delay, s/veh		110.1			71.2			90.1			81.9	
Approach LOS		F			E			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.0	52.0	32.0	42.0	15.8	55.2	20.5	53.5				
Change Period (Y+Rc), s	6.5	5.8	5.8	5.8	5.8	6.5	5.8	5.8				
Max Green Setting (Gmax), s	12.5	46.2	26.2	36.2	10.0	48.7	14.7	47.7				
Max Q Clear Time (g_c+1/4), s	14.5	48.2	28.2	38.2	11.4	47.1	15.5	40.4				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.6	0.0	3.9				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			88.2									
HCM 6th LOS			F									

# HCM 6th Signalized Intersection Summary

## 12: R Street & Olive Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑	↗	↘	↑↑↑	↗	↘	↑↑		↘	↑↑	↗
Traffic Volume (veh/h)	223	1095	211	282	1065	213	303	814	132	196	768	146
Future Volume (veh/h)	223	1095	211	282	1065	213	303	814	132	196	768	146
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		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	242	1190	229	307	1158	232	329	885	143	213	835	159
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	256	1174	364	307	1321	410	328	943	152	229	897	400
Arrive On Green	0.14	0.23	0.23	0.17	0.26	0.26	0.19	0.31	0.31	0.13	0.25	0.25
Sat Flow, veh/h	1767	5066	1572	1767	5066	1572	1767	3039	491	1767	3526	1572
Grp Volume(v), veh/h	242	1190	229	307	1158	232	329	513	515	213	835	159
Grp Sat Flow(s),veh/h/ln	1767	1689	1572	1767	1689	1572	1767	1763	1767	1767	1763	1572
Q Serve(g_s), s	19.7	33.6	19.0	25.2	31.8	13.4	26.9	41.1	41.1	17.3	33.5	12.2
Cycle Q Clear(g_c), s	19.7	33.6	19.0	25.2	31.8	13.4	26.9	41.1	41.1	17.3	33.5	12.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.28	1.00		1.00
Lane Grp Cap(c), veh/h	256	1174	364	307	1321	410	328	547	548	229	897	400
V/C Ratio(X)	0.95	1.01	0.63	1.00	0.88	0.57	1.00	0.94	0.94	0.93	0.93	0.40
Avail Cap(c_a), veh/h	256	1174	364	307	1321	410	328	547	548	229	897	400
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.4	55.7	50.1	59.9	51.4	24.1	59.1	48.6	48.7	62.4	52.8	44.8
Incr Delay (d2), s/veh	41.5	29.7	3.4	51.2	7.0	1.8	50.6	25.9	25.9	40.5	17.3	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	17.2	7.7	15.4	14.0	5.1	16.5	21.6	21.7	10.3	16.8	5.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	102.9	85.4	53.5	111.1	58.3	25.9	109.6	74.5	74.5	103.0	70.1	47.8
LnGrp LOS	F	F	D	F	E	C	F	E	E	F	E	D
Approach Vol, veh/h		1661			1697			1357			1207	
Approach Delay, s/veh		83.6			63.5			83.0			73.0	
Approach LOS		F			E			F			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	34.2	50.4	31.0	39.4	32.3	42.3	26.8	43.6				
Change Period (Y+Rc), s	5.4	5.4	5.8	5.8	5.4	5.4	5.8	5.8				
Max Green Setting (Gmax), s	45.0	45.0	25.2	33.6	26.9	36.9	21.0	37.8				
Max Q Clear Time (g_c+119), s	43.1	43.1	27.2	35.6	28.9	35.5	21.7	33.8				
Green Ext Time (p_c), s	0.0	1.1	0.0	0.0	0.0	0.8	0.0	2.7				

### Intersection Summary

HCM 6th Ctrl Delay	75.5
HCM 6th LOS	E

# HCM 6th Signalized Intersection Summary

## 13: M Street & Olive Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘ ↑↑↑	↑↑↑	↗	↘ ↑↑↑	↑↑↑		↘ ↑↑	↑↑		↘ ↑↑	↑↑	
Traffic Volume (veh/h)	203	1175	178	233	1086	121	278	798	167	344	673	182
Future Volume (veh/h)	203	1175	178	233	1086	121	278	798	167	344	673	182
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		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	221	1277	193	253	1180	132	302	867	182	374	732	198
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	221	1195	371	243	1146	128	317	804	169	353	817	221
Arrive On Green	0.13	0.24	0.24	0.14	0.25	0.25	0.18	0.28	0.28	0.20	0.30	0.30
Sat Flow, veh/h	1767	5066	1572	1767	4623	517	1767	2900	609	1767	2743	742
Grp Volume(v), veh/h	221	1277	193	253	862	450	302	527	522	374	470	460
Grp Sat Flow(s),veh/h/ln	1767	1689	1572	1767	1689	1762	1767	1763	1746	1767	1763	1722
Q Serve(g_s), s	18.8	35.4	16.0	20.6	37.2	37.2	25.4	41.6	41.6	30.0	38.3	38.3
Cycle Q Clear(g_c), s	18.8	35.4	16.0	20.6	37.2	37.2	25.4	41.6	41.6	30.0	38.3	38.3
Prop In Lane	1.00		1.00	1.00		0.29	1.00		0.35	1.00		0.43
Lane Grp Cap(c), veh/h	221	1195	371	243	838	437	317	489	484	353	525	513
V/C Ratio(X)	1.00	1.07	0.52	1.04	1.03	1.03	0.95	1.08	1.08	1.06	0.90	0.90
Avail Cap(c_a), veh/h	221	1195	371	243	838	437	317	489	484	353	525	513
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.6	57.3	49.9	64.7	56.4	56.4	60.9	54.2	54.2	60.0	50.4	50.4
Incr Delay (d2), s/veh	59.8	46.3	1.3	69.3	38.8	50.9	38.1	63.3	63.6	64.0	20.5	20.8
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/ft	2.0	19.9	6.4	13.8	20.0	22.3	14.6	26.7	26.5	19.5	19.6	19.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	125.4	103.6	51.2	134.0	95.2	107.3	99.0	117.5	117.8	124.0	70.9	71.3
LnGrp LOS	F	F	D	F	F	F	F	F	F	F	E	E
Approach Vol, veh/h		1691			1565			1351			1304	
Approach Delay, s/veh		100.5			104.9			113.4			86.3	
Approach LOS		F			F			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	35.4	47.0	26.4	41.2	32.3	50.1	24.6	43.0				
Change Period (Y+Rc), s	5.4	5.4	5.8	5.8	5.4	5.4	5.8	5.8				
Max Green Setting (Gmax), s	30.0	41.6	20.6	35.4	26.9	44.7	18.8	37.2				
Max Q Clear Time (g_c+Q), s	32.0	43.6	22.6	37.4	27.4	40.3	20.8	39.2				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	2.2	0.0	0.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			101.5									
HCM 6th LOS			F									

# HCM 6th Signalized Intersection Summary

## 14: Olive Avenue & G Street

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	523	790	302	199	562	98	239	1170	237	130	1135	472
Future Volume (veh/h)	523	790	302	199	562	98	239	1170	237	130	1135	472
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	568	859	328	216	611	107	260	1272	258	141	1234	513
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	417	1053	470	230	579	101	197	1225	547	112	1055	471
Arrive On Green	0.24	0.30	0.30	0.13	0.19	0.19	0.11	0.35	0.35	0.06	0.30	0.30
Sat Flow, veh/h	1767	3526	1572	1767	3000	524	1767	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	568	859	328	216	359	359	260	1272	258	141	1234	513
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1761	1767	1763	1572	1767	1763	1572
Q Serve(g_s), s	34.2	32.8	26.8	17.6	28.0	28.0	16.2	50.4	18.6	9.2	43.4	23.8
Cycle Q Clear(g_c), s	34.2	32.8	26.8	17.6	28.0	28.0	16.2	50.4	18.6	9.2	43.4	23.8
Prop In Lane	1.00		1.00	1.00		0.30	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	417	1053	470	230	340	340	197	1225	547	112	1055	471
V/C Ratio(X)	1.36	0.82	0.70	0.94	1.05	1.06	1.32	1.04	0.47	1.26	1.17	1.09
Avail Cap(c_a), veh/h	417	1053	470	230	340	340	197	1225	547	112	1055	471
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.4	47.2	45.1	62.5	58.5	58.5	64.4	47.3	36.9	67.9	50.8	15.3
Incr Delay (d2), s/veh	178.1	5.1	4.5	42.3	63.5	64.6	173.7	36.1	2.9	169.5	86.6	68.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	65.5	14.7	10.8	10.4	18.2	18.3	16.7	27.5	7.5	9.4	31.3	16.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	233.5	52.2	49.6	104.8	122.0	123.1	238.1	83.4	39.8	237.4	137.4	83.4
LnGrp LOS	F	D	D	F	F	F	F	F	D	F	F	F
Approach Vol, veh/h		1755			934			1790			1888	
Approach Delay, s/veh		110.4			118.4			99.6			130.2	
Approach LOS		F			F			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.0	56.2	24.7	49.1	22.0	49.2	40.0	33.8				
Change Period (Y+Rc), s	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8				
Max Green Setting (Gmax), s	5.0	50.4	18.9	43.3	16.2	43.4	34.2	28.0				
Max Q Clear Time (g_c+fl), s	5.0	52.4	19.6	34.8	18.2	45.4	36.2	30.0				
Green Ext Time (p_c), s	0.0	0.0	0.0	4.2	0.0	0.0	0.0	0.0				

### Intersection Summary

HCM 6th Ctrl Delay		114.4										
HCM 6th LOS			F									

**Intersection**

Intersection Delay, s/veh	252.6
Intersection LOS	F

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	417	531	578	567	413	438
Future Vol, veh/h	417	531	578	567	413	438
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	453	577	628	616	449	476
Number of Lanes	1	1	2	1	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	3	2	0
Conflicting Approach Left SB			WB
Conflicting Lanes Left	1	0	3
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	208.3	38.5	590
HCM LOS	F	E	F

Lane	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	100%	0%	0%	0%	0%	49%
Vol Thru, %	0%	100%	100%	100%	0%	0%
Vol Right, %	0%	0%	0%	0%	100%	51%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	417	531	289	289	567	851
LT Vol	417	0	0	0	0	413
Through Vol	0	531	289	289	0	0
RT Vol	0	0	0	0	567	438
Lane Flow Rate	453	577	314	314	616	925
Geometry Grp	8	8	7	7	7	7
Degree of Util (X)	1.2	1.448	0.685	0.685	0.924	2.249
Departure Headway (Hd)	12.755	12.202	9.25	9.25	6.613	9.166
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	290	306	393	393	555	407
Service Time	10.455	9.902	6.95	6.95	4.313	6.866
HCM Lane V/C Ratio	1.562	1.886	0.799	0.799	1.11	2.273
HCM Control Delay	154.9	250.3	29.8	29.8	47.4	590
HCM Lane LOS	F	F	D	D	E	F
HCM 95th-tile Q	15.3	23.4	4.9	4.9	11.4	66.3

HCM 6th TWSC  
16: MLK JR Way & SR 99 NB Ramps

02/23/2022

Intersection												
Int Delay, s/veh	16.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕		↕	↑↑			↑↑	
Traffic Vol, veh/h	0	0	0	37	0	82	290	708	0	0	644	446
Future Vol, veh/h	0	0	0	37	0	82	290	708	0	0	644	446
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	75	-	-	-	-	-
Veh in Median Storage, #	-	2	-	-	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	0	0	0	40	0	89	315	770	0	0	700	485

Major/Minor	Minor1	Major1	Major2						
Conflicting Flow All	1750	2585	385	1185	0	-	-	-	0
Stage 1	1400	1400	-	-	-	-	-	-	-
Stage 2	350	1185	-	-	-	-	-	-	-
Critical Hdwy	6.86	6.56	6.96	4.16	-	-	-	-	-
Critical Hdwy Stg 1	5.86	5.56	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.86	5.56	-	-	-	-	-	-	-
Follow-up Hdwy	3.53	4.03	3.33	2.23	-	-	-	-	-
Pot Cap-1 Maneuver	76	25	610	579	-	0	0	-	-
Stage 1	192	204	-	-	-	0	0	-	-
Stage 2	682	259	-	-	-	0	0	-	-
Platoon blocked, %					-			-	-
Mov Cap-1 Maneuver	~ 35	0	610	579	-	-	-	-	-
Mov Cap-2 Maneuver	~ 35	0	-	-	-	-	-	-	-
Stage 1	88	0	-	-	-	-	-	-	-
Stage 2	682	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	266.1	5.3	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBTWBLn1	SBT	SBR
Capacity (veh/h)	579	-	100	-
HCM Lane V/C Ratio	0.544	-	1.293	-
HCM Control Delay (s)	18.4	-	266.1	-
HCM Lane LOS	C	-	F	-
HCM 95th %tile Q(veh)	3.3	-	9	-

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



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	60	0	8	16	9	125	11	593	0	0	608	75
Future Vol, veh/h	60	0	8	16	9	125	11	593	0	0	608	75
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	-	-	-	75	-	-	-	-	-
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	65	0	9	17	10	136	12	645	0	0	661	82

Major/Minor	Minor2	Minor1		Major1			Major2					
Conflicting Flow All	1054	-	372	1000	1412	323	743	0	-	-	-	0
Stage 1	702	-	-	669	669	-	-	-	-	-	-	-
Stage 2	352	-	-	331	743	-	-	-	-	-	-	-
Critical Hdwy	7.56	-	6.96	7.56	6.56	6.96	4.16	-	-	-	-	-
Critical Hdwy Stg 1	6.56	-	-	6.56	5.56	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.56	-	-	6.56	5.56	-	-	-	-	-	-	-
Follow-up Hdwy	3.53	-	3.33	3.53	4.03	3.33	2.23	-	-	-	-	-
Pot Cap-1 Maneuver	179	0	622	196	136	670	854	-	0	0	-	-
Stage 1	393	0	-	411	452	-	-	-	0	0	-	-
Stage 2	635	0	-	653	418	-	-	-	0	0	-	-
Platoon blocked, %								-			-	-
Mov Cap-1 Maneuver	133	-	622	191	134	670	854	-	-	-	-	-
Mov Cap-2 Maneuver	133	-	-	191	134	-	-	-	-	-	-	-
Stage 1	387	-	-	405	446	-	-	-	-	-	-	-
Stage 2	488	-	-	644	418	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	50.4	17.7	0.2	0
HCM LOS	F	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	WBLn1	SBT	SBR
Capacity (veh/h)	854	-	133	622	444	-	-
HCM Lane V/C Ratio	0.014	-	0.49	0.014	0.367	-	-
HCM Control Delay (s)	9.3	-	55.7	10.9	17.7	-	-
HCM Lane LOS	A	-	F	B	C	-	-
HCM 95th %tile Q(veh)	0	-	2.3	0	1.7	-	-

HCM 6th Roundabout  
18: Campus Parkway & Yosemite Avenue

02/23/2022

Intersection									
Intersection Delay, s/veh	7.6								
Intersection LOS	A								
Approach	EB		WB		NB		SB		
Entry Lanes	2		2		2		2		
Conflicting Circle Lanes	2		2		2		2		
Adj Approach Flow, veh/h	608		186		357		1001		
Demand Flow Rate, veh/h	626		191		368		1030		
Vehicles Circulating, veh/h	506		611		495		190		
Vehicles Exiting, veh/h	714		252		637		612		
Ped Vol Crossing Leg, #/h	0		0		0		0		
Ped Cap Adj	1.000		1.000		1.000		1.000		
Approach Delay, s/veh	8.2		6.5		6.2		7.8		
Approach LOS	A		A		A		A		
Lane	Left	Right	Left	Right	Left	Right	Left	Right	
Designated Moves	LT	TR	LT	R	LT	TR	LT	TR	
Assumed Moves	LT	TR	LT	R	LT	TR	LT	R	
RT Channelized									
Lane Util	0.470	0.530	0.791	0.209	0.470	0.530	0.455	0.545	
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.667	2.535	2.667	2.535	
Critical Headway, s	4.645	4.328	4.645	4.328	4.645	4.328	4.645	4.328	
Entry Flow, veh/h	294	332	151	40	173	195	469	561	
Cap Entry Lane, veh/h	847	924	769	845	856	932	1133	1208	
Entry HV Adj Factor	0.971	0.970	0.971	0.975	0.970	0.970	0.972	0.971	
Flow Entry, veh/h	286	322	147	39	168	189	456	545	
Cap Entry, veh/h	823	896	747	824	830	904	1101	1174	
V/C Ratio	0.347	0.359	0.196	0.047	0.202	0.209	0.414	0.464	
Control Delay, s/veh	8.4	8.1	7.0	4.8	6.4	6.1	7.6	8.0	
LOS	A	A	A	A	A	A	A	A	
95th %tile Queue, veh	2	2	1	0	1	1	2	3	

HCM 6th Roundabout  
19: Campus Parkway & Olive Avenue

02/23/2022

Intersection									
Intersection Delay, s/veh 5.1									
Intersection LOS A									
Approach	EB		WB		NB		SB		
Entry Lanes	2		2		2		2		
Conflicting Circle Lanes	2		2		2		2		
Adj Approach Flow, veh/h	161		121		362		403		
Demand Flow Rate, veh/h	167		125		373		416		
Vehicles Circulating, veh/h	408		370		169		146		
Vehicles Exiting, veh/h	154		172		406		349		
Ped Vol Crossing Leg, #/h	0		0		0		0		
Ped Cap Adj	1.000		1.000		1.000		1.000		
Approach Delay, s/veh	4.7		4.3		4.5		6.1		
Approach LOS	A		A		A		A		
Lane	Left	Right	Left	Right	Left	Right	Left	Right	
Designated Moves	LT	TR	LT	TR	LT	TR	LT	R	
Assumed Moves	LT	TR	LT	TR	LT	TR	LT	R	
RT Channelized									
Lane Util	0.467	0.533	0.472	0.528	0.469	0.531	0.928	0.072	
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.667	2.535	2.667	2.535	
Critical Headway, s	4.645	4.328	4.645	4.328	4.645	4.328	4.645	4.328	
Entry Flow, veh/h	78	89	59	66	175	198	386	30	
Cap Entry Lane, veh/h	927	1004	960	1037	1155	1230	1180	1254	
Entry HV Adj Factor	0.971	0.960	0.960	0.968	0.972	0.969	0.970	0.967	
Flow Entry, veh/h	76	85	57	64	170	192	374	29	
Cap Entry, veh/h	901	964	922	1004	1123	1192	1145	1213	
V/C Ratio	0.084	0.089	0.061	0.064	0.151	0.161	0.327	0.024	
Control Delay, s/veh	4.8	4.5	4.5	4.1	4.5	4.4	6.3	3.2	
LOS	A	A	A	A	A	A	A	A	
95th %tile Queue, veh	0	0	0	0	1	1	1	0	

HCM 6th Signalized Intersection Summary  
 20: Campus Parkway & Connector Road

02/23/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙↘	↗	↕↕	↗	↙↘	↕↕
Traffic Volume (veh/h)	49	38	295	43	30	332
Future Volume (veh/h)	49	38	295	43	30	332
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	53	0	321	0	33	361
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	284		1813		150	2415
Arrive On Green	0.08	0.00	0.51	0.00	0.04	0.69
Sat Flow, veh/h	3428	1572	3618	1572	3428	3618
Grp Volume(v), veh/h	53	0	321	0	33	361
Grp Sat Flow(s),veh/h/ln	1714	1572	1763	1572	1714	1763
Q Serve(g_s), s	0.7	0.0	2.5	0.0	0.5	1.8
Cycle Q Clear(g_c), s	0.7	0.0	2.5	0.0	0.5	1.8
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	284		1813		150	2415
V/C Ratio(X)	0.19		0.18		0.22	0.15
Avail Cap(c_a), veh/h	2208		1813		435	2415
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	21.9	0.0	6.6	0.0	23.6	2.8
Incr Delay (d2), s/veh	0.3	0.0	0.2	0.0	0.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.6	0.0	0.2	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	22.2	0.0	6.9	0.0	24.4	3.0
LnGrp LOS	C		A		C	A
Approach Vol, veh/h	53	A	321	A		394
Approach Delay, s/veh	22.2		6.9			4.8
Approach LOS	C		A			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	8.7	32.9			41.6	9.6
Change Period (Y+Rc), s	6.5	6.5			6.5	5.4
Max Green Setting (Gmax), s	6.5	22.1			35.1	33.0
Max Q Clear Time (g_c+1/2), s	12.5	4.5			3.8	2.7
Green Ext Time (p_c), s	0.0	1.6			2.1	0.1

Intersection Summary

HCM 6th Ctrl Delay	6.8
HCM 6th LOS	A

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

# HCM 6th Signalized Intersection Summary

## 21: SR 140 & Connector Road

02/23/2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations	↗	↑	↑	↗	↗	↗	
Traffic Volume (veh/h)	54	248	118	33	29	44	
Future Volume (veh/h)	54	248	118	33	29	44	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			0.50	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	
Adj Flow Rate, veh/h	59	270	128	36	32	48	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	3	3	3	3	3	3	
Cap, veh/h	118	720	361	153	672	598	
Arrive On Green	0.07	0.39	0.19	0.19	0.38	0.38	
Sat Flow, veh/h	1767	1856	1856	784	1767	1572	
Grp Volume(v), veh/h	59	270	128	36	32	48	
Grp Sat Flow(s),veh/h/ln	1767	1856	1856	784	1767	1572	
Q Serve(g_s), s	1.7	5.3	3.1	2.0	0.6	1.0	
Cycle Q Clear(g_c), s	1.7	5.3	3.1	2.0	0.6	1.0	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	118	720	361	153	672	598	
V/C Ratio(X)	0.50	0.38	0.35	0.24	0.05	0.08	
Avail Cap(c_a), veh/h	227	1396	923	390	672	598	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	23.1	11.2	17.9	17.4	10.0	10.2	
Incr Delay (d2), s/veh	3.3	0.3	0.6	0.8	0.1	0.3	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.7	1.6	1.1	0.3	0.2	1.2	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	26.4	11.6	18.5	18.2	10.2	10.4	
LnGrp LOS	C	B	B	B	B	B	
Approach Vol, veh/h		329	164		80		
Approach Delay, s/veh		14.2	18.4		10.3		
Approach LOS		B	B		B		
Timer - Assigned Phs			4		6	7	8
Phs Duration (G+Y+Rc), s			26.4		24.9	9.9	16.5
Change Period (Y+Rc), s			6.5		5.4	6.5	6.5
Max Green Setting (Gmax), s			38.6		19.5	6.6	25.5
Max Q Clear Time (g_c+I1), s			7.3		3.0	3.7	5.1
Green Ext Time (p_c), s			1.3		0.2	0.0	0.7
<b>Intersection Summary</b>							
HCM 6th Ctrl Delay			14.9				
HCM 6th LOS			B				

HCM 6th Signalized Intersection Summary  
 22: Campus Parkway & Childs Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	129	41	65	101	9	62	318	37	8	351	22
Future Volume (veh/h)	11	129	41	65	101	9	62	318	37	8	351	22
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	12	140	45	71	110	10	67	346	40	9	382	24
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	32	419	187	116	624	278	219	1536	685	24	1360	606
Arrive On Green	0.02	0.12	0.12	0.07	0.18	0.18	0.06	0.44	0.44	0.01	0.39	0.39
Sat Flow, veh/h	1767	3526	1572	1767	3526	1572	3428	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	12	140	45	71	110	10	67	346	40	9	382	24
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1572	1714	1763	1572	1767	1763	1572
Q Serve(g_s), s	0.5	2.4	1.7	2.6	1.8	0.4	1.3	4.1	1.0	0.3	5.0	0.6
Cycle Q Clear(g_c), s	0.5	2.4	1.7	2.6	1.8	0.4	1.3	4.1	1.0	0.3	5.0	0.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	32	419	187	116	624	278	219	1536	685	24	1360	606
V/C Ratio(X)	0.38	0.33	0.24	0.61	0.18	0.04	0.31	0.23	0.06	0.37	0.28	0.04
Avail Cap(c_a), veh/h	158	2047	913	268	2268	1011	306	1536	685	158	1360	606
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.6	27.2	26.8	30.5	23.5	22.9	30.0	11.9	11.0	32.8	14.2	12.9
Incr Delay (d2), s/veh	7.3	0.5	0.7	5.2	0.1	0.1	0.8	0.3	0.2	9.0	0.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.0	0.6	1.2	0.7	0.1	0.5	1.3	0.3	0.2	1.7	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.9	27.6	27.5	35.7	23.6	23.0	30.8	12.2	11.1	41.9	14.7	13.0
LnGrp LOS	D	C	C	D	C	C	C	B	B	D	B	B
Approach Vol, veh/h		197			191			453			415	
Approach Delay, s/veh		28.3			28.1			14.9			15.2	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.4	35.8	10.2	13.8	10.8	32.4	6.3	17.7				
Change Period (Y+Rc), s	6.5	6.5	5.8	* 5.8	6.5	6.5	5.1	5.8				
Max Green Setting (Gmax), s	6.0	25.9	10.2	* 39	6.0	25.9	6.0	43.2				
Max Q Clear Time (g_c+I), s	12.3	6.1	4.6	4.4	3.3	7.0	2.5	3.8				
Green Ext Time (p_c), s	0.0	1.9	0.1	1.0	0.0	2.0	0.0	0.6				

Intersection Summary

HCM 6th Ctrl Delay	19.1
HCM 6th LOS	B

Notes

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

# HCM 6th Signalized Intersection Summary

## 23: Campus Parkway & Gerard Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑↑	↖	↖↗	↑↑	↖	↖↗	↑↑	↖	↖↗	↑↑	↖
Traffic Volume (veh/h)	87	27	36	233	16	8	73	322	25	6	380	71
Future Volume (veh/h)	87	27	36	233	16	8	73	322	25	6	380	71
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	95	29	39	253	17	9	79	350	27	7	413	77
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	226	348	155	334	490	218	213	1647	735	37	1466	654
Arrive On Green	0.07	0.10	0.10	0.10	0.14	0.14	0.06	0.47	0.47	0.01	0.42	0.42
Sat Flow, veh/h	3428	3526	1572	3428	3526	1572	3428	3526	1572	3428	3526	1572
Grp Volume(v), veh/h	95	29	39	253	17	9	79	350	27	7	413	77
Grp Sat Flow(s),veh/h/ln	1714	1763	1572	1714	1763	1572	1714	1763	1572	1714	1763	1572
Q Serve(g_s), s	2.1	0.6	1.8	5.7	0.3	0.4	1.8	4.7	0.7	0.2	6.2	2.4
Cycle Q Clear(g_c), s	2.1	0.6	1.8	5.7	0.3	0.4	1.8	4.7	0.7	0.2	6.2	2.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	226	348	155	334	490	218	213	1647	735	37	1466	654
V/C Ratio(X)	0.42	0.08	0.25	0.76	0.03	0.04	0.37	0.21	0.04	0.19	0.28	0.12
Avail Cap(c_a), veh/h	301	1634	729	365	1701	759	258	1647	735	258	1466	654
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.8	32.7	33.2	35.1	29.7	29.8	35.9	12.6	11.5	39.1	15.4	14.3
Incr Delay (d2), s/veh	1.2	0.1	0.8	8.1	0.0	0.1	1.1	0.3	0.1	2.4	0.5	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.2	0.7	2.6	0.1	0.1	0.7	1.6	0.2	0.1	2.2	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.0	32.8	34.1	43.2	29.8	29.8	37.0	12.9	11.6	41.6	15.9	14.7
LnGrp LOS	D	C	C	D	C	C	D	B	B	D	B	B
Approach Vol, veh/h		163			279			456			497	
Approach Delay, s/veh		35.6			42.0			17.0			16.1	
Approach LOS		D			D			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.4	43.8	14.3	14.4	11.5	39.7	11.1	17.6				
Change Period (Y+Rc), s	6.5	6.5	6.5	* 6.5	6.5	6.5	5.8	6.5				
Max Green Setting (Gmax), s	6.0	33.2	8.5	* 37	6.0	33.2	7.0	38.5				
Max Q Clear Time (g_c+1/2), s	12.2	6.7	7.7	3.8	3.8	8.2	4.1	2.4				
Green Ext Time (p_c), s	0.0	2.0	0.1	0.2	0.0	2.5	0.1	0.1				

### Intersection Summary

HCM 6th Ctrl Delay	23.8
HCM 6th LOS	C

### Notes

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

# HCM 6th Signalized Intersection Summary

## 24: Coffee Street & Campus Parkway

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	84	376	85	15	625	9	110	33	14	7	246	122
Future Volume (veh/h)	84	376	85	15	625	9	110	33	14	7	246	122
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	91	409	92	16	679	10	120	36	15	8	267	133
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	114	986	440	30	819	365	176	1916	855	17	1769	789
Arrive On Green	0.13	0.56	0.56	0.02	0.23	0.23	0.05	0.54	0.54	0.01	0.50	0.50
Sat Flow, veh/h	1767	3526	1572	1767	3526	1572	3428	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	91	409	92	16	679	10	120	36	15	8	267	133
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1572	1714	1763	1572	1767	1763	1572
Q Serve(g_s), s	6.0	8.0	3.5	1.1	22.0	0.6	4.1	0.6	0.5	0.5	4.9	5.5
Cycle Q Clear(g_c), s	6.0	8.0	3.5	1.1	22.0	0.6	4.1	0.6	0.5	0.5	4.9	5.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	114	986	440	30	819	365	176	1916	855	17	1769	789
V/C Ratio(X)	0.80	0.41	0.21	0.53	0.83	0.03	0.68	0.02	0.02	0.46	0.15	0.17
Avail Cap(c_a), veh/h	272	1601	714	125	1307	583	357	1916	855	110	1769	789
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.96	0.96	0.96	0.93	0.93	0.93	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.5	20.8	19.8	58.5	43.8	35.6	55.9	12.6	12.6	59.1	16.1	16.3
Incr Delay (d2), s/veh	11.6	0.3	0.2	12.4	2.4	0.0	4.6	0.0	0.0	18.2	0.2	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	2.7	1.2	0.6	9.4	0.2	1.9	0.2	0.2	0.3	2.0	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.1	21.1	20.0	70.9	46.1	35.6	60.5	12.7	12.7	77.3	16.3	16.7
LnGrp LOS	E	C	C	E	D	D	E	B	B	E	B	B
Approach Vol, veh/h		592			705			171			408	
Approach Delay, s/veh		27.4			46.6			46.2			17.6	
Approach LOS		C			D			D			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.7	69.7	6.6	38.1	10.7	64.7	12.2	32.4				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	7.5	31.5	8.5	54.5	12.5	26.5	18.5	44.5				
Max Q Clear Time (g_c+1), s	12.5	2.6	3.1	10.0	6.1	7.5	8.0	24.0				
Green Ext Time (p_c), s	0.0	0.2	0.0	2.7	0.2	1.9	0.1	3.9				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay											34.2	
HCM 6th LOS											C	



HCM 6th Signalized Intersection Summary  
 25: SR 99 NB Ramps & Campus Parkway

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	111	424	0	0	484	322	28	18	121	0	0	0
Future Volume (veh/h)	111	424	0	0	484	322	28	18	121	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1856	1856	0	0	1856	1856	1856	1856	1856			
Adj Flow Rate, veh/h	121	461	0	0	526	350	30	20	132			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	3	3	0	0	3	3	3	3	3			
Cap, veh/h	149	1413	0	0	924	412	537	358	781			
Arrive On Green	0.08	0.40	0.00	0.00	0.26	0.26	0.50	0.50	0.50			
Sat Flow, veh/h	1767	3618	0	0	3618	1572	1081	721	1572			
Grp Volume(v), veh/h	121	461	0	0	526	350	50	0	132			
Grp Sat Flow(s),veh/h/ln	1767	1763	0	0	1763	1572	1801	0	1572			
Q Serve(g_s), s	8.1	10.8	0.0	0.0	15.5	25.3	1.7	0.0	5.5			
Cycle Q Clear(g_c), s	8.1	10.8	0.0	0.0	15.5	25.3	1.7	0.0	5.5			
Prop In Lane	1.00		0.00	0.00		1.00	0.60		1.00			
Lane Grp Cap(c), veh/h	149	1413	0	0	924	412	895	0	781			
V/C Ratio(X)	0.81	0.33	0.00	0.00	0.57	0.85	0.06	0.00	0.17			
Avail Cap(c_a), veh/h	376	2336	0	0	1396	622	895	0	781			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(l)	1.00	1.00	0.00	0.00	0.71	0.71	1.00	0.00	1.00			
Uniform Delay (d), s/veh	54.0	24.8	0.0	0.0	38.4	42.0	15.6	0.0	16.6			
Incr Delay (d2), s/veh	10.1	0.1	0.0	0.0	0.4	5.1	0.1	0.0	0.5			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	3.9	4.3	0.0	0.0	6.4	9.8	0.7	0.0	2.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.1	24.9	0.0	0.0	38.8	47.1	15.7	0.0	17.1			
LnGrp LOS	E	C	A	A	D	D	B	A	B			
Approach Vol, veh/h		582			876			182				
Approach Delay, s/veh		33.1			42.1			16.7				
Approach LOS		C			D			B				
Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		65.4		54.6			16.6	38.0				
Change Period (Y+Rc), s		5.8		6.5			6.5	6.5				
Max Green Setting (Gmax), s		28.2		79.5			25.5	47.5				
Max Q Clear Time (g_c+I1), s		7.5		12.8			10.1	27.3				
Green Ext Time (p_c), s		0.6		2.8			0.2	4.1				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay												36.1
HCM 6th LOS												D

HCM 6th Signalized Intersection Summary  
 26: Lake Street & Meyers Gate Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	30	10	57	30	57	20	511	59	59	663	10
Future Volume (veh/h)	20	30	10	57	30	57	20	511	59	59	663	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	22	33	11	62	33	62	22	555	64	64	721	11
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	47	119	40	102	70	131	47	707	81	104	848	13
Arrive On Green	0.03	0.09	0.09	0.06	0.12	0.12	0.03	0.43	0.43	0.06	0.47	0.47
Sat Flow, veh/h	1767	1332	444	1767	577	1084	1767	1633	188	1767	1823	28
Grp Volume(v), veh/h	22	0	44	62	0	95	22	0	619	64	0	732
Grp Sat Flow(s),veh/h/ln	1767	0	1776	1767	0	1660	1767	0	1822	1767	0	1851
Q Serve(g_s), s	0.6	0.0	1.2	1.7	0.0	2.7	0.6	0.0	14.6	1.8	0.0	17.4
Cycle Q Clear(g_c), s	0.6	0.0	1.2	1.7	0.0	2.7	0.6	0.0	14.6	1.8	0.0	17.4
Prop In Lane	1.00		0.25	1.00		0.65	1.00		0.10	1.00		0.02
Lane Grp Cap(c), veh/h	47	0	159	102	0	201	47	0	788	104	0	861
V/C Ratio(X)	0.47	0.00	0.28	0.61	0.00	0.47	0.47	0.00	0.79	0.61	0.00	0.85
Avail Cap(c_a), veh/h	181	0	641	184	0	603	181	0	1224	188	0	1251
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.9	0.0	21.2	22.9	0.0	20.4	23.9	0.0	12.2	22.9	0.0	11.8
Incr Delay (d2), s/veh	7.3	0.0	0.9	5.7	0.0	1.7	7.3	0.0	1.8	5.8	0.0	3.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.5	0.8	0.0	1.0	0.3	0.0	4.0	0.8	0.0	5.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.2	0.0	22.1	28.6	0.0	22.2	31.2	0.0	14.0	28.7	0.0	15.7
LnGrp LOS	C	A	C	C	A	C	C	A	B	C	A	B
Approach Vol, veh/h		66			157			641			796	
Approach Delay, s/veh		25.1			24.7			14.6			16.7	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.4	26.1	7.4	9.0	5.8	27.7	5.8	10.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.3	33.5	5.2	18.0	5.1	33.7	5.1	18.1				
Max Q Clear Time (g_c+1/3), s	13.8	16.6	3.7	3.2	2.6	19.4	2.6	4.7				
Green Ext Time (p_c), s	0.0	3.3	0.0	0.1	0.0	3.8	0.0	0.3				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay											17.0	
HCM 6th LOS											B	

HCM 6th Roundabout  
76: Campus Parkway & Meyers Gate Road

02/23/2022

Intersection						
Intersection Delay, s/veh	7.9					
Intersection LOS	A					
Approach	EB	WB	NB		SB	
Entry Lanes	1	1	2		2	
Conflicting Circle Lanes	2	2	2		2	
Adj Approach Flow, veh/h	150	269	562		1015	
Demand Flow Rate, veh/h	155	277	579		1046	
Vehicles Circulating, veh/h	1174	591	143		265	
Vehicles Exiting, veh/h	137	131	1186		603	
Ped Vol Crossing Leg, #/h	20	20	20		0	
Ped Cap Adj	1.000	0.997	0.980		1.000	
Approach Delay, s/veh	11.5	8.0	5.3		8.8	
Approach LOS	B	A	A		A	
Lane	Left	Left	Left	Right	Left	Right
Designated Moves	LTR	LTR	LT	TR	LT	TR
Assumed Moves	LTR	LTR	LT	TR	LT	TR
RT Channelized						
Lane Util	1.000	1.000	0.470	0.530	0.470	0.530
Follow-Up Headway, s	2.535	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.328	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	155	277	272	307	492	554
Cap Entry Lane, veh/h	523	859	1183	1258	1058	1134
Entry HV Adj Factor	0.968	0.972	0.972	0.971	0.970	0.971
Flow Entry, veh/h	150	269	264	298	477	538
Cap Entry, veh/h	507	833	1127	1196	1026	1101
V/C Ratio	0.296	0.323	0.235	0.249	0.465	0.489
Control Delay, s/veh	11.5	8.0	5.3	5.3	8.8	8.8
LOS	B	A	A	A	A	A
95th %tile Queue, veh	1	1	1	1	3	3

HCM 6th Signalized Intersection Summary  
77: Lake Road & Virginia Smith Parkway

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	30	10	170	30	113	20	457	176	118	602	10
Future Volume (veh/h)	20	30	10	170	30	113	20	457	176	118	602	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.91		0.90	1.00		0.94	1.00		0.94	1.00		0.95
Parking Bus, Adj	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	22	33	11	185	33	123	22	497	191	128	654	11
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	229	114	38	234	562	445	46	664	530	165	773	13
Arrive On Green	0.09	0.09	0.09	0.13	0.30	0.30	0.03	0.36	0.36	0.09	0.43	0.43
Sat Flow, veh/h	1109	1292	431	1767	1856	1472	1767	1856	1482	1767	1818	31
Grp Volume(v), veh/h	22	0	44	185	33	123	22	497	191	128	0	665
Grp Sat Flow(s),veh/h/ln	1109	0	1723	1767	1856	1472	1767	1856	1482	1767	0	1848
Q Serve(g_s), s	1.0	0.0	1.3	5.6	0.7	3.5	0.7	12.9	5.2	3.9	0.0	17.7
Cycle Q Clear(g_c), s	1.0	0.0	1.3	5.6	0.7	3.5	0.7	12.9	5.2	3.9	0.0	17.7
Prop In Lane	1.00		0.25	1.00		1.00	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	229	0	152	234	562	445	46	664	530	165	0	786
V/C Ratio(X)	0.10	0.00	0.29	0.79	0.06	0.28	0.48	0.75	0.36	0.78	0.00	0.85
Avail Cap(c_a), veh/h	495	0	565	371	1150	912	164	1110	886	313	0	1260
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.3	0.0	23.4	23.0	13.6	14.6	26.3	15.4	13.0	24.3	0.0	14.2
Incr Delay (d2), s/veh	0.2	0.0	1.0	5.9	0.0	0.3	7.6	1.7	0.4	7.6	0.0	3.1
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/lr	0.2	0.0	0.5	2.4	0.3	1.0	0.3	4.2	1.5	1.7	0.0	5.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.4	0.0	24.4	28.9	13.6	14.9	33.9	17.2	13.4	31.9	0.0	17.3
LnGrp LOS	C	A	C	C	B	B	C	B	B	C	A	B
Approach Vol, veh/h		66			341			710			793	
Approach Delay, s/veh		24.1			22.4			16.7			19.6	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	9.6	24.1	11.8	9.3	5.9	27.8		21.1				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	32.8	32.8	11.5	18.0	5.1	37.4		34.0				
Max Q Clear Time (g_c+1/3), s	14.9	14.9	7.6	3.3	2.7	19.7		5.5				
Green Ext Time (p_c), s	0.1	3.1	0.2	0.2	0.0	3.6		0.6				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay											19.2	
HCM 6th LOS											B	

HCM 6th Roundabout  
78: Campus Parkway & Virginia Smith Parkway

02/23/2022

Intersection							
Intersection Delay, s/veh 10.7							
Intersection LOS B							
Approach	EB	WB		NB		SB	
Entry Lanes	1	2		2		2	
Conflicting Circle Lanes	2	2		2		2	
Adj Approach Flow, veh/h	269	347		612		1150	
Demand Flow Rate, veh/h	277	357		630		1184	
Vehicles Circulating, veh/h	1266	570		306		349	
Vehicles Exiting, veh/h	267	366		1237		578	
Ped Vol Crossing Leg, #/h	20	20		20		20	
Ped Cap Adj	1.000	0.989		0.983		0.984	
Approach Delay, s/veh	20.3	6.8		6.6		11.9	
Approach LOS	C	A		A		B	
Lane	Left	Left	Right	Left	Right	Left	Right
Designated Moves	LTR	LT	TR	LT	TR	LT	TR
Assumed Moves	LTR	LT	TR	LT	TR	LT	TR
RT Channelized							
Lane Util	1.000	0.471	0.529	0.470	0.530	0.470	0.530
Follow-Up Headway, s	2.535	2.667	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.328	4.645	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	277	168	189	296	334	556	628
Cap Entry Lane, veh/h	484	799	875	1019	1095	979	1056
Entry HV Adj Factor	0.970	0.970	0.972	0.971	0.971	0.972	0.971
Flow Entry, veh/h	269	163	184	287	324	541	610
Cap Entry, veh/h	469	767	841	972	1044	937	1008
V/C Ratio	0.572	0.213	0.218	0.296	0.310	0.577	0.605
Control Delay, s/veh	20.3	7.0	6.6	6.7	6.5	11.8	11.9
LOS	C	A	A	A	A	B	B
95th %tile Queue, veh	4	1	1	1	1	4	4

Intersection												
Int Delay, s/veh	4.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Vol, veh/h	37	208	48	32	203	19	47	27	32	19	27	28
Future Vol, veh/h	37	208	48	32	203	19	47	27	32	19	27	28
Conflicting Peds, #/hr	20	0	20	20	0	20	20	0	20	20	0	20
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	150	-	-	150	-	-
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	40	226	52	35	221	21	51	29	35	21	29	30

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	262	0	0	298	0	0	703	684	292	706	700	272
Stage 1	-	-	-	-	-	-	352	352	-	322	322	-
Stage 2	-	-	-	-	-	-	351	332	-	384	378	-
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	1296	-	-	1258	-	-	351	370	745	349	362	764
Stage 1	-	-	-	-	-	-	663	630	-	688	649	-
Stage 2	-	-	-	-	-	-	664	643	-	637	613	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1271	-	-	1234	-	-	288	335	717	285	328	735
Mov Cap-2 Maneuver	-	-	-	-	-	-	288	335	-	285	328	-
Stage 1	-	-	-	-	-	-	630	599	-	654	619	-
Stage 2	-	-	-	-	-	-	578	613	-	548	583	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1			1			16.6			15.3		
HCM LOS							C			C		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	288	471	1271	-	-	1234	-	-	285	457
HCM Lane V/C Ratio	0.177	0.136	0.032	-	-	0.028	-	-	0.072	0.131
HCM Control Delay (s)	20.2	13.8	7.9	-	-	8	-	-	18.6	14.1
HCM Lane LOS	C	B	A	-	-	A	-	-	C	B
HCM 95th %tile Q(veh)	0.6	0.5	0.1	-	-	0.1	-	-	0.2	0.4

HCM 6th Roundabout  
 80: Virginia Smith Parkway & Main Street

02/23/2022

Intersection				
Intersection Delay, s/veh	4.9			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	283	204	93	192
Demand Flow Rate, veh/h	291	210	96	197
Vehicles Circulating, veh/h	112	182	300	195
Vehicles Exiting, veh/h	280	214	103	197
Ped Vol Crossing Leg, #/h	20	20	20	20
Ped Cap Adj	0.997	0.997	0.997	0.997
Approach Delay, s/veh	5.1	4.9	4.5	4.8
Approach LOS	A	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	291	210	96	197
Cap Entry Lane, veh/h	1231	1146	1016	1131
Entry HV Adj Factor	0.972	0.971	0.966	0.973
Flow Entry, veh/h	283	204	93	192
Cap Entry, veh/h	1193	1109	979	1098
V/C Ratio	0.237	0.184	0.095	0.175
Control Delay, s/veh	5.1	4.9	4.5	4.8
LOS	A	A	A	A
95th %tile Queue, veh	1	1	0	1

HCM 6th TWSC  
81: 4th Street & Virginia Smith Parkway

02/23/2022

Intersection												
Int Delay, s/veh	4.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷		↶	↷		↶	↷	
Traffic Vol, veh/h	0	34	61	20	28	0	66	0	10	0	0	0
Future Vol, veh/h	0	34	61	20	28	0	66	0	10	0	0	0
Conflicting Peds, #/hr	0	0	20	20	0	0	20	0	20	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	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	0	37	66	22	30	0	72	0	11	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	30	0	0	123	0	0	184	164	110	170	197	50
Stage 1	-	-	-	-	-	-	90	90	-	74	74	-
Stage 2	-	-	-	-	-	-	94	74	-	96	123	-
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	1576	-	-	1458	-	-	775	727	941	791	697	1015
Stage 1	-	-	-	-	-	-	915	818	-	933	831	-
Stage 2	-	-	-	-	-	-	910	831	-	908	792	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1576	-	-	1430	-	-	737	702	905	758	673	996
Mov Cap-2 Maneuver	-	-	-	-	-	-	737	702	-	758	673	-
Stage 1	-	-	-	-	-	-	898	802	-	933	819	-
Stage 2	-	-	-	-	-	-	879	819	-	880	777	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	3.1	10.2	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	737	905	1576	-	-	1430	-	-	-	-
HCM Lane V/C Ratio	0.097	0.012	-	-	-	0.015	-	-	-	-
HCM Control Delay (s)	10.4	9	0	-	-	7.6	-	-	0	0
HCM Lane LOS	B	A	A	-	-	A	-	-	A	A
HCM 95th %tile Q(veh)	0.3	0	0	-	-	0	-	-	-	-



# **Horizon Year (2042) With Project AM Peak Hour**

HCM 6th AWSC  
1: Snelling Highway (SR 59) & Bellevue Road

02/23/2022

Intersection

Intersection Delay, s/veh	510.2
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	19	304	9	739	199	89	9	89	708	121	92	31
Future Vol, veh/h	19	304	9	739	199	89	9	89	708	121	92	31
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	21	330	10	803	216	97	10	97	770	132	100	34
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	78.9	790.3	469.2	53.9
HCM LOS	F	F	F	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	6%	72%	50%
Vol Thru, %	11%	92%	19%	38%
Vol Right, %	88%	3%	9%	13%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	806	332	1027	244
LT Vol	9	19	739	121
Through Vol	89	304	199	92
RT Vol	708	9	89	31
Lane Flow Rate	876	361	1116	265
Geometry Grp	1	1	1	1
Degree of Util (X)	1.958	0.878	2.686	0.684
Departure Headway (Hd)	11.927	16.976	11.173	18.425
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	315	217	335	199
Service Time	9.927	14.976	9.173	16.425
HCM Lane V/C Ratio	2.781	1.664	3.331	1.332
HCM Control Delay	469.2	78.9	790.3	53.9
HCM Lane LOS	F	F	F	F
HCM 95th-tile Q	41.5	6.9	72.4	4.2

# HCM 6th Signalized Intersection Summary

## 2: G Street & Bellevue Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	74	720	187	545	712	24	164	382	606	18	391	69
Future Volume (veh/h)	74	720	187	545	712	24	164	382	606	18	391	69
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	80	783	203	592	774	26	178	415	659	20	425	75
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	99	431	112	324	799	677	135	559	499	40	928	414
Arrive On Green	0.06	0.30	0.30	0.18	0.43	0.43	0.08	0.32	0.32	0.02	0.26	0.26
Sat Flow, veh/h	1767	1421	368	1767	1856	1572	1767	1763	1572	1767	3526	1572
Grp Volume(v), veh/h	80	0	986	592	774	26	178	415	659	20	425	75
Grp Sat Flow(s),veh/h/ln	1767	0	1789	1767	1856	1572	1767	1763	1572	1767	1763	1572
Q Serve(g_s), s	6.7	0.0	45.5	27.5	61.1	1.4	11.5	31.5	47.6	1.7	15.1	5.5
Cycle Q Clear(g_c), s	6.7	0.0	45.5	27.5	61.1	1.4	11.5	31.5	47.6	1.7	15.1	5.5
Prop In Lane	1.00		0.21	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	99	0	543	324	799	677	135	559	499	40	928	414
V/C Ratio(X)	0.81	0.00	1.82	1.83	0.97	0.04	1.31	0.74	1.32	0.50	0.46	0.18
Avail Cap(c_a), veh/h	111	0	543	324	799	677	135	559	499	93	928	414
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	70.0	0.0	52.3	61.3	41.7	24.7	69.3	45.7	51.2	72.5	46.3	42.7
Incr Delay (d2), s/veh	31.5	0.0	374.8	384.2	24.3	0.0	183.9	8.6	157.8	9.4	1.6	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	0.0	76.0	46.5	31.6	0.5	12.0	14.6	39.7	0.8	6.7	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	101.5	0.0	427.0	445.4	66.0	24.7	253.2	54.3	209.0	81.8	47.9	43.7
LnGrp LOS	F	A	F	F	E	C	F	D	F	F	D	D
Approach Vol, veh/h		1066			1392			1252			520	
Approach Delay, s/veh		402.6			226.6			164.0			48.6	
Approach LOS		F			F			F			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.9	54.1	34.0	52.0	18.0	46.0	14.9	71.1				
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5				
Max Green Setting (Gmax), s	9.9	43.1	27.5	45.5	11.5	39.5	9.4	63.6				
Max Q Clear Time (g_c+1/3), s	13.7	49.6	29.5	47.5	13.5	17.1	8.7	63.1				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	2.6	0.0	0.2				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			230.5									
HCM 6th LOS			F									

# HCM 6th Signalized Intersection Summary

## 3: Lake Street/Lake Road & Bellevue Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	370	329	337	41	42	13	256	731	90	20	386	82
Future Volume (veh/h)	370	329	337	41	42	13	256	731	90	20	386	82
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	402	358	366	45	46	14	278	795	98	22	420	89
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	281	280	286	51	174	53	212	517	64	307	2046	913
Arrive On Green	0.16	0.33	0.33	0.13	0.13	0.13	0.58	0.58	0.58	0.58	0.58	0.58
Sat Flow, veh/h	1767	841	860	724	1365	416	311	891	110	618	3526	1572
Grp Volume(v), veh/h	402	0	724	45	0	60	1171	0	0	22	420	89
Grp Sat Flow(s),veh/h/ln	1767	0	1701	724	0	1781	1312	0	0	618	1763	1572
Q Serve(g_s), s	22.5	0.0	47.0	0.0	0.0	4.3	74.0	0.0	0.0	0.0	8.0	3.6
Cycle Q Clear(g_c), s	22.5	0.0	47.0	18.0	0.0	4.3	82.0	0.0	0.0	3.1	8.0	3.6
Prop In Lane	1.00		0.51	1.00		0.23	0.24		0.08	1.00		1.00
Lane Grp Cap(c), veh/h	281	0	566	51	0	227	793	0	0	307	2046	913
V/C Ratio(X)	1.43	0.00	1.28	0.88	0.00	0.26	1.48	0.00	0.00	0.07	0.21	0.10
Avail Cap(c_a), veh/h	281	0	566	51	0	227	793	0	0	307	2046	913
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	59.4	0.0	47.2	70.7	0.0	55.7	35.1	0.0	0.0	13.1	14.1	13.2
Incr Delay (d2), s/veh	212.2	0.0	139.1	84.0	0.0	0.6	221.5	0.0	0.0	0.5	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	26.3	0.0	40.7	2.8	0.0	1.9	75.6	0.0	0.0	0.3	3.1	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	271.6	0.0	186.2	154.6	0.0	56.3	256.6	0.0	0.0	13.5	14.4	13.4
LnGrp LOS	F	A	F	F	A	E	F	A	A	B	B	B
Approach Vol, veh/h		1126			105		1171				531	
Approach Delay, s/veh		216.7			98.4		256.6				14.2	
Approach LOS		F			F		F				B	
Timer - Assigned Phs		2		4		6	7	8				
Phs Duration (G+Y+Rc), s		87.8		53.5		87.8	29.0	24.5				
Change Period (Y+Rc), s		* 5.8		6.5		5.8	6.5	6.5				
Max Green Setting (Gmax), s		* 82		47.0		80.7	22.5	18.0				
Max Q Clear Time (g_c+I1), s		84.0		49.0		10.0	24.5	20.0				
Green Ext Time (p_c), s		0.0		0.0		3.3	0.0	0.0				

### Intersection Summary

HCM 6th Ctrl Delay	191.8
HCM 6th LOS	F

### Notes

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

# HCM 6th Signalized Intersection Summary

## 4: G Street & Cardella Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕		↖	↗		↖	↕	↗
Traffic Volume (veh/h)	135	12	70	2	10	9	35	969	1	5	1247	105
Future Volume (veh/h)	135	12	70	2	10	9	35	969	1	5	1247	105
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	147	13	76	2	11	10	38	1053	1	5	1355	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	99	5	190	26	77	59	56	1341	1	56	1342	
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.03	0.72	0.72	0.03	0.72	0.00
Sat Flow, veh/h	432	38	1572	0	634	488	1767	1853	2	1767	1856	1572
Grp Volume(v), veh/h	160	0	76	23	0	0	38	0	1054	5	1355	0
Grp Sat Flow(s),veh/h/ln	471	0	1572	1122	0	0	1767	0	1855	1767	1856	1572
Q Serve(g_s), s	0.0	0.0	6.6	0.0	0.0	0.0	3.2	0.0	54.1	0.4	107.6	0.0
Cycle Q Clear(g_c), s	18.0	0.0	6.6	18.0	0.0	0.0	3.2	0.0	54.1	0.4	107.6	0.0
Prop In Lane	0.92		1.00	0.09		0.43	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	103	0	190	162	0	0	56	0	1342	56	1342	
V/C Ratio(X)	1.55	0.00	0.40	0.14	0.00	0.00	0.67	0.00	0.79	0.09	1.01	
Avail Cap(c_a), veh/h	103	0	190	162	0	0	71	0	1342	71	1342	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	69.4	0.0	60.4	58.4	0.0	0.0	71.2	0.0	13.2	69.9	20.6	0.0
Incr Delay (d2), s/veh	288.4	0.0	1.4	0.4	0.0	0.0	15.9	0.0	4.7	0.7	26.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ft	2.2	0.0	2.7	0.8	0.0	0.0	1.6	0.0	19.9	0.2	46.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	357.9	0.0	61.7	58.8	0.0	0.0	87.1	0.0	17.9	70.6	47.5	0.0
LnGrp LOS	F	A	E	E	A	A	F	A	B	E	F	
Approach Vol, veh/h		236			23			1092			1360	A
Approach Delay, s/veh		262.5			58.8			20.3			47.6	
Approach LOS		F			E			C			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	114.1			23.4	11.3	114.1		23.4				
Change Period (Y+Rc), s	6.5	6.5		5.4	6.5	6.5		5.4				
Max Green Setting (Gmax), s	107.6			18.0	6.0	107.6		18.0				
Max Q Clear Time (g_c+1/2), s	56.1			20.0	5.2	109.6		20.0				
Green Ext Time (p_c), s	0.0	9.8		0.0	0.0	0.0		0.0				

### Intersection Summary

HCM 6th Ctrl Delay	55.4
HCM 6th LOS	E

### Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

# HCM 6th Signalized Intersection Summary

## 5: Lake Road & Cardella Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	38	9	69	48	71	13	103	79	51	87	16
Future Volume (veh/h)	17	38	9	69	48	71	13	103	79	51	87	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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	18	41	10	75	52	77	14	112	86	55	95	17
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	732	305	74	384	96	123	703	523	443	682	431	77
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	1251	1441	351	503	455	581	1271	1856	1572	1175	1532	274
Grp Volume(v), veh/h	18	0	51	204	0	0	14	112	86	55	0	112
Grp Sat Flow(s),veh/h/ln	1251	0	1792	1539	0	0	1271	1856	1572	1175	0	1806
Q Serve(g_s), s	0.0	0.0	0.4	1.7	0.0	0.0	0.2	0.8	0.7	0.7	0.0	0.8
Cycle Q Clear(g_c), s	0.1	0.0	0.4	2.1	0.0	0.0	1.0	0.8	0.7	1.5	0.0	0.8
Prop In Lane	1.00		0.20	0.37		0.38	1.00		1.00	1.00		0.15
Lane Grp Cap(c), veh/h	732	0	379	603	0	0	703	523	443	682	0	509
V/C Ratio(X)	0.02	0.00	0.13	0.34	0.00	0.00	0.02	0.21	0.19	0.08	0.00	0.22
Avail Cap(c_a), veh/h	1736	0	1817	1835	0	0	1633	1881	1594	1543	0	1831
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	5.6	0.0	5.7	6.4	0.0	0.0	5.3	4.9	4.8	5.4	0.0	4.9
Incr Delay (d2), s/veh	0.0	0.0	0.2	0.3	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/lr	0.0	0.0	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.6	0.0	5.8	6.7	0.0	0.0	5.3	5.1	5.1	5.5	0.0	5.1
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		69		204				212			167	
Approach Delay, s/veh		5.8		6.7				5.1			5.2	
Approach LOS		A		A				A			A	
Timer - Assigned Phs		2		4			6	8				
Phs Duration (G+Y+Rc), s		9.5		8.3			9.5	8.3				
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5				
Max Green Setting (Gmax), s		18.0		18.0			18.0	18.0				
Max Q Clear Time (g_c+I1), s		3.0		2.4			3.5	4.1				
Green Ext Time (p_c), s		0.6		0.2			0.5	0.9				

### Intersection Summary

HCM 6th Ctrl Delay	5.7
HCM 6th LOS	A

# HCM 6th Signalized Intersection Summary

## 6: Snelling Highway (SR 59) & Yosemite Avenue

02/23/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	237	438	716	242	537	942
Future Volume (veh/h)	237	438	716	242	537	942
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	258	476	778	263	584	1024
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	353	314	654	554	422	1231
Arrive On Green	0.20	0.20	0.35	0.35	0.24	0.66
Sat Flow, veh/h	1767	1572	1856	1572	1767	1856
Grp Volume(v), veh/h	258	476	778	263	584	1024
Grp Sat Flow(s),veh/h/ln	1767	1572	1856	1572	1767	1856
Q Serve(g_s), s	12.3	18.0	31.7	11.7	21.5	37.3
Cycle Q Clear(g_c), s	12.3	18.0	31.7	11.7	21.5	37.3
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	353	314	654	554	422	1231
V/C Ratio(X)	0.73	1.51	1.19	0.47	1.38	0.83
Avail Cap(c_a), veh/h	353	314	654	554	422	1231
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.7	36.0	29.2	22.7	34.2	11.4
Incr Delay (d2), s/veh	7.5	246.9	100.4	2.9	186.7	6.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/lr	5.7	28.0	30.5	4.3	30.2	12.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	41.2	282.9	129.5	25.6	221.0	18.0
LnGrp LOS	D	F	F	C	F	B
Approach Vol, veh/h	734		1041			1608
Approach Delay, s/veh	197.9		103.3			91.7
Approach LOS	F		F			F
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	38.0	38.2			66.2	23.8
Change Period (Y+Rc), s	6.5	6.5			6.5	5.8
Max Green Setting (Gmax), s	21.5	31.7			59.7	18.0
Max Q Clear Time (g_c+Q), s	23.5	33.7			39.3	20.0
Green Ext Time (p_c), s	0.0	0.0			7.3	0.0
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			118.3			
HCM 6th LOS			F			

HCM 6th Signalized Intersection Summary  
 7: G Street & Yosemite Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	287	929	160	712	806	176	265	809	546	187	748	238
Future Volume (veh/h)	287	929	160	712	806	176	265	809	546	187	748	238
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	312	1010	174	774	876	191	288	879	593	203	813	259
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	336	792	136	441	1139	508	185	880	393	136	783	349
Arrive On Green	0.19	0.26	0.26	0.25	0.32	0.32	0.10	0.25	0.25	0.08	0.22	0.22
Sat Flow, veh/h	1767	3008	517	1767	3526	1572	1767	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	312	591	593	774	876	191	288	879	593	203	813	259
Grp Sat Flow(s),veh/h/ln	1767	1763	1762	1767	1763	1572	1767	1763	1572	1767	1763	1572
Q Serve(g_s), s	25.2	38.2	38.2	36.2	32.4	13.6	15.2	36.1	20.3	11.2	32.2	22.2
Cycle Q Clear(g_c), s	25.2	38.2	38.2	36.2	32.4	13.6	15.2	36.1	20.3	11.2	32.2	22.2
Prop In Lane	1.00		0.29	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	336	464	464	441	1139	508	185	880	393	136	783	349
V/C Ratio(X)	0.93	1.27	1.28	1.75	0.77	0.38	1.55	1.00	1.51	1.49	1.04	0.74
Avail Cap(c_a), veh/h	381	464	464	441	1139	508	185	880	393	136	783	349
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.8	53.4	53.4	54.4	44.2	37.8	64.9	54.4	17.1	66.9	56.4	52.5
Incr Delay (d2), s/veh	27.2	139.0	140.3	348.7	3.3	0.5	274.4	30.0	242.6	254.0	42.5	13.3
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/ft	3.5	34.4	34.5	58.4	14.3	5.2	20.8	19.3	33.5	14.6	18.6	9.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	84.9	192.4	193.7	403.1	47.4	38.3	339.3	84.4	259.7	320.9	98.9	65.8
LnGrp LOS	F	F	F	F	D	D	F	F	F	F	F	E
Approach Vol, veh/h	1496			1841			1760			1275		
Approach Delay, s/veh	170.5			196.0			185.2			127.6		
Approach LOS	F			F			F			F		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.0	42.0	42.0	44.0	21.0	38.0	33.3	52.7				
Change Period (Y+Rc), s	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8				
Max Green Setting (Gmax), s	1.2	36.2	36.2	38.2	15.2	32.2	31.3	43.1				
Max Q Clear Time (g_c+1/3), s	1.2	38.1	38.2	40.2	17.2	34.2	27.2	34.4				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.4	4.0				

Intersection Summary

HCM 6th Ctrl Delay	173.3
HCM 6th LOS	F



Intersection

Intersection Delay, s/veh 709.8

Intersection LOS F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔			↔			↔	↔
Traffic Vol, veh/h	53	1243	138	23	1321	31	227	52	37	56	146	74
Future Vol, veh/h	53	1243	138	23	1321	31	227	52	37	56	146	74
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	58	1351	150	25	1436	34	247	57	40	61	159	80
Number of Lanes	0	2	0	0	1	0	0	1	0	0	1	1

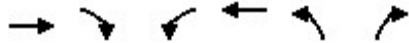
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	2
HCM Control Delay	447.6	1266.2	73.9	28.6
HCM LOS	F	F	F	D

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	72%	8%	0%	2%	28%	0%
Vol Thru, %	16%	92%	82%	96%	72%	0%
Vol Right, %	12%	0%	18%	2%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	316	675	760	1375	202	74
LT Vol	227	53	0	23	56	0
Through Vol	52	622	622	1321	146	0
RT Vol	37	0	138	31	0	74
Lane Flow Rate	343	733	826	1495	220	80
Geometry Grp	6	7	7	6	7	7
Degree of Util (X)	0.9	1.796	1.985	3.767	0.589	0.197
Departure Headway (Hd)	14.222	14.015	13.833	7.677	12.945	12.026
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	258	271	272	493	281	301
Service Time	12.222	11.715	11.533	5.677	10.645	9.726
HCM Lane V/C Ratio	1.329	2.705	3.037	3.032	0.783	0.266
HCM Control Delay	73.9	404.2	486.1	1266.2	32.6	17.7
HCM Lane LOS	F	F	F	F	D	C
HCM 95th-tile Q	7.8	31.1	37.2	166.2	3.5	0.7

# HCM 6th Signalized Intersection Summary

## 9: McKee Road & Yosemite Avenue

02/23/2022



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑	↵	↵
Traffic Volume (veh/h)	1146	121	330	1121	286	398
Future Volume (veh/h)	1146	121	330	1121	286	398
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	1246	132	359	1218	311	433
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	995	105	264	995	537	478
Arrive On Green	0.31	0.31	0.15	0.54	0.30	0.30
Sat Flow, veh/h	3310	340	1767	1856	1767	1572
Grp Volume(v), veh/h	681	697	359	1218	311	433
Grp Sat Flow(s),veh/h/ln	1763	1794	1767	1856	1767	1572
Q Serve(g_s), s	23.2	23.2	11.2	40.2	11.1	19.8
Cycle Q Clear(g_c), s	23.2	23.2	11.2	40.2	11.1	19.8
Prop In Lane		0.19	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	545	555	264	995	537	478
V/C Ratio(X)	1.25	1.26	1.36	1.22	0.58	0.91
Avail Cap(c_a), veh/h	545	555	264	995	537	478
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.9	25.9	31.9	17.4	22.0	25.1
Incr Delay (d2), s/veh	126.6	129.3	184.8	110.1	4.5	23.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	17.7	28.6	17.9	43.5	4.7	9.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	152.5	155.2	216.7	127.5	26.5	48.4
LnGrp LOS	F	F	F	F	C	D
Approach Vol, veh/h	1378			1577	744	
Approach Delay, s/veh	153.9			147.8	39.3	
Approach LOS	F			F	D	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		29.0	17.0	29.0		46.0
Change Period (Y+Rc), s		6.2	5.8	5.8		5.8
Max Green Setting (Gmax), s		22.8	11.2	23.2		40.2
Max Q Clear Time (g_c+I1), s		21.8	13.2	25.2		42.2
Green Ext Time (p_c), s		0.3	0.0	0.0		0.0
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			128.2			
HCM 6th LOS			F			

**Intersection**

Intersection Delay, s/veh 198.1  
 Intersection LOS F

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	29	951	814	12	15	34
Future Vol, veh/h	29	951	814	12	15	34
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	32	1034	885	13	16	37
Number of Lanes	1	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left SB			WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	250	147.6	11.5
HCM LOS	F	F	B

Lane	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	100%	0%	0%	31%
Vol Thru, %	0%	100%	99%	0%
Vol Right, %	0%	0%	1%	69%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	29	951	826	49
LT Vol	29	0	0	15
Through Vol	0	951	814	0
RT Vol	0	0	12	34
Lane Flow Rate	32	1034	898	53
Geometry Grp	7	7	5	2
Degree of Util (X)	0.051	1.52	1.259	0.099
Departure Headway (Hd)	6.023	5.516	5.53	7.701
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	598	672	664	468
Service Time	3.723	3.216	3.53	5.701
HCM Lane V/C Ratio	0.054	1.539	1.352	0.113
HCM Control Delay	9	257.4	147.6	11.5
HCM Lane LOS	A	F	F	B
HCM 95th-tile Q	0.2	49.9	31	0.3

# HCM 6th Signalized Intersection Summary

## 11: Snelling Highway (SR 59) & Santa Fe Drive/Olive Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗	↘	↑	↗	↘	↑	↗
Traffic Volume (veh/h)	176	980	149	231	679	187	89	760	284	254	830	86
Future Volume (veh/h)	176	980	149	231	679	187	89	760	284	254	830	86
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	191	1065	162	251	738	203	97	826	309	276	902	93
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	206	824	367	187	784	350	88	671	569	191	779	660
Arrive On Green	0.12	0.23	0.23	0.11	0.22	0.22	0.05	0.36	0.36	0.11	0.42	0.42
Sat Flow, veh/h	1767	3526	1572	1767	3526	1572	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	191	1065	162	251	738	203	97	826	309	276	902	93
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1572	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	13.4	29.2	9.0	13.2	25.7	14.4	6.2	45.2	19.5	13.5	52.5	2.9
Cycle Q Clear(g_c), s	13.4	29.2	9.0	13.2	25.7	14.4	6.2	45.2	19.5	13.5	52.5	2.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	206	824	367	187	784	350	88	671	569	191	779	660
V/C Ratio(X)	0.93	1.29	0.44	1.35	0.94	0.58	1.11	1.23	0.54	1.45	1.16	0.14
Avail Cap(c_a), veh/h	206	824	367	187	784	350	88	671	569	191	779	660
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.7	47.9	27.1	55.9	47.8	43.4	59.4	39.9	31.7	55.8	36.3	8.8
Incr Delay (d2), s/veh	42.3	140.9	0.8	186.6	19.3	2.4	127.9	116.7	3.7	227.7	85.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.2	28.5	3.4	15.4	13.0	5.7	5.8	41.3	7.7	17.8	40.1	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	96.9	188.8	28.0	242.5	67.1	45.8	187.3	156.6	35.4	283.5	121.2	9.3
LnGrp LOS	F	F	C	F	E	D	F	F	D	F	F	A
Approach Vol, veh/h		1418			1192			1232			1271	
Approach Delay, s/veh		158.1			100.4			128.6			148.3	
Approach LOS		F			F			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	30.0	51.0	19.0	35.0	12.0	59.0	20.4	33.6				
Change Period (Y+Rc), s	6.5	5.8	5.8	5.8	5.8	6.5	5.8	5.8				
Max Green Setting (Gmax), s	13.5	45.2	13.2	29.2	6.2	52.5	14.6	27.8				
Max Q Clear Time (g_c+115), s	13.5	47.2	15.2	31.2	8.2	54.5	15.4	27.7				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				

### Intersection Summary

HCM 6th Ctrl Delay	135.1
HCM 6th LOS	F

# HCM 6th Signalized Intersection Summary

## 12: R Street & Olive Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑	↗	↘	↑↑↑	↗	↘	↑↑		↘	↑↑	↗
Traffic Volume (veh/h)	131	869	261	253	780	163	310	605	142	188	686	74
Future Volume (veh/h)	131	869	261	253	780	163	310	605	142	188	686	74
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	142	945	284	275	848	177	337	658	154	204	746	80
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	121	1064	330	224	1359	422	259	1009	236	214	1163	519
Arrive On Green	0.07	0.21	0.21	0.13	0.27	0.27	0.15	0.36	0.36	0.12	0.33	0.33
Sat Flow, veh/h	1767	5066	1572	1767	5066	1572	1767	2836	663	1767	3526	1572
Grp Volume(v), veh/h	142	945	284	275	848	177	337	409	403	204	746	80
Grp Sat Flow(s),veh/h/ln	1767	1689	1572	1767	1689	1572	1767	1763	1736	1767	1763	1572
Q Serve(g_s), s	8.2	21.7	20.9	15.2	17.7	7.9	17.6	23.3	23.4	13.8	21.6	4.3
Cycle Q Clear(g_c), s	8.2	21.7	20.9	15.2	17.7	7.9	17.6	23.3	23.4	13.8	21.6	4.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.38	1.00		1.00
Lane Grp Cap(c), veh/h	121	1064	330	224	1359	422	259	627	618	214	1163	519
V/C Ratio(X)	1.18	0.89	0.86	1.23	0.62	0.42	1.30	0.65	0.65	0.96	0.64	0.15
Avail Cap(c_a), veh/h	121	1098	341	224	1393	432	259	627	618	214	1163	519
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	0.09	0.09	0.09	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.9	46.0	45.7	52.4	38.6	18.1	51.2	32.4	32.4	52.4	34.2	28.4
Incr Delay (d2), s/veh	87.3	0.9	2.2	106.6	0.1	0.1	160.4	5.2	5.3	48.9	2.7	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.5	8.9	8.1	13.2	7.1	4.0	19.2	10.6	10.4	8.9	9.4	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	143.2	47.0	47.9	159.0	38.7	18.2	211.6	37.6	37.7	101.3	36.9	29.0
LnGrp LOS	F	D	D	F	D	B	F	D	D	F	D	C
Approach Vol, veh/h		1371			1300			1149			1030	
Approach Delay, s/veh		57.1			61.3			88.7			49.0	
Approach LOS		E			E			F			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	48.1	21.0	31.0	23.0	45.0	14.0	38.0					
Change Period (Y+Rc), s	5.4	5.4	5.8	5.8	5.4	5.4	5.8	5.8				
Max Green Setting (Gmax), s	42.7	15.2	26.0	17.6	38.8	8.2	33.0					
Max Q Clear Time (g_c+1/5), s	25.4	17.2	23.7	19.6	23.6	10.2	19.7					
Green Ext Time (p_c), s	0.0	4.6	0.0	1.5	0.0	4.5	0.0	5.0				

### Intersection Summary

HCM 6th Ctrl Delay	64.0
HCM 6th LOS	E

# HCM 6th Signalized Intersection Summary

## 13: M Street & Olive Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘ ↑↑↑	↑↑↑	↗	↘ ↑↑↑	↑↑↑		↘ ↑↑	↑↑		↘ ↑↑	↑↑	
Traffic Volume (veh/h)	173	921	158	199	996	149	156	612	154	282	897	112
Future Volume (veh/h)	173	921	158	199	996	149	156	612	154	282	897	112
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		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	188	1001	172	216	1083	162	170	665	167	307	975	122
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	197	1131	351	233	1082	162	188	789	198	311	1109	139
Arrive On Green	0.11	0.22	0.22	0.13	0.24	0.24	0.11	0.28	0.28	0.18	0.35	0.35
Sat Flow, veh/h	1767	5066	1572	1767	4448	665	1767	2792	700	1767	3153	394
Grp Volume(v), veh/h	188	1001	172	216	822	423	170	420	412	307	545	552
Grp Sat Flow(s),veh/h/ln	1767	1689	1572	1767	1689	1736	1767	1763	1729	1767	1763	1785
Q Serve(g_s), s	12.7	23.0	11.4	14.5	29.2	29.2	11.4	26.9	27.0	20.8	34.8	34.8
Cycle Q Clear(g_c), s	12.7	23.0	11.4	14.5	29.2	29.2	11.4	26.9	27.0	20.8	34.8	34.8
Prop In Lane	1.00		1.00	1.00		0.38	1.00		0.41	1.00		0.22
Lane Grp Cap(c), veh/h	197	1131	351	233	822	422	188	498	489	311	620	628
V/C Ratio(X)	0.95	0.88	0.49	0.93	1.00	1.00	0.90	0.84	0.84	0.99	0.88	0.88
Avail Cap(c_a), veh/h	197	1131	351	233	822	422	188	498	489	311	620	628
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.31	0.31	0.31	0.09	0.09	0.09	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.0	45.1	40.6	51.5	45.4	45.4	53.0	40.5	40.6	49.3	36.5	36.5
Incr Delay (d2), s/veh	24.5	2.9	0.3	6.6	9.5	13.5	39.3	15.8	16.2	47.6	16.3	16.1
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	6.8	9.6	4.3	6.7	12.8	13.7	7.0	13.5	13.3	13.1	17.2	17.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	77.5	48.0	41.0	58.2	54.9	58.9	92.3	56.4	56.7	97.0	52.8	52.7
LnGrp LOS	E	D	D	E	F	F	F	E	E	F	D	D
Approach Vol, veh/h		1361			1461			1002			1404	
Approach Delay, s/veh		51.2			56.5			62.6			62.4	
Approach LOS		D			E			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	36.5	39.3	21.6	32.6	18.2	47.6	19.2	35.0				
Change Period (Y+Rc), s	5.4	5.4	5.8	5.8	5.4	5.4	5.8	5.8				
Max Green Setting (Gmax), s	21.5	33.9	15.8	26.8	12.8	42.2	13.4	29.2				
Max Q Clear Time (g_c+Q2), s	22.8	29.0	16.5	25.0	13.4	36.8	14.7	31.2				
Green Ext Time (p_c), s	0.0	2.2	0.0	1.2	0.0	3.0	0.0	0.0				

### Intersection Summary

HCM 6th Ctrl Delay	57.9
HCM 6th LOS	E

# HCM 6th Signalized Intersection Summary

## 14: Olive Avenue & G Street

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑		↘	↑↑	↗	↘	↑↑	↗
Traffic Volume (veh/h)	385	441	249	254	749	97	250	1413	135	98	1437	570
Future Volume (veh/h)	385	441	249	254	749	97	250	1413	135	98	1437	570
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	418	479	271	276	814	105	272	1536	147	107	1562	620
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	264	945	422	186	703	91	186	1415	631	94	1233	550
Arrive On Green	0.15	0.27	0.27	0.11	0.22	0.22	0.11	0.40	0.40	0.05	0.35	0.35
Sat Flow, veh/h	1767	3526	1572	1767	3140	405	1767	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	418	479	271	276	457	462	272	1536	147	107	1562	620
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1783	1767	1763	1572	1767	1763	1572
Q Serve(g_s), s	20.2	15.5	20.6	14.2	30.2	30.2	14.2	54.2	8.3	7.2	47.2	30.1
Cycle Q Clear(g_c), s	20.2	15.5	20.6	14.2	30.2	30.2	14.2	54.2	8.3	7.2	47.2	30.1
Prop In Lane	1.00		1.00	1.00		0.23	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	264	945	422	186	394	399	186	1415	631	94	1233	550
V/C Ratio(X)	1.58	0.51	0.64	1.48	1.16	1.16	1.46	1.09	0.23	1.14	1.27	1.13
Avail Cap(c_a), veh/h	264	945	422	186	394	399	186	1415	631	94	1233	550
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	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	57.4	41.8	43.7	60.4	52.4	52.4	60.4	40.4	26.7	63.9	43.9	17.9
Incr Delay (d2), s/veh	278.7	0.4	3.3	244.6	96.1	96.0	235.6	50.6	0.9	133.8	126.8	78.6
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	29.3	6.7	8.2	18.9	23.5	23.7	18.4	32.3	3.2	6.7	41.4	22.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	336.1	42.3	47.0	305.0	148.5	148.4	296.0	91.0	27.5	197.7	170.7	96.5
LnGrp LOS	F	D	D	F	F	F	F	F	C	F	F	F
Approach Vol, veh/h		1168			1195			1955			2289	
Approach Delay, s/veh		148.5			184.6			114.7			151.9	
Approach LOS		F			F			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	30.0	60.0	20.0	42.0	20.0	53.0	26.0	36.0				
Change Period (Y+Rc), s	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8				
Max Green Setting (Gmax), s	30.2	54.2	14.2	36.2	14.2	47.2	20.2	30.2				
Max Q Clear Time (g_c+19), s	19.2	56.2	16.2	22.6	16.2	49.2	22.2	32.2				
Green Ext Time (p_c), s	0.0	0.0	0.0	3.2	0.0	0.0	0.0	0.0				

### Intersection Summary

HCM 6th Ctrl Delay	146.2
HCM 6th LOS	F

Intersection

Intersection Delay, s/veh 521.7

Intersection LOS F

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	645	845	353	404	428	789
Future Vol, veh/h	645	845	353	404	428	789
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	701	918	384	439	465	858
Number of Lanes	1	1	2	1	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	3	2	0
Conflicting Approach Left SB			WB
Conflicting Lanes Left	1	0	3
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	468.7	9.4	905.3
HCM LOS	F	A	F

Lane	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	100%	0%	0%	0%	0%	35%
Vol Thru, %	0%	100%	100%	100%	0%	0%
Vol Right, %	0%	0%	0%	0%	100%	65%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	645	845	177	177	404	1217
LT Vol	645	0	0	0	0	428
Through Vol	0	845	177	177	0	0
RT Vol	0	0	0	0	404	789
Lane Flow Rate	701	918	192	192	439	1323
Geometry Grp	8	8	7	7	7	7
Degree of Util (X)	1.717	2.123	0.418	0.418	0.658	2.957
Departure Headway (Hd)	13.662	13.095	4.599	4.599	1.97	8.829
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	273	285	787	787	1836	423
Service Time	11.362	10.795	2.299	2.299	-0.33	6.529
HCM Lane V/C Ratio	2.568	3.221	0.244	0.244	0.239	3.128
HCM Control Delay	369	544.8	10.6	10.6	8.4	905.3
HCM Lane LOS	F	F	B	B	A	F
HCM 95th-tile Q	29.4	43.6	2.1	2.1	5.4	104.1



HCM 6th TWSC  
 16: MLK JR Way & SR 99 NB Ramps

02/23/2022

Intersection												
Int Delay, s/veh	82.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕		↕	↑↑			↑↑	
Traffic Vol, veh/h	0	0	0	76	0	118	301	860	0	0	558	341
Future Vol, veh/h	0	0	0	76	0	118	301	860	0	0	558	341
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	75	-	-	-	-	-
Veh in Median Storage, #	-	2	-	-	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	0	0	0	83	0	128	327	935	0	0	607	371

Major/Minor	Minor1		Major1		Major2		
Conflicting Flow All	1893	2567	468	978	0	-	0
Stage 1	1589	1589	-	-	-	-	-
Stage 2	304	978	-	-	-	-	-
Critical Hdwy	6.86	6.56	6.96	4.16	-	-	-
Critical Hdwy Stg 1	5.86	5.56	-	-	-	-	-
Critical Hdwy Stg 2	5.86	5.56	-	-	-	-	-
Follow-up Hdwy	3.53	4.03	3.33	2.23	-	-	-
Pot Cap-1 Maneuver	~ 61	25	539	695	-	0	0
Stage 1	152	164	-	-	-	0	0
Stage 2	719	325	-	-	-	0	0
Platoon blocked, %					-	-	-
Mov Cap-1 Maneuver	~ 32	0	539	695	-	-	-
Mov Cap-2 Maneuver	~ 32	0	-	-	-	-	-
Stage 1	~ 80	0	-	-	-	-	-
Stage 2	719	0	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	\$ 936.9	3.8	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBTWBLn1	SBT	SBR
Capacity (veh/h)	695	- 75	-	-
HCM Lane V/C Ratio	0.471	- 2.812	-	-
HCM Control Delay (s)	14.7	-\$ 936.9	-	-
HCM Lane LOS	B	- F	-	-
HCM 95th %tile Q(veh)	2.5	- 20.8	-	-

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

Intersection												
Int Delay, s/veh	56.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖		↗		↕		↖	↕			↕	↗
Traffic Vol, veh/h	161	0	9	56	8	151	10	679	0	0	763	61
Future Vol, veh/h	161	0	9	56	8	151	10	679	0	0	763	61
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	-	-	-	75	-	-	-	-	-
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	175	0	10	61	9	164	11	738	0	0	829	66

Major/Minor	Minor2	Minor1		Major1			Major2					
Conflicting Flow All	1258	-	448	1175	1655	369	895	0	-	-	-	0
Stage 1	862	-	-	760	760	-	-	-	-	-	-	-
Stage 2	396	-	-	415	895	-	-	-	-	-	-	-
Critical Hdwy	7.56	-	6.96	7.56	6.56	6.96	4.16	-	-	-	-	-
Critical Hdwy Stg 1	6.56	-	-	6.56	5.56	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.56	-	-	6.56	5.56	-	-	-	-	-	-	-
Follow-up Hdwy	3.53	-	3.33	3.53	4.03	3.33	2.23	-	-	-	-	-
Pot Cap-1 Maneuver	~ 126	0	555	146	96	625	748	-	0	0	-	-
Stage 1	314	0	-	362	410	-	-	-	0	0	-	-
Stage 2	598	0	-	583	355	-	-	-	0	0	-	-
Platoon blocked, %								-			-	-
Mov Cap-1 Maneuver	~ 85	-	555	142	95	625	748	-	-	-	-	-
Mov Cap-2 Maneuver	~ 85	-	-	142	95	-	-	-	-	-	-	-
Stage 1	309	-	-	357	404	-	-	-	-	-	-	-
Stage 2	425	-	-	573	355	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	564.5	49.4	0.1	0
HCM LOS	F	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	WBLn1	SBT	SBR
Capacity (veh/h)	748	-	85	555	299	-	-
HCM Lane V/C Ratio	0.015	-	2.059	0.018	0.782	-	-
HCM Control Delay (s)	9.9	-	\$ 595.4	11.6	49.4	-	-
HCM Lane LOS	A	-	F	B	E	-	-
HCM 95th %tile Q(veh)	0	-	15.5	0.1	6.1	-	-

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

HCM 6th Roundabout  
18: Campus Parkway & Yosemite Avenue

02/23/2022

Intersection									
Intersection Delay, s/veh	78.8								
Intersection LOS	F								
Approach	EB		WB		NB		SB		
Entry Lanes	2		2		2		2		
Conflicting Circle Lanes	2		2		2		2		
Adj Approach Flow, veh/h	1050		643		1073		1387		
Demand Flow Rate, veh/h	1081		663		1105		1429		
Vehicles Circulating, veh/h	1178		1262		697		757		
Vehicles Exiting, veh/h	1008		540		1562		1168		
Ped Vol Crossing Leg, #/h	0		0		0		0		
Ped Cap Adj	1.000		1.000		1.000		1.000		
Approach Delay, s/veh	101.9		176.1		21.3		60.5		
Approach LOS	F		F		C		F		
Lane	Left	Right	Left	Right	Left	Right	Left	Right	
Designated Moves	LT	TR	LT	R	LT	TR	LT	TR	
Assumed Moves	LT	TR	LT	R	LT	TR	LT	TR	
RT Channelized									
Lane Util	0.470	0.530	0.864	0.136	0.470	0.530	0.470	0.530	
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.667	2.535	2.667	2.535	
Critical Headway, s	4.645	4.328	4.645	4.328	4.645	4.328	4.645	4.328	
Entry Flow, veh/h	508	573	573	90	519	586	672	757	
Cap Entry Lane, veh/h	457	522	423	486	711	785	673	746	
Entry HV Adj Factor	0.971	0.971	0.970	0.967	0.972	0.970	0.970	0.971	
Flow Entry, veh/h	493	556	556	87	504	569	652	735	
Cap Entry, veh/h	444	507	410	470	691	762	653	725	
V/C Ratio	1.112	1.098	1.355	0.185	0.730	0.746	0.999	1.015	
Control Delay, s/veh	106.9	97.5	202.1	10.3	21.6	21.0	60.0	61.0	
LOS	F	F	F	B	C	C	F	F	
95th %tile Queue, veh	17	18	26	1	6	7	16	17	

HCM 6th Roundabout  
19: Campus Parkway & Olive Avenue

02/23/2022

Intersection									
Intersection Delay, s/veh65.8									
Intersection LOS F									
Approach	EB		WB		NB		SB		
Entry Lanes	2		2		2		2		
Conflicting Circle Lanes	2		2		2		2		
Adj Approach Flow, veh/h	187		215		981		1517		
Demand Flow Rate, veh/h	193		222		1011		1562		
Vehicles Circulating, veh/h	1452		1057		309		172		
Vehicles Exiting, veh/h	282		263		1336		1107		
Ped Vol Crossing Leg, #/h	0		0		0		0		
Ped Cap Adj	1.000		1.000		1.000		1.000		
Approach Delay, s/veh	14.4		9.6		9.1		116.8		
Approach LOS	B		A		A		F		
Lane	Left	Right	Left	Right	Left	Right	Left	Right	
Designated Moves	LT	TR	LT	TR	LT	TR	LT	R	
Assumed Moves	L	TR	LT	TR	LT	TR	LT	R	
RT Channelized									
Lane Util	0.518	0.482	0.468	0.532	0.470	0.530	0.910	0.090	
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.667	2.535	2.667	2.535	
Critical Headway, s	4.645	4.328	4.645	4.328	4.645	4.328	4.645	4.328	
Entry Flow, veh/h	100	93	104	118	475	536	1421	141	
Cap Entry Lane, veh/h	355	413	511	578	1016	1092	1152	1227	
Entry HV Adj Factor	0.970	0.967	0.972	0.966	0.971	0.970	0.971	0.972	
Flow Entry, veh/h	97	90	101	114	461	520	1380	137	
Cap Entry, veh/h	344	400	496	559	986	1060	1119	1192	
V/C Ratio	0.282	0.225	0.204	0.204	0.468	0.491	1.233	0.115	
Control Delay, s/veh	15.9	12.7	10.1	9.1	9.2	9.1	128.1	4.0	
LOS	C	B	B	A	A	A	F	A	
95th %tile Queue, veh	1	1	1	1	3	3	44	0	

# HCM 6th Signalized Intersection Summary

## 20: Campus Parkway & Connector Road

02/23/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔↔	↔	↑↑	↔	↔↔	↑↑
Traffic Volume (veh/h)	83	166	737	68	207	986
Future Volume (veh/h)	83	166	737	68	207	986
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	90	0	801	0	225	1072
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	380		1522		375	2341
Arrive On Green	0.11	0.00	0.43	0.00	0.11	0.66
Sat Flow, veh/h	3428	1572	3618	1572	3428	3618
Grp Volume(v), veh/h	90	0	801	0	225	1072
Grp Sat Flow(s),veh/h/ln	1714	1572	1763	1572	1714	1763
Q Serve(g_s), s	1.3	0.0	8.8	0.0	3.3	7.8
Cycle Q Clear(g_c), s	1.3	0.0	8.8	0.0	3.3	7.8
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	380		1522		375	2341
V/C Ratio(X)	0.24		0.53		0.60	0.46
Avail Cap(c_a), veh/h	2140		1522		422	2341
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	21.5	0.0	11.0	0.0	22.4	4.3
Incr Delay (d2), s/veh	0.3	0.0	1.3	0.0	1.9	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	2.5	0.0	1.2	0.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	21.8	0.0	12.4	0.0	24.4	4.9
LnGrp LOS	C		B		C	A
Approach Vol, veh/h	90	A	801	A		1297
Approach Delay, s/veh	21.8		12.4			8.3
Approach LOS	C		B			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	2.3	29.3			41.6	11.3
Change Period (Y+Rc), s	6.5	6.5			6.5	5.4
Max Green Setting (Gmax), s	6.5	22.1			35.1	33.0
Max Q Clear Time (g_c+1/3), s	11.3	10.8			9.8	3.3
Green Ext Time (p_c), s	0.1	3.6			7.3	0.3

### Intersection Summary

HCM 6th Ctrl Delay	10.3
HCM 6th LOS	B

### Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

# HCM 6th Signalized Intersection Summary

## 21: SR 140 & Connector Road

02/23/2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	51	198	262	198	222	26	
Future Volume (veh/h)	51	198	262	198	222	26	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	
Adj Flow Rate, veh/h	55	215	285	215	241	28	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	3	3	3	3	3	3	
Cap, veh/h	111	746	400	339	657	585	
Arrive On Green	0.06	0.40	0.22	0.22	0.37	0.37	
Sat Flow, veh/h	1767	1856	1856	1572	1767	1572	
Grp Volume(v), veh/h	55	215	285	215	241	28	
Grp Sat Flow(s),veh/h/ln	1767	1856	1856	1572	1767	1572	
Q Serve(g_s), s	1.6	4.1	7.5	6.5	5.2	0.6	
Cycle Q Clear(g_c), s	1.6	4.1	7.5	6.5	5.2	0.6	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	111	746	400	339	657	585	
V/C Ratio(X)	0.49	0.29	0.71	0.63	0.37	0.05	
Avail Cap(c_a), veh/h	218	1356	898	761	657	585	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	23.9	10.7	19.1	18.8	12.0	10.6	
Incr Delay (d2), s/veh	3.4	0.2	2.4	2.0	1.6	0.2	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.7	1.2	2.8	2.0	1.9	0.7	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	27.2	10.9	21.5	20.7	13.6	10.7	
LnGrp LOS	C	B	C	C	B	B	
Approach Vol, veh/h		270	500		269		
Approach Delay, s/veh		14.2	21.2		13.3		
Approach LOS		B	C		B		
Timer - Assigned Phs			4		6	7	8
Phs Duration (G+Y+Rc), s			27.7		25.0	9.8	17.9
Change Period (Y+Rc), s			6.5		5.4	6.5	6.5
Max Green Setting (Gmax), s			38.5		19.6	6.5	25.5
Max Q Clear Time (g_c+I1), s			6.1		7.2	3.6	9.5
Green Ext Time (p_c), s			1.0		0.6	0.0	1.9
<b>Intersection Summary</b>							
HCM 6th Ctrl Delay			17.3				
HCM 6th LOS			B				

HCM 6th Signalized Intersection Summary  
 22: Campus Parkway & Childs Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	76	66	96	123	6	166	786	101	61	951	57
Future Volume (veh/h)	13	76	66	96	123	6	166	786	101	61	951	57
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	14	83	72	104	134	7	180	854	110	66	1034	62
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	36	391	175	133	619	276	278	1448	646	108	1377	614
Arrive On Green	0.02	0.11	0.11	0.08	0.18	0.18	0.08	0.41	0.41	0.06	0.39	0.39
Sat Flow, veh/h	1767	3526	1572	1767	3526	1572	3428	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	14	83	72	104	134	7	180	854	110	66	1034	62
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1572	1714	1763	1572	1767	1763	1572
Q Serve(g_s), s	0.6	1.5	3.1	4.2	2.3	0.3	3.7	13.5	3.2	2.6	18.2	1.8
Cycle Q Clear(g_c), s	0.6	1.5	3.1	4.2	2.3	0.3	3.7	13.5	3.2	2.6	18.2	1.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	36	391	175	133	619	276	278	1448	646	108	1377	614
V/C Ratio(X)	0.39	0.21	0.41	0.78	0.22	0.03	0.65	0.59	0.17	0.61	0.75	0.10
Avail Cap(c_a), veh/h	147	1951	870	177	2010	896	286	1448	646	147	1377	614
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.8	29.1	29.8	32.7	25.4	24.6	32.0	16.5	13.4	32.9	18.9	13.9
Incr Delay (d2), s/veh	6.7	0.3	1.6	15.0	0.2	0.0	4.8	1.8	0.6	5.5	3.8	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.6	1.1	2.2	0.9	0.1	1.5	4.7	1.1	1.2	6.7	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.5	29.4	31.3	47.7	25.6	24.6	36.9	18.3	14.0	38.4	22.7	14.2
LnGrp LOS	D	C	C	D	C	C	D	B	B	D	C	B
Approach Vol, veh/h		169			245			1144			1162	
Approach Delay, s/veh		31.2			34.9			20.8			23.1	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	0.9	36.0	11.2	13.8	12.3	34.6	6.6	18.4				
Change Period (Y+Rc), s	6.5	6.5	5.8	* 5.8	6.5	6.5	5.1	5.8				
Max Green Setting (Gmax), s	6.0	28.1	7.2	* 40	6.0	28.1	6.0	41.0				
Max Q Clear Time (g_c+14), s	14.6	15.5	6.2	5.1	5.7	20.2	2.6	4.3				
Green Ext Time (p_c), s	0.0	4.4	0.0	0.7	0.0	3.9	0.0	0.8				

Intersection Summary

HCM 6th Ctrl Delay	23.7
HCM 6th LOS	C

Notes

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

HCM 6th Signalized Intersection Summary  
 23: Campus Parkway & Gerard Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑	↗	↔↔	↑↑	↗	↔↔	↑↑	↗	↔↔	↑↑	↗
Traffic Volume (veh/h)	120	13	85	26	11	54	39	879	11	38	913	183
Future Volume (veh/h)	120	13	85	26	11	54	39	879	11	38	913	183
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	130	14	92	28	12	59	42	955	12	41	992	199
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	251	464	207	120	362	162	158	1585	707	156	1582	706
Arrive On Green	0.07	0.13	0.13	0.04	0.10	0.10	0.05	0.45	0.45	0.05	0.45	0.45
Sat Flow, veh/h	3428	3526	1572	3428	3526	1572	3428	3526	1572	3428	3526	1572
Grp Volume(v), veh/h	130	14	92	28	12	59	42	955	12	41	992	199
Grp Sat Flow(s),veh/h/ln	1714	1763	1572	1714	1763	1572	1714	1763	1572	1714	1763	1572
Q Serve(g_s), s	2.8	0.3	4.1	0.6	0.2	2.7	0.9	15.7	0.3	0.9	16.6	6.1
Cycle Q Clear(g_c), s	2.8	0.3	4.1	0.6	0.2	2.7	0.9	15.7	0.3	0.9	16.6	6.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	251	464	207	120	362	162	158	1585	707	156	1582	706
V/C Ratio(X)	0.52	0.03	0.44	0.23	0.03	0.37	0.27	0.60	0.02	0.26	0.63	0.28
Avail Cap(c_a), veh/h	276	1752	781	268	1743	777	268	1585	707	268	1582	706
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.3	29.1	30.8	36.1	31.1	32.2	35.4	16.0	11.7	35.4	16.3	13.4
Incr Delay (d2), s/veh	1.7	0.0	1.5	1.0	0.0	1.4	0.9	1.7	0.0	0.9	1.9	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.1	1.5	0.3	0.1	1.0	0.4	5.5	0.1	0.4	5.8	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.0	29.1	32.3	37.1	31.1	33.5	36.3	17.7	11.8	36.3	18.1	14.4
LnGrp LOS	D	C	C	D	C	C	D	B	B	D	B	B
Approach Vol, veh/h		236			99			1009			1232	
Approach Delay, s/veh		34.1			34.2			18.4			18.1	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	41.1	9.2	16.6	10.1	41.0	11.4	14.4					
Change Period (Y+Rc), s	6.5	6.5	6.5	* 6.5	6.5	6.5	5.8	6.5				
Max Green Setting (Gmax), s	34.5	6.0	* 38	6.0	34.5	6.2	38.0					
Max Q Clear Time (g_c+1/2g), s	17.7	2.6	6.1	2.9	18.6	4.8	4.7					
Green Ext Time (p_c), s	0.0	5.4	0.0	0.3	0.0	6.1	0.0	0.2				

Intersection Summary

HCM 6th Ctrl Delay	20.3
HCM 6th LOS	C

Notes

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



# HCM 6th Signalized Intersection Summary

## 24: Coffee Street & Campus Parkway

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	119	577	54	32	979	13	111	426	14	308	229	110
Future Volume (veh/h)	119	577	54	32	979	13	111	426	14	308	229	110
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	129	627	59	35	1064	14	121	463	15	335	249	120
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	153	1358	606	51	1154	515	175	813	362	363	1358	605
Arrive On Green	0.17	0.77	0.77	0.03	0.33	0.33	0.05	0.23	0.23	0.21	0.39	0.39
Sat Flow, veh/h	1767	3526	1572	1767	3526	1572	3428	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	129	627	59	35	1064	14	121	463	15	335	249	120
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1572	1714	1763	1572	1767	1763	1572
Q Serve(g_s), s	8.5	7.6	1.1	2.4	34.9	0.7	4.2	14.0	0.9	22.3	5.6	6.1
Cycle Q Clear(g_c), s	8.5	7.6	1.1	2.4	34.9	0.7	4.2	14.0	0.9	22.3	5.6	6.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	153	1358	606	51	1154	515	175	813	362	363	1358	605
V/C Ratio(X)	0.84	0.46	0.10	0.69	0.92	0.03	0.69	0.57	0.04	0.92	0.18	0.20
Avail Cap(c_a), veh/h	184	1378	615	99	1207	539	249	813	362	412	1358	605
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.96	0.96	0.96	0.84	0.84	0.84	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.8	9.3	8.6	57.8	38.9	27.4	56.0	40.9	35.9	46.7	24.4	24.6
Incr Delay (d2), s/veh	24.0	0.2	0.1	13.1	9.8	0.0	4.8	2.9	0.2	24.4	0.3	0.7
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	4.3	2.1	0.4	1.2	15.6	0.3	1.9	6.3	0.3	12.0	2.3	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	72.9	9.6	8.7	70.9	48.7	27.4	60.8	43.8	36.1	71.1	24.7	25.3
LnGrp LOS	E	A	A	E	D	C	E	D	D	E	C	C
Approach Vol, veh/h		815			1113			599			704	
Approach Delay, s/veh		19.5			49.2			47.0			46.9	
Approach LOS		B			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	29.2	32.2	7.9	50.7	10.6	50.7	14.9	43.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	28.0	20.4	6.7	46.9	8.7	39.7	12.5	41.1				
Max Q Clear Time (g_c+Q), s	24.3	16.0	4.4	9.6	6.2	8.1	10.5	36.9				
Green Ext Time (p_c), s	0.4	1.2	0.0	4.1	0.1	1.9	0.1	2.4				

### Intersection Summary

HCM 6th Ctrl Delay	40.8
HCM 6th LOS	D

HCM 6th Signalized Intersection Summary  
 25: SR 99 NB Ramps & Campus Parkway

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	236	523	0	0	722	478	27	3	227	0	0	0
Future Volume (veh/h)	236	523	0	0	722	478	27	3	227	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No				No				No			
Adj Sat Flow, veh/h/ln	1856	1856	0	0	1856	1856	1856	1856	1856			
Adj Flow Rate, veh/h	257	568	0	0	785	520	29	3	247			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	3	3	0	0	3	3	3	3	3			
Cap, veh/h	289	2010	0	0	1243	554	526	54	515			
Arrive On Green	0.16	0.57	0.00	0.00	0.35	0.35	0.33	0.33	0.33			
Sat Flow, veh/h	1767	3618	0	0	3618	1572	1609	166	1572			
Grp Volume(v), veh/h	257	568	0	0	785	520	32	0	247			
Grp Sat Flow(s),veh/h/ln	1767	1763	0	0	1763	1572	1775	0	1572			
Q Serve(g_s), s	17.1	9.9	0.0	0.0	22.3	38.4	1.5	0.0	15.0			
Cycle Q Clear(g_c), s	17.1	9.9	0.0	0.0	22.3	38.4	1.5	0.0	15.0			
Prop In Lane	1.00		0.00	0.00		1.00	0.91		1.00			
Lane Grp Cap(c), veh/h	289	2010	0	0	1243	554	581	0	515			
V/C Ratio(X)	0.89	0.28	0.00	0.00	0.63	0.94	0.06	0.00	0.48			
Avail Cap(c_a), veh/h	479	2424	0	0	1278	570	581	0	515			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.48	0.48	1.00	0.00	1.00			
Uniform Delay (d), s/veh	49.1	13.2	0.0	0.0	32.4	37.6	27.7	0.0	32.2			
Incr Delay (d2), s/veh	11.1	0.1	0.0	0.0	0.5	13.7	0.2	0.0	3.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	8.1	3.5	0.0	0.0	9.0	15.8	0.6	0.0	6.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.3	13.3	0.0	0.0	32.8	51.3	27.8	0.0	35.4			
LnGrp LOS	E	B	A	A	C	D	C	A	D			
Approach Vol, veh/h	825				1305				279			
Approach Delay, s/veh	27.9				40.2				34.5			
Approach LOS	C				D				C			
Timer - Assigned Phs	2		4		7		8					
Phs Duration (G+Y+Rc), s	45.1		74.9		26.1		48.8					
Change Period (Y+Rc), s	5.8		6.5		6.5		6.5					
Max Green Setting (Gmax), s	25.2		82.5		32.5		43.5					
Max Q Clear Time (g_c+I1), s	17.0		11.9		19.1		40.4					
Green Ext Time (p_c), s	0.6		3.6		0.6		1.9					
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			35.3									
HCM 6th LOS			D									

# HCM 6th Signalized Intersection Summary

## 26: Lake Street & Meyers Gate Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	3	44	16	69	45	2	31	6	59	3	8	4
Future Volume (veh/h)	3	44	16	69	45	2	31	6	59	3	8	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		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	3	48	17	75	49	2	34	7	64	3	9	4
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	7	138	49	137	317	13	73	32	296	7	205	91
Arrive On Green	0.00	0.11	0.11	0.08	0.18	0.18	0.04	0.21	0.21	0.00	0.17	0.17
Sat Flow, veh/h	1767	1309	463	1767	1770	72	1767	157	1439	1767	1217	541
Grp Volume(v), veh/h	3	0	65	75	0	51	34	0	71	3	0	13
Grp Sat Flow(s),veh/h/ln	1767	0	1772	1767	0	1843	1767	0	1597	1767	0	1758
Q Serve(g_s), s	0.1	0.0	1.0	1.2	0.0	0.7	0.6	0.0	1.1	0.1	0.0	0.2
Cycle Q Clear(g_c), s	0.1	0.0	1.0	1.2	0.0	0.7	0.6	0.0	1.1	0.1	0.0	0.2
Prop In Lane	1.00		0.26	1.00		0.04	1.00		0.90	1.00		0.31
Lane Grp Cap(c), veh/h	7	0	187	137	0	330	73	0	328	7	0	296
V/C Ratio(X)	0.41	0.00	0.35	0.55	0.00	0.15	0.47	0.00	0.22	0.41	0.00	0.04
Avail Cap(c_a), veh/h	387	0	1166	745	0	1585	507	0	1265	387	0	1275
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.7	0.0	12.3	13.2	0.0	10.3	13.9	0.0	9.8	14.7	0.0	10.3
Incr Delay (d2), s/veh	33.3	0.0	1.1	3.4	0.0	0.2	4.6	0.0	0.3	33.3	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/lr	0.1	0.0	0.3	0.5	0.0	0.2	0.2	0.0	0.2	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.1	0.0	13.4	16.5	0.0	10.5	18.5	0.0	10.1	48.1	0.0	10.4
LnGrp LOS	D	A	B	B	A	B	B	A	B	D	A	B
Approach Vol, veh/h		68			126			105			16	
Approach Delay, s/veh		15.0			14.1			12.8			17.4	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.6	10.6	6.8	7.6	5.7	9.5	4.6	9.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	6.5	23.5	12.5	19.5	8.5	21.5	6.5	25.5				
Max Q Clear Time (g_c+1/2), s	11.5	3.1	3.2	3.0	2.6	2.2	2.1	2.7				
Green Ext Time (p_c), s	0.0	0.2	0.1	0.2	0.0	0.0	0.0	0.2				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				14.0								
HCM 6th LOS				B								

HCM 6th Roundabout  
76: Campus Parkway & Meyers Gate Road

02/23/2022

Intersection				
Intersection Delay, s/veh	18.0			
Intersection LOS	C			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	2	2	2	2
Adj Approach Flow, veh/h	151	277	980	830
Demand Flow Rate, veh/h	155	285	1009	856
Vehicles Circulating, veh/h	907	1035	212	254
Vehicles Exiting, veh/h	203	186	850	1066
Ped Vol Crossing Leg, #/h	20	20	20	0
Ped Cap Adj	1.000	1.000	0.997	1.000
Approach Delay, s/veh	8.5	14.4	22.3	15.9
Approach LOS	A	B	C	C
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.535	2.535	2.535	2.535
Critical Headway, s	4.328	4.328	4.328	4.328
Entry Flow, veh/h	155	285	1009	856
Cap Entry Lane, veh/h	657	589	1186	1144
Entry HV Adj Factor	0.972	0.973	0.971	0.970
Flow Entry, veh/h	151	277	980	830
Cap Entry, veh/h	639	573	1148	1110
V/C Ratio	0.236	0.484	0.853	0.748
Control Delay, s/veh	8.5	14.4	22.3	15.9
LOS	A	B	C	C
95th %tile Queue, veh	1	3	11	7

HCM 6th Signalized Intersection Summary  
 77: Lake Road & Virginia Smith Parkway

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	54	16	197	47	142	33	22	87	102	62	15
Future Volume (veh/h)	32	54	16	197	47	142	33	22	87	102	62	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.94		0.93	1.00		0.95	1.00		0.88	1.00		0.91
Parking Bus, Adj	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	35	59	17	214	51	154	36	24	95	111	67	16
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	335	175	51	286	764	614	74	249	186	162	261	62
Arrive On Green	0.13	0.13	0.13	0.16	0.41	0.41	0.04	0.13	0.13	0.09	0.18	0.18
Sat Flow, veh/h	1100	1358	391	1767	1856	1490	1767	1856	1386	1767	1416	338
Grp Volume(v), veh/h	35	0	76	214	51	154	36	24	95	111	0	83
Grp Sat Flow(s),veh/h/ln1100	0	1750	1767	1856	1490	1767	1856	1386	1767	0	1754	
Q Serve(g_s), s	1.1	0.0	1.5	4.3	0.6	2.5	0.7	0.4	2.4	2.3	0.0	1.5
Cycle Q Clear(g_c), s	1.1	0.0	1.5	4.3	0.6	2.5	0.7	0.4	2.4	2.3	0.0	1.5
Prop In Lane	1.00		0.22	1.00		1.00	1.00		1.00	1.00		0.19
Lane Grp Cap(c), veh/h	335	0	226	286	764	614	74	249	186	162	0	323
V/C Ratio(X)	0.10	0.00	0.34	0.75	0.07	0.25	0.49	0.10	0.51	0.69	0.00	0.26
Avail Cap(c_a), veh/h	739	0	869	972	2166	1739	308	1021	762	593	0	1247
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.6	0.0	14.8	14.9	6.6	7.2	17.5	14.2	15.0	16.4	0.0	13.0
Incr Delay (d2), s/veh	0.1	0.0	0.9	3.9	0.0	0.2	4.9	0.2	2.2	5.1	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/lr0.2	0.0	0.0	0.5	1.6	0.2	0.5	0.3	0.1	0.7	0.9	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.7	0.0	15.6	18.8	6.7	7.4	22.4	14.3	17.2	21.5	0.0	13.4
LnGrp LOS	B	A	B	B	A	A	C	B	B	C	A	B
Approach Vol, veh/h		111			419			155			194	
Approach Delay, s/veh		15.4			13.1			17.9			18.0	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	8					
Phs Duration (G+Y+Rc), s7.9	9.5	10.5	9.3	6.1	11.4		19.9					
Change Period (Y+Rc), s 4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5					
Max Green Setting (Gmax)12.5	20.5	20.5	18.5	6.5	26.5		43.5					
Max Q Clear Time (g_c+14.3	4.4	6.3	3.5	2.7	3.5		4.5					
Green Ext Time (p_c), s 0.1	0.3	0.5	0.4	0.0	0.3		0.8					
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				15.3								
HCM 6th LOS				B								

HCM 6th Roundabout  
78: Campus Parkway & Virginia Smith Parkway

02/23/2022

Intersection						
Intersection Delay, s/veh50.0						
Intersection LOS E						
Approach	EB	WB	NB		SB	
Entry Lanes	1	1	2		2	
Conflicting Circle Lanes	2	2	2		2	
Adj Approach Flow, veh/h	289	433	1198		942	
Demand Flow Rate, veh/h	298	446	1234		970	
Vehicles Circulating, veh/h	1073	1178	331		451	
Vehicles Exiting, veh/h	348	387	1040		1173	
Ped Vol Crossing Leg, #/h	20	20	20		20	
Ped Cap Adj	1.000	1.000	0.983		0.986	
Approach Delay, s/veh	16.0	40.4	92.2		11.1	
Approach LOS	C	E	F		B	
Lane	Left	Left	Left	Right	Left	Right
Designated Moves	LTR	LTR	LT	R	LT	TR
Assumed Moves	LTR	LTR	LT	R	LT	TR
RT Channelized						
Lane Util	1.000	1.000	0.917	0.083	0.470	0.530
Follow-Up Headway, s	2.535	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.328	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	298	446	1131	103	456	514
Cap Entry Lane, veh/h	570	522	996	1072	891	968
Entry HV Adj Factor	0.971	0.971	0.971	0.971	0.971	0.971
Flow Entry, veh/h	289	433	1098	100	443	499
Cap Entry, veh/h	554	507	950	1023	853	927
V/C Ratio	0.522	0.855	1.155	0.098	0.519	0.539
Control Delay, s/veh	16.0	40.4	100.2	4.4	11.3	11.0
LOS	C	E	F	A	B	B
95th %tile Queue, veh	3	9	32	0	3	3

HCM 6th TWSC  
79: Virginia Smith Parkway & Golden BOBcat

02/23/2022

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	42	219	57	36	235	27	48	33	38	23	35	32
Future Vol, veh/h	42	219	57	36	235	27	48	33	38	23	35	32
Conflicting Peds, #/hr	20	0	20	20	0	20	20	0	20	20	0	20
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	150	-	-	150	-	-
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	46	238	62	39	255	29	52	36	41	25	38	35

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	304	0	0	320	0	0	785	763	309	788	780	310
Stage 1	-	-	-	-	-	-	381	381	-	368	368	-
Stage 2	-	-	-	-	-	-	404	382	-	420	412	-
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	1251	-	-	1234	-	-	309	333	729	308	326	728
Stage 1	-	-	-	-	-	-	639	612	-	650	620	-
Stage 2	-	-	-	-	-	-	621	611	-	609	593	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1227	-	-	1210	-	-	241	299	701	240	292	701
Mov Cap-2 Maneuver	-	-	-	-	-	-	241	299	-	240	292	-
Stage 1	-	-	-	-	-	-	603	578	-	614	589	-
Stage 2	-	-	-	-	-	-	524	580	-	508	560	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.1	1	18.7	17.3
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	241	431	1227	-	-	1210	-	-	240	405
HCM Lane V/C Ratio	0.216	0.179	0.037	-	-	0.032	-	-	0.104	0.18
HCM Control Delay (s)	24	15.2	8	-	-	8.1	-	-	21.7	15.8
HCM Lane LOS	C	C	A	-	-	A	-	-	C	C
HCM 95th %tile Q(veh)	0.8	0.6	0.1	-	-	0.1	-	-	0.3	0.6

HCM 6th Roundabout  
80: Virginia Smith Parkway & Main Street

02/23/2022

Intersection				
Intersection Delay, s/veh	5.2			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	328	157	110	227
Demand Flow Rate, veh/h	337	161	114	234
Vehicles Circulating, veh/h	130	211	350	161
Vehicles Exiting, veh/h	265	253	117	211
Ped Vol Crossing Leg, #/h	20	20	20	20
Ped Cap Adj	0.997	0.997	0.997	0.997
Approach Delay, s/veh	5.7	4.6	5.0	5.0
Approach LOS	A	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	337	161	114	234
Cap Entry Lane, veh/h	1209	1113	966	1171
Entry HV Adj Factor	0.974	0.974	0.969	0.972
Flow Entry, veh/h	328	157	110	227
Cap Entry, veh/h	1173	1081	933	1135
V/C Ratio	0.280	0.145	0.118	0.200
Control Delay, s/veh	5.7	4.6	5.0	5.0
LOS	A	A	A	A
95th %tile Queue, veh	1	1	0	1



Intersection												
Int Delay, s/veh	6.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Vol, veh/h	49	39	62	23	36	12	76	11	14	16	10	44
Future Vol, veh/h	49	39	62	23	36	12	76	11	14	16	10	44
Conflicting Peds, #/hr	0	0	20	20	0	0	20	0	20	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	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	53	42	67	25	39	13	83	12	15	17	11	48

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	52	0	0	129	0	0	347	304	116	311	331	66
Stage 1	-	-	-	-	-	-	202	202	-	96	96	-
Stage 2	-	-	-	-	-	-	145	102	-	215	235	-
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	1548	-	-	1451	-	-	606	608	934	640	587	995
Stage 1	-	-	-	-	-	-	798	732	-	908	814	-
Stage 2	-	-	-	-	-	-	855	809	-	785	709	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1548	-	-	1423	-	-	525	566	899	584	546	976
Mov Cap-2 Maneuver	-	-	-	-	-	-	525	566	-	584	546	-
Stage 1	-	-	-	-	-	-	756	694	-	877	799	-
Stage 2	-	-	-	-	-	-	773	794	-	718	672	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	2.4			2.5			12.4			9.9		
HCM LOS							B			A		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	525	714	1548	-	-	1423	-	-	584	852
HCM Lane V/C Ratio	0.157	0.038	0.034	-	-	0.018	-	-	0.03	0.069
HCM Control Delay (s)	13.1	10.2	7.4	-	-	7.6	-	-	11.4	9.5
HCM Lane LOS	B	B	A	-	-	A	-	-	B	A
HCM 95th %tile Q(veh)	0.6	0.1	0.1	-	-	0.1	-	-	0.1	0.2

**Horizon Year (2042) With Project PM  
Peak Hour**

HCM 6th AWSC  
1: Snelling Highway (SR 59) & Bellevue Road

02/23/2022

Intersection	
Intersection Delay, s/veh	565.7
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	15	130	10	790	272	112	8	95	827	117	186	23
Future Vol, veh/h	15	130	10	790	272	112	8	95	827	117	186	23
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	16	141	11	859	296	122	9	103	899	127	202	25
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	34.4	828	499.3	63.5
HCM LOS	D	F	F	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	10%	67%	36%
Vol Thru, %	10%	84%	23%	57%
Vol Right, %	89%	6%	10%	7%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	930	155	1174	326
LT Vol	8	15	790	117
Through Vol	95	130	272	186
RT Vol	827	10	112	23
Lane Flow Rate	1011	168	1276	354
Geometry Grp	1	1	1	1
Degree of Util (X)	2.029	0.425	2.777	0.803
Departure Headway (Hd)	11.545	18.429	10.003	16.266
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	323	197	383	227
Service Time	9.545	16.429	8.003	14.266
HCM Lane V/C Ratio	3.13	0.853	3.332	1.559
HCM Control Delay	499.3	34.4	828	63.5
HCM Lane LOS	F	D	F	F
HCM 95th-tile Q	45.3	1.9	84.4	5.9

# HCM 6th Signalized Intersection Summary

## 2: G Street & Bellevue Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	61	853	151	860	939	14	146	254	750	9	209	42
Future Volume (veh/h)	61	853	151	860	939	14	146	254	750	9	209	42
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	66	927	164	935	1021	15	159	276	815	10	227	46
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	83	466	82	324	815	691	135	575	513	24	928	414
Arrive On Green	0.05	0.30	0.30	0.18	0.44	0.44	0.08	0.33	0.33	0.01	0.26	0.26
Sat Flow, veh/h	1767	1535	272	1767	1856	1572	1767	1763	1572	1767	3526	1572
Grp Volume(v), veh/h	66	0	1091	935	1021	15	159	276	815	10	227	46
Grp Sat Flow(s),veh/h/ln	1767	0	1807	1767	1856	1572	1767	1763	1572	1767	1763	1572
Q Serve(g_s), s	5.5	0.0	45.5	27.5	65.9	0.8	11.5	18.8	49.0	0.8	7.6	3.3
Cycle Q Clear(g_c), s	5.5	0.0	45.5	27.5	65.9	0.8	11.5	18.8	49.0	0.8	7.6	3.3
Prop In Lane	1.00		0.15	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	83	0	548	324	815	691	135	575	513	24	928	414
V/C Ratio(X)	0.79	0.00	1.99	2.89	1.25	0.02	1.17	0.48	1.59	0.42	0.24	0.11
Avail Cap(c_a), veh/h	111	0	548	324	815	691	135	575	513	93	928	414
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	70.7	0.0	52.3	61.3	42.0	23.8	69.3	40.4	50.5	73.4	43.5	41.9
Incr Delay (d2), s/veh	23.9	0.0	452.4	857.1	123.5	0.0	131.5	2.9	273.8	11.0	0.6	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/lr	3.0	0.0	88.5	89.0	56.1	0.3	10.0	8.3	57.4	0.4	3.3	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	94.7	0.0	504.6	918.3	165.5	23.8	200.7	43.2	324.3	84.4	44.1	42.5
LnGrp LOS	F	A	F	F	F	C	F	D	F	F	D	D
Approach Vol, veh/h		1157			1971			1250			283	
Approach Delay, s/veh		481.2			521.6			246.5			45.3	
Approach LOS		F			F			F			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.5	55.5	34.0	52.0	18.0	46.0	13.6	72.4				
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5				
Max Green Setting (Gmax), s	9	43.1	27.5	45.5	11.5	39.5	9.4	63.6				
Max Q Clear Time (g_c+1), s	12	51.0	29.5	47.5	13.5	9.6	7.5	67.9				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0				

### Intersection Summary

HCM 6th Ctrl Delay	408.9
HCM 6th LOS	F

# HCM 6th Signalized Intersection Summary

## 3: Lake Street/Lake Road & Bellevue Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	92	56	286	101	355	21	367	370	48	14	569	407
Future Volume (veh/h)	92	56	286	101	355	21	367	370	48	14	569	407
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	100	61	311	110	386	23	399	402	52	15	618	442
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	125	69	354	97	244	15	266	226	29	613	2262	1009
Arrive On Green	0.07	0.26	0.26	0.14	0.14	0.14	0.64	0.64	0.64	0.64	0.64	0.64
Sat Flow, veh/h	1767	264	1348	1002	1734	103	350	352	46	930	3526	1572
Grp Volume(v), veh/h	100	0	372	110	0	409	853	0	0	15	618	442
Grp Sat Flow(s),veh/h/ln	1767	0	1613	1002	0	1837	748	0	0	930	1763	1572
Q Serve(g_s), s	7.1	0.0	28.3	5.2	0.0	18.0	72.3	0.0	0.0	0.0	9.7	17.9
Cycle Q Clear(g_c), s	7.1	0.0	28.3	18.0	0.0	18.0	82.0	0.0	0.0	0.8	9.7	17.9
Prop In Lane	1.00		0.84	1.00		0.06	0.47		0.06	1.00		1.00
Lane Grp Cap(c), veh/h	125	0	423	97	0	259	521	0	0	613	2262	1009
V/C Ratio(X)	0.80	0.00	0.88	1.13	0.00	1.58	1.64	0.00	0.00	0.02	0.27	0.44
Avail Cap(c_a), veh/h	311	0	593	97	0	259	521	0	0	613	2262	1009
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.5	0.0	45.2	62.8	0.0	54.9	30.6	0.0	0.0	8.4	10.0	11.4
Incr Delay (d2), s/veh	11.2	0.0	10.8	129.9	0.0	279.2	295.3	0.0	0.0	0.1	0.3	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	0.0	12.0	6.6	0.0	28.0	59.1	0.0	0.0	0.2	3.5	5.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.7	0.0	56.0	192.7	0.0	334.1	325.9	0.0	0.0	8.4	10.3	12.8
LnGrp LOS	E	A	E	F	A	F	F	A	A	A	B	B
Approach Vol, veh/h		472			519			853			1075	
Approach Delay, s/veh		58.9			304.2			325.9			11.3	
Approach LOS		E			F			F			B	
Timer - Assigned Phs		2		4		6	7	8				
Phs Duration (G+Y+Rc), s		87.8		40.0		87.8	15.5	24.5				
Change Period (Y+Rc), s		* 5.8		6.5		5.8	6.5	6.5				
Max Green Setting (Gmax), s		* 82		47.0		80.7	22.5	18.0				
Max Q Clear Time (g_c+I1), s		84.0		30.3		19.9	9.1	20.0				
Green Ext Time (p_c), s		0.0		1.9		6.4	0.2	0.0				

### Intersection Summary

HCM 6th Ctrl Delay	163.0
HCM 6th LOS	F

### Notes

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

# HCM 6th Signalized Intersection Summary

## 4: G Street & Cardella Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕		↖	↗		↖	↕	↗
Traffic Volume (veh/h)	146	1	61	1	14	6	67	1290	3	1	1322	148
Future Volume (veh/h)	146	1	61	1	14	6	67	1290	3	1	1322	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		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	159	1	66	1	15	7	73	1402	3	1	1437	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	96	0	189	25	114	50	71	1328	3	71	1331	
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.04	0.72	0.72	0.04	0.72	0.00
Sat Flow, veh/h	404	3	1572	0	953	417	1767	1851	4	1767	1856	1572
Grp Volume(v), veh/h	160	0	66	23	0	0	73	0	1405	1	1437	0
Grp Sat Flow(s),veh/h/ln	407	0	1572	1370	0	0	1767	0	1855	1767	1856	1572
Q Serve(g_s), s	0.0	0.0	5.8	0.0	0.0	0.0	6.0	0.0	107.6	0.1	107.6	0.0
Cycle Q Clear(g_c), s	18.0	0.0	5.8	18.0	0.0	0.0	6.0	0.0	107.6	0.1	107.6	0.0
Prop In Lane	0.99		1.00	0.04		0.30	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	97	0	189	189	0	0	71	0	1331	71	1331	
V/C Ratio(X)	1.66	0.00	0.35	0.12	0.00	0.00	1.03	0.00	1.06	0.01	1.08	
Avail Cap(c_a), veh/h	97	0	189	189	0	0	71	0	1331	71	1331	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	70.5	0.0	60.6	58.9	0.0	0.0	72.0	0.0	21.2	69.2	21.2	0.0
Incr Delay (d2), s/veh	336.1	0.0	1.1	0.3	0.0	0.0	116.4	0.0	40.9	0.1	49.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ft	2.7	0.0	2.4	0.8	0.0	0.0	4.9	0.0	51.7	0.0	54.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	406.6	0.0	61.7	59.2	0.0	0.0	188.4	0.0	62.1	69.2	70.4	0.0
LnGrp LOS	F	A	E	E	A	A	F	A	F	E	F	
Approach Vol, veh/h		226			23			1478			1438	A
Approach Delay, s/veh		305.9			59.2			68.3			70.4	
Approach LOS		F			E			E			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	114.1			23.4	12.5	114.1		23.4				
Change Period (Y+Rc), s	6.5	6.5		5.4	6.5	6.5		5.4				
Max Green Setting (Gmax), s	107.6			18.0	6.0	107.6		18.0				
Max Q Clear Time (g_c+1/2), s	109.6			20.0	8.0	109.6		20.0				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	0.0		0.0				

### Intersection Summary

HCM 6th Ctrl Delay	86.2
HCM 6th LOS	F

### Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary  
5: Lake Road & Cardella Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	52	14	87	41	56	10	95	76	78	113	18
Future Volume (veh/h)	17	52	14	87	41	56	10	95	76	78	113	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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	18	57	15	95	45	61	11	103	83	85	123	20
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	750	318	84	429	89	98	664	514	435	677	431	70
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	1278	1416	373	601	395	434	1235	1856	1572	1188	1557	253
Grp Volume(v), veh/h	18	0	72	201	0	0	11	103	83	85	0	143
Grp Sat Flow(s),veh/h/ln	1278	0	1788	1431	0	0	1235	1856	1572	1188	0	1810
Q Serve(g_s), s	0.0	0.0	0.6	1.8	0.0	0.0	0.1	0.8	0.7	1.1	0.0	1.1
Cycle Q Clear(g_c), s	0.1	0.0	0.6	2.4	0.0	0.0	1.2	0.8	0.7	1.8	0.0	1.1
Prop In Lane	1.00		0.21	0.47		0.30	1.00		1.00	1.00		0.14
Lane Grp Cap(c), veh/h	750	0	402	615	0	0	664	514	435	677	0	501
V/C Ratio(X)	0.02	0.00	0.18	0.33	0.00	0.00	0.02	0.20	0.19	0.13	0.00	0.29
Avail Cap(c_a), veh/h	1737	0	1783	1763	0	0	1554	1850	1568	1533	0	1804
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	5.5	0.0	5.7	6.4	0.0	0.0	5.6	5.0	5.0	5.7	0.0	5.1
Incr Delay (d2), s/veh	0.0	0.0	0.2	0.3	0.0	0.0	0.0	0.2	0.2	0.1	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/lr	0.0	0.0	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.5	0.0	5.9	6.7	0.0	0.0	5.6	5.2	5.2	5.8	0.0	5.4
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		90		201			197			228		
Approach Delay, s/veh		5.8		6.7			5.2			5.6		
Approach LOS		A		A			A			A		
Timer - Assigned Phs		2		4			6			8		
Phs Duration (G+Y+Rc), s		9.5		8.6			9.5			8.6		
Change Period (Y+Rc), s		4.5		4.5			4.5			4.5		
Max Green Setting (Gmax), s		18.0		18.0			18.0			18.0		
Max Q Clear Time (g_c+I1), s		3.2		2.6			3.8			4.4		
Green Ext Time (p_c), s		0.6		0.3			0.7			0.9		
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				5.8								
HCM 6th LOS				A								

HCM 6th Signalized Intersection Summary  
 6: Snelling Highway (SR 59) & Yosemite Avenue

02/23/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	264	464	1045	289	448	999
Future Volume (veh/h)	264	464	1045	289	448	999
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	287	504	1136	314	487	1086
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	353	314	654	554	422	1231
Arrive On Green	0.20	0.20	0.35	0.35	0.24	0.66
Sat Flow, veh/h	1767	1572	1856	1572	1767	1856
Grp Volume(v), veh/h	287	504	1136	314	487	1086
Grp Sat Flow(s),veh/h/ln	1767	1572	1856	1572	1767	1856
Q Serve(g_s), s	14.0	18.0	31.7	14.5	21.5	42.8
Cycle Q Clear(g_c), s	14.0	18.0	31.7	14.5	21.5	42.8
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	353	314	654	554	422	1231
V/C Ratio(X)	0.81	1.60	1.74	0.57	1.15	0.88
Avail Cap(c_a), veh/h	353	314	654	554	422	1231
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.4	36.0	29.2	23.6	34.2	12.3
Incr Delay (d2), s/veh	13.4	285.6	338.5	4.2	92.9	9.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.9	31.4	73.8	5.4	19.2	14.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	47.8	321.6	367.7	27.8	127.2	21.6
LnGrp LOS	D	F	F	C	F	C
Approach Vol, veh/h	791		1450			1573
Approach Delay, s/veh	222.2		294.1			54.3
Approach LOS	F		F			D
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	38.0	38.2			66.2	23.8
Change Period (Y+Rc), s	6.5	6.5			6.5	5.8
Max Green Setting (Gmax), s	21.5	31.7			59.7	18.0
Max Q Clear Time (g_c+Q), s	23.5	33.7			44.8	20.0
Green Ext Time (p_c), s	0.0	0.0			6.8	0.0
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			180.3			
HCM 6th LOS			F			



# HCM 6th Signalized Intersection Summary

## 7: G Street & Yosemite Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	306	1190	168	760	960	163	300	954	798	225	809	406
Future Volume (veh/h)	306	1190	168	760	960	163	300	954	798	225	809	406
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	333	1293	183	826	1043	177	326	1037	867	245	879	441
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	355	818	115	441	1100	491	185	880	393	136	783	349
Arrive On Green	0.20	0.26	0.26	0.25	0.31	0.31	0.10	0.25	0.25	0.08	0.22	0.22
Sat Flow, veh/h	1767	3103	436	1767	3526	1572	1767	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	333	731	745	826	1043	177	326	1037	867	245	879	441
Grp Sat Flow(s),veh/h/ln	1767	1763	1777	1767	1763	1572	1767	1763	1572	1767	1763	1572
Q Serve(g_s), s	26.9	38.2	38.2	36.2	41.9	12.7	15.2	36.2	20.3	11.2	32.2	32.2
Cycle Q Clear(g_c), s	26.9	38.2	38.2	36.2	41.9	12.7	15.2	36.2	20.3	11.2	32.2	32.2
Prop In Lane	1.00		0.25	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	355	464	468	441	1100	491	185	880	393	136	783	349
V/C Ratio(X)	0.94	1.57	1.59	1.87	0.95	0.36	1.76	1.18	2.21	1.79	1.12	1.26
Avail Cap(c_a), veh/h	381	464	468	441	1100	491	185	880	393	136	783	349
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.0	53.4	53.4	54.4	48.7	38.7	64.9	54.4	17.1	66.9	56.4	56.4
Incr Delay (d2), s/veh	29.6	268.4	276.3	401.1	16.2	0.4	363.1	92.0	552.1	385.3	71.5	139.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	51.1	52.5	64.8	20.4	4.9	25.4	26.9	67.2	19.6	21.7	26.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	86.6	321.8	329.7	455.5	64.9	39.1	428.0	146.4	569.2	452.2	127.9	195.7
LnGrp LOS	F	F	F	F	E	D	F	F	F	F	F	F
Approach Vol, veh/h		1809			2046			2230			1565	
Approach Delay, s/veh		281.7			220.4			351.9			197.8	
Approach LOS		F			F			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.0	42.0	42.0	44.0	21.0	38.0	35.0	51.0				
Change Period (Y+Rc), s	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8				
Max Green Setting (Gmax), s	1.2	36.2	36.2	38.2	15.2	32.2	31.3	43.1				
Max Q Clear Time (g_c+1/3), s	1.2	38.2	38.2	40.2	17.2	34.2	28.9	43.9				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay											268.6	
HCM 6th LOS											F	

**Intersection**

Intersection Delay, s/veh 15.6

Intersection LOS F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↔			↕↔			↕↔			↕	↕
Traffic Vol, veh/h	105	1505	185	53	1449	45	113	131	22	58	106	75
Future Vol, veh/h	105	1505	185	53	1449	45	113	131	22	58	106	75
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	114	1636	201	58	1575	49	123	142	24	63	115	82
Number of Lanes	0	2	0	0	1	0	0	1	0	0	1	1

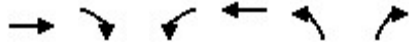
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	2
HCM Control Delay	584.9	1338.6	45	20
HCM LOS	F	F	E	C

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	42%	12%	0%	3%	35%	0%
Vol Thru, %	49%	88%	80%	94%	65%	0%
Vol Right, %	8%	0%	20%	3%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	266	858	938	1547	164	75
LT Vol	113	105	0	53	58	0
Through Vol	131	753	753	1449	106	0
RT Vol	22	0	185	45	0	75
Lane Flow Rate	289	932	1019	1682	178	82
Geometry Grp	6	7	7	6	7	7
Degree of Util (X)	0.734	2.14	2.283	3.937	0.466	0.193
Departure Headway (Hd)	13.025	13.054	12.838	5.967	10.709	9.757
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	280	289	296	622	339	370
Service Time	11.025	10.754	10.538	3.967	8.409	7.457
HCM Lane V/C Ratio	1.032	3.225	3.443	2.704	0.525	0.222
HCM Control Delay	45	552.2	614.9	1338.6	22.4	14.8
HCM Lane LOS	E	F	F	F	C	B
HCM 95th-tile Q	5.3	44.3	49.8	225.4	2.4	0.7

# HCM 6th Signalized Intersection Summary

## 9: McKee Road & Yosemite Avenue

02/23/2022



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑	↵	↵
Traffic Volume (veh/h)	1213	201	390	1282	113	355
Future Volume (veh/h)	1213	201	390	1282	113	355
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	1318	218	424	1393	123	386
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	938	154	264	995	537	478
Arrive On Green	0.31	0.31	0.15	0.54	0.30	0.30
Sat Flow, veh/h	3125	497	1767	1856	1767	1572
Grp Volume(v), veh/h	761	775	424	1393	123	386
Grp Sat Flow(s),veh/h/ln	1763	1766	1767	1856	1767	1572
Q Serve(g_s), s	23.2	23.2	11.2	40.2	3.9	17.0
Cycle Q Clear(g_c), s	23.2	23.2	11.2	40.2	3.9	17.0
Prop In Lane		0.28	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	545	546	264	995	537	478
V/C Ratio(X)	1.40	1.42	1.61	1.40	0.23	0.81
Avail Cap(c_a), veh/h	545	546	264	995	537	478
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.9	25.9	31.9	17.4	19.5	24.1
Incr Delay (d2), s/veh	189.0	198.9	290.0	186.4	1.0	13.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.2	38.7	25.6	64.6	1.6	7.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	214.9	224.8	321.9	203.8	20.5	37.7
LnGrp LOS	F	F	F	F	C	D
Approach Vol, veh/h	1536			1817	509	
Approach Delay, s/veh	219.9			231.4	33.6	
Approach LOS	F			F	C	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		29.0	17.0	29.0		46.0
Change Period (Y+Rc), s		6.2	5.8	5.8		5.8
Max Green Setting (Gmax), s		22.8	11.2	23.2		40.2
Max Q Clear Time (g_c+I1), s		19.0	13.2	25.2		42.2
Green Ext Time (p_c), s		0.7	0.0	0.0		0.0
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			200.7			
HCM 6th LOS			F			

**Intersection**

Intersection Delay, s/veh 19.1  
 Intersection LOS F

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	45	977	1405	17	14	32
Future Vol, veh/h	45	977	1405	17	14	32
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	49	1062	1527	18	15	35
Number of Lanes	1	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left SB			WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	264.5	543.3	12.5
HCM LOS	F	F	B

Lane	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	100%	0%	0%	30%
Vol Thru, %	0%	100%	99%	0%
Vol Right, %	0%	0%	1%	70%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	45	977	1422	46
LT Vol	45	0	0	14
Through Vol	0	977	1405	0
RT Vol	0	0	17	32
Lane Flow Rate	49	1062	1546	50
Geometry Grp	7	7	5	2
Degree of Util (X)	0.079	1.559	2.166	0.092
Departure Headway (Hd)	6.556	6.045	5.531	8.598
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	550	616	680	420
Service Time	4.256	3.745	3.531	6.598
HCM Lane V/C Ratio	0.089	1.724	2.274	0.119
HCM Control Delay	9.8	276.2	543.3	12.5
HCM Lane LOS	A	F	F	B
HCM 95th-tile Q	0.3	48.8	100.1	0.3

# HCM 6th Signalized Intersection Summary

## 11: Snelling Highway (SR 59) & Santa Fe Drive/Olive Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	168	999	175	356	1010	341	117	1001	410	312	889	134
Future Volume (veh/h)	168	999	175	356	1010	341	117	1001	410	312	889	134
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	183	1086	190	387	1098	371	127	1088	446	339	966	146
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	206	824	367	187	784	350	88	671	569	191	779	660
Arrive On Green	0.12	0.23	0.23	0.11	0.22	0.22	0.05	0.36	0.36	0.11	0.42	0.42
Sat Flow, veh/h	1767	3526	1572	1767	3526	1572	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	183	1086	190	387	1098	371	127	1088	446	339	966	146
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1572	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	12.8	29.2	10.7	13.2	27.8	27.8	6.2	45.2	31.6	13.5	52.5	4.7
Cycle Q Clear(g_c), s	12.8	29.2	10.7	13.2	27.8	27.8	6.2	45.2	31.6	13.5	52.5	4.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	206	824	367	187	784	350	88	671	569	191	779	660
V/C Ratio(X)	0.89	1.32	0.52	2.07	1.40	1.06	1.45	1.62	0.78	1.78	1.24	0.22
Avail Cap(c_a), veh/h	206	824	367	187	784	350	88	671	569	191	779	660
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.4	47.9	27.7	55.9	48.6	48.6	59.4	39.9	35.6	55.8	36.3	9.2
Incr Delay (d2), s/veh	33.7	151.9	1.3	501.2	187.9	65.1	254.6	286.5	10.4	369.7	118.6	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.5	29.7	4.0	31.7	32.3	16.9	8.9	73.0	13.2	25.4	47.4	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	88.1	199.8	28.9	557.1	236.5	113.7	314.0	326.4	46.0	425.4	154.9	9.9
LnGrp LOS	F	F	C	F	F	F	F	F	D	F	F	A
Approach Vol, veh/h	1459			1856			1661			1451		
Approach Delay, s/veh	163.6			278.8			250.2			203.5		
Approach LOS	F			F			F			F		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	30.0	51.0	19.0	35.0	12.0	59.0	20.4	33.6				
Change Period (Y+Rc), s	6.5	5.8	5.8	5.8	5.8	6.5	5.8	5.8				
Max Green Setting (Gmax), s	43.5	45.2	13.2	29.2	6.2	52.5	14.6	27.8				
Max Q Clear Time (g_c+115), s	115.5	47.2	15.2	31.2	8.2	54.5	14.8	29.8				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay	228.2											
HCM 6th LOS	F											

# HCM 6th Signalized Intersection Summary

## 12: R Street & Olive Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑	↗	↘	↑↑↑	↗	↘	↑↑		↘	↑↑	↗
Traffic Volume (veh/h)	245	1205	376	310	1172	234	516	895	145	216	845	161
Future Volume (veh/h)	245	1205	376	310	1172	234	516	895	145	216	845	161
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		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	266	1310	409	337	1274	254	561	973	158	235	918	175
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	121	1098	341	224	1393	432	259	1081	175	202	1140	508
Arrive On Green	0.07	0.22	0.22	0.13	0.28	0.28	0.15	0.36	0.36	0.11	0.32	0.32
Sat Flow, veh/h	1767	5066	1572	1767	5066	1572	1767	3037	493	1767	3526	1572
Grp Volume(v), veh/h	266	1310	409	337	1274	254	561	564	567	235	918	175
Grp Sat Flow(s),veh/h/ln	1767	1689	1572	1767	1689	1572	1767	1763	1767	1767	1763	1572
Q Serve(g_s), s	8.2	26.0	26.0	15.2	29.2	12.0	17.6	36.4	36.5	13.7	28.6	10.2
Cycle Q Clear(g_c), s	8.2	26.0	26.0	15.2	29.2	12.0	17.6	36.4	36.5	13.7	28.6	10.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.28	1.00		1.00
Lane Grp Cap(c), veh/h	121	1098	341	224	1393	432	259	627	629	202	1140	508
V/C Ratio(X)	2.20	1.19	1.20	1.51	0.91	0.59	2.16	0.90	0.90	1.16	0.81	0.34
Avail Cap(c_a), veh/h	121	1098	341	224	1393	432	259	627	629	202	1140	508
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	0.09	0.09	0.09	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.9	47.0	47.0	52.4	42.1	19.2	51.2	36.6	36.6	53.1	37.1	30.9
Incr Delay (d2), s/veh	543.7	88.0	93.0	229.6	1.0	0.2	536.6	18.3	18.4	114.9	6.1	1.8
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	21.8	19.5	18.6	20.8	11.8	4.2	46.3	18.2	18.3	12.4	12.9	4.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	599.6	135.0	140.0	282.0	43.2	19.4	587.8	55.0	55.1	168.0	43.3	32.8
LnGrp LOS	F	F	F	F	D	B	F	D	E	F	D	C
Approach Vol, veh/h		1985			1865			1692			1328	
Approach Delay, s/veh		198.3			83.1			231.7			63.9	
Approach LOS		F			F			F			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	49.1	48.1	21.0	31.8	23.0	44.2	14.0	38.8				
Change Period (Y+Rc), s	5.4	5.4	5.8	5.8	5.4	5.4	5.8	5.8				
Max Green Setting (Gmax), s	42.7	42.7	15.2	26.0	17.6	38.8	8.2	33.0				
Max Q Clear Time (g_c+11g), s	38.5	38.5	17.2	28.0	19.6	30.6	10.2	31.2				
Green Ext Time (p_c), s	0.0	2.5	0.0	0.0	0.0	4.1	0.0	1.4				

### Intersection Summary

HCM 6th Ctrl Delay	149.3
HCM 6th LOS	F

# HCM 6th Signalized Intersection Summary

## 13: M Street & Olive Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↑↑↑	↘	↗	↑↑↑		↗	↑↑		↗	↑↑	
Traffic Volume (veh/h)	223	1293	196	256	1195	133	306	1061	184	378	884	200
Future Volume (veh/h)	223	1293	196	256	1195	133	306	1061	184	378	884	200
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		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	242	1405	213	278	1299	145	333	1153	200	411	961	217
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	197	1131	351	233	1125	126	188	849	147	311	1005	227
Arrive On Green	0.11	0.22	0.22	0.13	0.24	0.24	0.11	0.28	0.28	0.18	0.35	0.35
Sat Flow, veh/h	1767	5066	1572	1767	4624	516	1767	3006	519	1767	2858	644
Grp Volume(v), veh/h	242	1405	213	278	949	495	333	674	679	411	592	586
Grp Sat Flow(s),veh/h/ln	1767	1689	1572	1767	1689	1763	1767	1763	1762	1767	1763	1740
Q Serve(g_s), s	13.4	26.8	14.6	15.8	29.2	29.2	12.8	33.9	33.9	21.1	39.3	39.5
Cycle Q Clear(g_c), s	13.4	26.8	14.6	15.8	29.2	29.2	12.8	33.9	33.9	21.1	39.3	39.5
Prop In Lane	1.00		1.00	1.00		0.29	1.00		0.29	1.00		0.37
Lane Grp Cap(c), veh/h	197	1131	351	233	822	429	188	498	498	311	620	612
V/C Ratio(X)	1.23	1.24	0.61	1.19	1.15	1.15	1.77	1.35	1.36	1.32	0.96	0.96
Avail Cap(c_a), veh/h	197	1131	351	233	822	429	188	498	498	311	620	612
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.09	0.09	0.09	0.09	0.09	0.09	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.3	46.6	41.9	52.1	45.4	45.4	53.6	43.0	43.1	49.5	38.0	38.0
Incr Delay (d2), s/veh	106.1	109.6	0.3	91.7	71.0	72.3	365.7	171.9	176.4	166.0	26.6	27.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	22.3	5.5	12.7	19.9	20.9	24.7	38.1	38.6	23.4	20.9	20.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	159.4	156.2	42.1	143.8	116.4	117.7	419.3	214.9	219.4	215.4	64.6	65.4
LnGrp LOS	F	F	D	F	F	F	F	F	F	F	E	E
Approach Vol, veh/h		1860			1722			1686			1589	
Approach Delay, s/veh		143.5			121.2			257.1			103.9	
Approach LOS		F			F			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	36.5	39.3	21.6	32.6	18.2	47.6	19.2	35.0				
Change Period (Y+Rc), s	5.4	5.4	5.8	5.8	5.4	5.4	5.8	5.8				
Max Green Setting (Gmax), s	21.5	33.9	15.8	26.8	12.8	42.2	13.4	29.2				
Max Q Clear Time (g_c+Q), s	23.1	35.9	17.8	28.8	14.8	41.5	15.4	31.2				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			156.7									
HCM 6th LOS			F									



# HCM 6th Signalized Intersection Summary

## 14: Olive Avenue & G Street

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	575	869	332	219	618	108	263	1638	261	143	1538	519
Future Volume (veh/h)	575	869	332	219	618	108	263	1638	261	143	1538	519
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	625	945	361	238	672	117	286	1780	284	155	1672	564
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	264	945	422	186	672	117	186	1415	631	94	1233	550
Arrive On Green	0.15	0.27	0.27	0.11	0.22	0.22	0.11	0.40	0.40	0.05	0.35	0.35
Sat Flow, veh/h	1767	3526	1572	1767	3002	522	1767	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	625	945	361	238	394	395	286	1780	284	155	1672	564
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1762	1767	1763	1572	1767	1763	1572
Q Serve(g_s), s	20.2	36.2	29.4	14.2	30.2	30.2	14.2	54.2	17.8	7.2	47.2	30.1
Cycle Q Clear(g_c), s	20.2	36.2	29.4	14.2	30.2	30.2	14.2	54.2	17.8	7.2	47.2	30.1
Prop In Lane	1.00		1.00	1.00		0.30	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	264	945	422	186	394	394	186	1415	631	94	1233	550
V/C Ratio(X)	2.36	1.00	0.86	1.28	1.00	1.00	1.54	1.26	0.45	1.64	1.36	1.03
Avail Cap(c_a), veh/h	264	945	422	186	394	394	186	1415	631	94	1233	550
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	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	57.4	49.4	46.9	60.4	52.4	52.4	60.4	40.4	29.5	63.9	43.9	17.9
Incr Delay (d2), s/veh	625.2	29.2	15.8	160.9	45.3	45.8	267.4	121.8	2.3	332.6	165.8	45.1
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	54.7	19.2	13.0	14.5	17.9	18.0	20.0	46.3	6.9	11.9	48.1	17.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	682.6	78.6	62.7	221.3	97.7	98.2	327.8	162.2	31.8	396.5	209.7	63.0
LnGrp LOS	F	E	E	F	F	F	F	F	C	F	F	F
Approach Vol, veh/h	1931			1027			2350			2391		
Approach Delay, s/veh	271.1			126.5			166.6			187.2		
Approach LOS	F			F			F			F		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	30.0	60.0	20.0	42.0	20.0	53.0	26.0	36.0				
Change Period (Y+Rc), s	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8				
Max Green Setting (Gmax), s	30.2	54.2	14.2	36.2	14.2	47.2	20.2	30.2				
Max Q Clear Time (g_c+19), s	19.2	56.2	16.2	38.2	16.2	49.2	22.2	32.2				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				

### Intersection Summary

HCM 6th Ctrl Delay	193.9
HCM 6th LOS	F



Intersection

Intersection Delay, s/veh 527

Intersection LOS F

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	645	845	353	404	454	771
Future Vol, veh/h	645	845	353	404	454	771
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	701	918	384	439	493	838
Number of Lanes	1	1	2	1	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	3	2	0
Conflicting Approach Left SB			WB
Conflicting Lanes Left	1	0	3
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	468.9	9.3	917.5
HCM LOS	F	A	F

Lane	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	100%	0%	0%	0%	0%	37%
Vol Thru, %	0%	100%	100%	100%	0%	0%
Vol Right, %	0%	0%	0%	0%	100%	63%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	645	845	177	177	404	1225
LT Vol	645	0	0	0	0	454
Through Vol	0	845	177	177	0	0
RT Vol	0	0	0	0	404	771
Lane Flow Rate	701	918	192	192	439	1332
Geometry Grp	8	8	7	7	7	7
Degree of Util (X)	1.717	2.123	0.418	0.418	0.658	2.984
Departure Headway (Hd)	13.725	13.157	4.559	4.559	1.928	8.852
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	273	285	792	792	1875	426
Service Time	11.425	10.857	2.259	2.259	-0.372	6.552
HCM Lane V/C Ratio	2.568	3.221	0.242	0.242	0.234	3.127
HCM Control Delay	369.1	545	10.5	10.5	8.3	917.5
HCM Lane LOS	F	F	B	B	A	F
HCM 95th-tile Q	29.3	43.4	2.1	2.1	5.4	105.2

HCM 6th TWSC  
16: MLK JR Way & SR 99 NB Ramps

02/23/2022

Intersection												
Int Delay, s/veh	104.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕		↕	↑↑			↑↑	
Traffic Vol, veh/h	0	0	0	41	0	90	319	962	0	0	852	491
Future Vol, veh/h	0	0	0	41	0	90	319	962	0	0	852	491
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	75	-	-	-	-	-
Veh in Median Storage, #	-	2	-	-	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	0	0	0	45	0	98	347	1046	0	0	926	534

Major/Minor	Minor1	Major1	Major2				
Conflicting Flow All	2203	3200	523	1460	0	-	-
Stage 1	1740	1740	-	-	-	-	-
Stage 2	463	1460	-	-	-	-	-
Critical Hdwy	6.86	6.56	6.96	4.16	-	-	-
Critical Hdwy Stg 1	5.86	5.56	-	-	-	-	-
Critical Hdwy Stg 2	5.86	5.56	-	-	-	-	-
Follow-up Hdwy	3.53	4.03	3.33	2.23	-	-	-
Pot Cap-1 Maneuver	~ 37	10	496	454	-	0	0
Stage 1	125	138	-	-	-	0	0
Stage 2	597	190	-	-	-	0	0
Platoon blocked, %					-	-	-
Mov Cap-1 Maneuver	~ 9	0	496	454	-	-	-
Mov Cap-2 Maneuver	~ 9	0	-	-	-	-	-
Stage 1	~ 30	0	-	-	-	-	-
Stage 2	597	0	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	\$ 2120.1	8.5	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBTWBLn1	SBT	SBR
Capacity (veh/h)	454	-	28	-
HCM Lane V/C Ratio	0.764	-	5.085	-
HCM Control Delay (s)	34.3	\$ 2120.1	-	-
HCM Lane LOS	D	-	F	-
HCM 95th %tile Q(veh)	6.5	-	17.4	-

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

Intersection												
Int Delay, s/veh	180.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙		↗		↕		↙	↕			↕	↗
Traffic Vol, veh/h	239	0	10	18	10	138	12	835	0	0	813	83
Future Vol, veh/h	239	0	10	18	10	138	12	835	0	0	813	83
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	-	-	-	75	-	-	-	-	-
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	260	0	11	20	11	150	13	908	0	0	884	90

Major/Minor	Minor2	Minor1		Major1			Major2					
Conflicting Flow All	1415	-	487	1376	1908	454	974	0	-	-	-	0
Stage 1	929	-	-	934	934	-	-	-	-	-	-	-
Stage 2	486	-	-	442	974	-	-	-	-	-	-	-
Critical Hdwy	7.56	-	6.96	7.56	6.56	6.96	4.16	-	-	-	-	-
Critical Hdwy Stg 1	6.56	-	-	6.56	5.56	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.56	-	-	6.56	5.56	-	-	-	-	-	-	-
Follow-up Hdwy	3.53	-	3.33	3.53	4.03	3.33	2.23	-	-	-	-	-
Pot Cap-1 Maneuver	~ 97	0	524	103	67	550	698	-	0	0	-	-
Stage 1	286	0	-	284	340	-	-	-	0	0	-	-
Stage 2	529	0	-	562	326	-	-	-	0	0	-	-
Platoon blocked, %								-			-	-
Mov Cap-1 Maneuver	~ 61	-	524	99	66	550	698	-	-	-	-	-
Mov Cap-2 Maneuver	~ 61	-	-	99	66	-	-	-	-	-	-	-
Stage 1	281	-	-	279	334	-	-	-	-	-	-	-
Stage 2	365	-	-	550	326	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s \$ 1540		37.4	0.1	0
HCM LOS	F	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	WBLn1	SBT	SBR
Capacity (veh/h)	698	-	61	524	284	-	-
HCM Lane V/C Ratio	0.019	-	4.259	0.021	0.635	-	-
HCM Control Delay (s)	10.3	\$	1603.9	12	37.4	-	-
HCM Lane LOS	B	-	F	B	E	-	-
HCM 95th %tile Q(veh)	0.1	-	28.3	0.1	4	-	-

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

HCM 6th Roundabout  
18: Campus Parkway & Yosemite Avenue

02/23/2022

Intersection									
Intersection Delay, s/veh	413.4								
Intersection LOS	F								
Approach	EB		WB		NB		SB		
Entry Lanes	2		2		2		2		
Conflicting Circle Lanes	2		2		2		2		
Adj Approach Flow, veh/h	1077		694		1928		1387		
Demand Flow Rate, veh/h	1109		715		1986		1429		
Vehicles Circulating, veh/h	1255		2261		994		1418		
Vehicles Exiting, veh/h	1592		719		1370		1558		
Ped Vol Crossing Leg, #/h	0		0		0		0		
Ped Cap Adj	1.000		1.000		1.000		1.000		
Approach Delay, s/veh	143.1		1034.8		352.6		396.8		
Approach LOS	F		F		F		F		
Lane	Left	Right	Left	Right	Left	Right	Left	Right	
Designated Moves	LT	TR	LT	R	LT	TR	LT	TR	
Assumed Moves	LT	TR	LT	R	LT	TR	LT	TR	
RT Channelized									
Lane Util	0.470	0.530	0.845	0.155	0.470	0.530	0.470	0.530	
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.667	2.535	2.667	2.535	
Critical Headway, s	4.645	4.328	4.645	4.328	4.645	4.328	4.645	4.328	
Entry Flow, veh/h	521	588	604	111	933	1053	672	757	
Cap Entry Lane, veh/h	426	489	169	208	541	610	366	425	
Entry HV Adj Factor	0.971	0.971	0.971	0.973	0.971	0.970	0.970	0.971	
Flow Entry, veh/h	506	571	586	108	906	1022	652	735	
Cap Entry, veh/h	413	474	164	202	525	592	355	413	
V/C Ratio	1.224	1.203	3.581	0.534	1.725	1.726	1.835	1.780	
Control Delay, s/veh	149.9	137.1	1218.2	39.2	353.5	351.8	411.8	383.4	
LOS	F	F	F	E	F	F	F	F	
95th %tile Queue, veh	21	22	57	3	54	60	43	46	

HCM 6th Roundabout  
19: Campus Parkway & Olive Avenue

02/23/2022

Intersection									
Intersection Delay, s/veh29.1									
Intersection LOS D									
Approach	EB		WB		NB		SB		
Entry Lanes	2		2		2		2		
Conflicting Circle Lanes	2		2		2		2		
Adj Approach Flow, veh/h	171		159		807		1191		
Demand Flow Rate, veh/h	176		164		832		1227		
Vehicles Circulating, veh/h	1250		828		188		158		
Vehicles Exiting, veh/h	135		192		1238		834		
Ped Vol Crossing Leg, #/h	0		0		0		0		
Ped Cap Adj	1.000		1.000		1.000		1.000		
Approach Delay, s/veh	10.9		7.0		6.7		49.8		
Approach LOS	B		A		A		E		
Lane	Left	Right	Left	Right	Left	Right	Left	Right	
Designated Moves	LT	TR	LT	TR	LT	TR	LT	R	
Assumed Moves	LT	TR	LT	TR	LT	TR	LT	R	
RT Channelized									
Lane Util	0.472	0.528	0.470	0.530	0.470	0.530	0.971	0.029	
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.667	2.535	2.667	2.535	
Critical Headway, s	4.645	4.328	4.645	4.328	4.645	4.328	4.645	4.328	
Entry Flow, veh/h	83	93	77	87	391	441	1191	36	
Cap Entry Lane, veh/h	427	491	630	702	1135	1210	1167	1242	
Entry HV Adj Factor	0.968	0.975	0.969	0.967	0.971	0.970	0.971	0.972	
Flow Entry, veh/h	80	91	75	84	380	428	1156	35	
Cap Entry, veh/h	414	478	611	679	1102	1175	1133	1207	
V/C Ratio	0.194	0.190	0.122	0.124	0.344	0.364	1.020	0.029	
Control Delay, s/veh	11.7	10.2	7.3	6.7	6.7	6.6	51.2	3.2	
LOS	B	B	A	A	A	A	F	A	
95th %tile Queue, veh	1	1	0	0	2	2	22	0	

# HCM 6th Signalized Intersection Summary

## 20: Campus Parkway & Connector Road

02/23/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔↔	↔	↕↕	↔	↔↔	↕↕
Traffic Volume (veh/h)	71	231	614	93	211	822
Future Volume (veh/h)	71	231	614	93	211	822
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	77	0	667	0	229	893
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	353		1535		379	2362
Arrive On Green	0.10	0.00	0.44	0.00	0.11	0.67
Sat Flow, veh/h	3428	1572	3618	1572	3428	3618
Grp Volume(v), veh/h	77	0	667	0	229	893
Grp Sat Flow(s),veh/h/ln	1714	1572	1763	1572	1714	1763
Q Serve(g_s), s	1.1	0.0	6.9	0.0	3.3	5.9
Cycle Q Clear(g_c), s	1.1	0.0	6.9	0.0	3.3	5.9
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	353		1535		379	2362
V/C Ratio(X)	0.22		0.43		0.60	0.38
Avail Cap(c_a), veh/h	2159		1535		425	2362
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	21.6	0.0	10.3	0.0	22.2	3.8
Incr Delay (d2), s/veh	0.3	0.0	0.9	0.0	2.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	1.9	0.0	1.2	0.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	21.9	0.0	11.2	0.0	24.2	4.3
LnGrp LOS	C		B		C	A
Approach Vol, veh/h	77	A	667	A		1122
Approach Delay, s/veh	21.9		11.2			8.3
Approach LOS	C		B			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	2.3	29.3			41.6	10.8
Change Period (Y+Rc), s	6.5	6.5			6.5	5.4
Max Green Setting (Gmax), s	6.5	22.1			35.1	33.0
Max Q Clear Time (g_c+1/3), s	1.1	8.9			7.9	3.1
Green Ext Time (p_c), s	0.1	3.2			5.8	0.2

### Intersection Summary

HCM 6th Ctrl Delay	9.9
HCM 6th LOS	A

### Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

# HCM 6th Signalized Intersection Summary

## 21: SR 140 & Connector Road

02/23/2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	24	298	203	204	235	58	
Future Volume (veh/h)	24	298	203	204	235	58	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	
Adj Flow Rate, veh/h	26	324	221	222	255	63	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	3	3	3	3	3	3	
Cap, veh/h	64	686	377	319	693	617	
Arrive On Green	0.04	0.37	0.20	0.20	0.39	0.39	
Sat Flow, veh/h	1767	1856	1856	1572	1767	1572	
Grp Volume(v), veh/h	26	324	221	222	255	63	
Grp Sat Flow(s),veh/h/ln	1767	1856	1856	1572	1767	1572	
Q Serve(g_s), s	0.7	6.7	5.4	6.5	5.1	1.3	
Cycle Q Clear(g_c), s	0.7	6.7	5.4	6.5	5.1	1.3	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	64	686	377	319	693	617	
V/C Ratio(X)	0.40	0.47	0.59	0.70	0.37	0.10	
Avail Cap(c_a), veh/h	230	1430	947	803	693	617	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	23.5	12.0	18.0	18.5	10.8	9.6	
Incr Delay (d2), s/veh	4.0	0.5	1.5	2.7	1.5	0.3	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.3	2.0	1.9	2.1	1.8	1.5	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	27.6	12.5	19.5	21.2	12.3	9.9	
LnGrp LOS	C	B	B	C	B	A	
Approach Vol, veh/h		350	443		318		
Approach Delay, s/veh		13.7	20.3		11.8		
Approach LOS		B	C		B		
Timer - Assigned Phs			4		6	7	8
Phs Duration (G+Y+Rc), s			25.0		25.0	8.3	16.6
Change Period (Y+Rc), s			6.5		5.4	6.5	6.5
Max Green Setting (Gmax), s			38.5		19.6	6.5	25.5
Max Q Clear Time (g_c+I1), s			8.7		7.1	2.7	8.5
Green Ext Time (p_c), s			1.6		0.7	0.0	1.6
<b>Intersection Summary</b>							
HCM 6th Ctrl Delay			15.8				
HCM 6th LOS			B				

HCM 6th Signalized Intersection Summary  
 22: Campus Parkway & Childs Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	144	56	111	90	15	91	625	95	9	780	15
Future Volume (veh/h)	9	144	56	111	90	15	91	625	95	9	780	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	10	157	61	121	98	16	99	679	103	10	848	16
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	27	391	174	153	677	302	246	1574	702	27	1374	613
Arrive On Green	0.02	0.11	0.11	0.09	0.19	0.19	0.07	0.45	0.45	0.02	0.39	0.39
Sat Flow, veh/h	1767	3526	1572	1767	3526	1572	3428	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	10	157	61	121	98	16	99	679	103	10	848	16
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1572	1714	1763	1572	1767	1763	1572
Q Serve(g_s), s	0.4	3.0	2.6	4.8	1.7	0.6	2.0	9.5	2.8	0.4	13.9	0.5
Cycle Q Clear(g_c), s	0.4	3.0	2.6	4.8	1.7	0.6	2.0	9.5	2.8	0.4	13.9	0.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	27	391	174	153	677	302	246	1574	702	27	1374	613
V/C Ratio(X)	0.37	0.40	0.35	0.79	0.14	0.05	0.40	0.43	0.15	0.37	0.62	0.03
Avail Cap(c_a), veh/h	147	1946	868	176	2005	894	285	1574	702	147	1374	613
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.2	29.8	29.7	32.3	24.2	23.8	32.0	13.7	11.8	35.2	17.7	13.6
Incr Delay (d2), s/veh	8.5	0.7	1.2	18.8	0.1	0.1	1.1	0.9	0.4	8.5	2.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.2	1.0	2.7	0.6	0.2	0.8	3.2	0.9	0.2	5.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.6	30.5	30.9	51.1	24.3	23.9	33.1	14.6	12.3	43.6	19.8	13.6
LnGrp LOS	D	C	C	D	C	C	C	B	B	D	B	B
Approach Vol, veh/h		228			235			881			874	
Approach Delay, s/veh		31.2			38.1			16.4			19.9	
Approach LOS		C			D			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.6	38.7	12.0	13.8	11.7	34.6	6.2	19.6				
Change Period (Y+Rc), s	6.5	6.5	5.8	* 5.8	6.5	6.5	5.1	5.8				
Max Green Setting (Gmax), s	6.0	28.1	7.2	* 40	6.0	28.1	6.0	41.0				
Max Q Clear Time (g_c+1), s	12.4	11.5	6.8	5.0	4.0	15.9	2.4	3.7				
Green Ext Time (p_c), s	0.0	3.9	0.0	1.2	0.0	4.1	0.0	0.6				

Intersection Summary

HCM 6th Ctrl Delay	21.6
HCM 6th LOS	C

Notes

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



HCM 6th Signalized Intersection Summary  
 23: Campus Parkway & Gerard Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑↑	↖	↖↗	↑↑	↖	↖↗	↑↑	↖	↖↗	↑↑	↖
Traffic Volume (veh/h)	28	242	44	18	18	9	96	556	29	7	957	36
Future Volume (veh/h)	28	242	44	18	18	9	96	556	29	7	957	36
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	30	263	48	20	20	10	104	604	32	8	1040	39
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	126	420	187	93	417	186	238	1779	793	42	1577	703
Arrive On Green	0.04	0.12	0.12	0.03	0.12	0.12	0.07	0.50	0.50	0.01	0.45	0.45
Sat Flow, veh/h	3428	3526	1572	3428	3526	1572	3428	3526	1572	3428	3526	1572
Grp Volume(v), veh/h	30	263	48	20	20	10	104	604	32	8	1040	39
Grp Sat Flow(s),veh/h/ln	1714	1763	1572	1714	1763	1572	1714	1763	1572	1714	1763	1572
Q Serve(g_s), s	0.7	5.5	2.1	0.4	0.4	0.4	2.2	7.9	0.8	0.2	17.8	1.1
Cycle Q Clear(g_c), s	0.7	5.5	2.1	0.4	0.4	0.4	2.2	7.9	0.8	0.2	17.8	1.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	126	420	187	93	417	186	238	1779	793	42	1577	703
V/C Ratio(X)	0.24	0.63	0.26	0.22	0.05	0.05	0.44	0.34	0.04	0.19	0.66	0.06
Avail Cap(c_a), veh/h	276	1746	779	267	1737	775	267	1779	793	267	1577	703
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.1	32.3	30.9	36.7	30.1	30.2	34.4	11.4	9.7	37.7	16.7	12.1
Incr Delay (d2), s/veh	1.0	1.5	0.7	1.1	0.0	0.1	1.3	0.5	0.1	2.2	2.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	2.3	0.8	0.2	0.2	0.2	0.9	2.5	0.2	0.1	6.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.0	33.9	31.6	37.9	30.2	30.3	35.7	11.9	9.8	39.9	18.9	12.2
LnGrp LOS	D	C	C	D	C	C	D	B	A	D	B	B
Approach Vol, veh/h		341			50			740			1087	
Approach Delay, s/veh		33.8			33.3			15.2			18.8	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.4	45.4	8.6	15.7	11.9	41.0	8.6	15.6				
Change Period (Y+Rc), s	6.5	6.5	6.5	* 6.5	6.5	6.5	5.8	6.5				
Max Green Setting (Gmax), s	6.0	34.5	6.0	* 38	6.0	34.5	6.2	38.0				
Max Q Clear Time (g_c+1/2), s	11.2	9.9	2.4	7.5	4.2	19.8	2.7	2.4				
Green Ext Time (p_c), s	0.0	3.7	0.0	1.7	0.0	5.7	0.0	0.1				

Intersection Summary

HCM 6th Ctrl Delay	20.2
HCM 6th LOS	C

Notes

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

# HCM 6th Signalized Intersection Summary

## 24: Coffee Street & Campus Parkway

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	115	710	125	18	516	321	61	257	36	118	463	130
Future Volume (veh/h)	115	710	125	18	516	321	61	257	36	118	463	130
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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	125	772	136	20	561	349	66	279	39	128	503	141
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	150	1150	513	36	922	407	127	1462	652	157	1644	733
Arrive On Green	0.11	0.43	0.43	0.02	0.26	0.26	0.04	0.41	0.41	0.09	0.47	0.47
Sat Flow, veh/h	1767	3526	1572	1767	3526	1556	3428	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	125	772	136	20	561	349	66	279	39	128	503	141
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1556	1714	1763	1572	1767	1763	1572
Q Serve(g_s), s	8.3	21.0	6.6	1.3	16.8	25.6	2.3	6.0	1.8	8.5	10.7	6.3
Cycle Q Clear(g_c), s	8.3	21.0	6.6	1.3	16.8	25.6	2.3	6.0	1.8	8.5	10.7	6.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	150	1150	513	36	922	407	127	1462	652	157	1644	733
V/C Ratio(X)	0.83	0.67	0.27	0.56	0.61	0.86	0.52	0.19	0.06	0.82	0.31	0.19
Avail Cap(c_a), veh/h	184	1378	615	99	1207	533	249	1462	652	412	1644	733
HCM Platoon Ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.68	0.68	0.68	0.79	0.79	0.79	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.4	28.8	24.8	58.3	38.9	42.2	56.7	22.3	21.1	53.7	19.9	18.8
Incr Delay (d2), s/veh	16.5	0.7	0.2	10.3	0.5	8.5	3.3	0.3	0.2	9.8	0.5	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	7.5	2.3	0.7	6.9	10.2	1.0	2.5	0.7	4.2	4.4	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.8	29.5	24.9	68.6	39.4	50.7	60.0	22.6	21.3	63.5	20.4	19.3
LnGrp LOS	E	C	C	E	D	D	E	C	C	E	C	B
Approach Vol, veh/h	1033			930			384			772		
Approach Delay, s/veh	33.7			44.3			28.9			27.4		
Approach LOS	C			D			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.2	54.3	6.9	43.7	8.9	60.5	14.7	35.9				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	20.4	20.4	6.7	46.9	8.7	39.7	12.5	41.1				
Max Q Clear Time (g_c+110), s	8.0	8.0	3.3	23.0	4.3	12.7	10.3	27.6				
Green Ext Time (p_c), s	0.3	1.4	0.0	5.2	0.0	3.8	0.1	3.8				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay	34.7											
HCM 6th LOS	C											

# HCM 6th Signalized Intersection Summary

## 25: SR 99 NB Ramps & Campus Parkway

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	87	849	0	0	350	304	255	5	245	0	0	0
Future Volume (veh/h)	87	849	0	0	350	304	255	5	245	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1856	1856	0	0	1856	1856	1856	1856	1856			
Adj Flow Rate, veh/h	95	923	0	0	380	330	277	5	266			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	3	3	0	0	3	3	3	3	3			
Cap, veh/h	121	1307	0	0	875	390	915	17	828			
Arrive On Green	0.07	0.37	0.00	0.00	0.08	0.08	0.53	0.53	0.53			
Sat Flow, veh/h	1767	3618	0	0	3618	1572	1737	31	1572			
Grp Volume(v), veh/h	95	923	0	0	380	330	282	0	266			
Grp Sat Flow(s),veh/h/ln	1767	1763	0	0	1763	1572	1769	0	1572			
Q Serve(g_s), s	6.4	26.8	0.0	0.0	12.3	24.8	10.8	0.0	11.6			
Cycle Q Clear(g_c), s	6.4	26.8	0.0	0.0	12.3	24.8	10.8	0.0	11.6			
Prop In Lane	1.00		0.00	0.00		1.00	0.98		1.00			
Lane Grp Cap(c), veh/h	121	1307	0	0	875	390	932	0	828			
V/C Ratio(X)	0.79	0.71	0.00	0.00	0.43	0.85	0.30	0.00	0.32			
Avail Cap(c_a), veh/h	479	2424	0	0	1278	570	932	0	828			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	0.33	0.33	1.00	1.00	1.00			
Upstream Filter(l)	1.00	1.00	0.00	0.00	0.80	0.80	1.00	0.00	1.00			
Uniform Delay (d), s/veh	55.0	32.2	0.0	0.0	47.1	52.8	16.0	0.0	16.2			
Incr Delay (d2), s/veh	10.7	0.7	0.0	0.0	0.3	6.3	0.8	0.0	1.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/lr	3.1	10.7	0.0	0.0	5.7	11.1	4.3	0.0	4.1			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.8	32.9	0.0	0.0	47.3	59.1	16.8	0.0	17.2			
LnGrp LOS	E	C	A	A	D	E	B	A	B			
Approach Vol, veh/h	1018				710				548			
Approach Delay, s/veh	36.0				52.8				17.0			
Approach LOS	D				D				B			
Timer - Assigned Phs	2		4		7		8					
Phs Duration (G+Y+Rc), s	69.0		51.0		14.7		36.3					
Change Period (Y+Rc), s	5.8		6.5		6.5		6.5					
Max Green Setting (Gmax), s	25.2		82.5		32.5		43.5					
Max Q Clear Time (g_c+I1), s	13.6		28.8		8.4		26.8					
Green Ext Time (p_c), s	1.9		6.6		0.2		3.0					
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay	36.6											
HCM 6th LOS	D											

HCM 6th Signalized Intersection Summary  
 26: Lake Street & Meyers Gate Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	5	48	33	65	46	2	17	9	77	3	7	4
Future Volume (veh/h)	5	48	33	65	46	2	17	9	77	3	7	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	5	52	36	71	50	2	18	10	84	3	8	4
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	12	121	84	132	330	13	41	32	271	7	199	99
Arrive On Green	0.01	0.12	0.12	0.07	0.19	0.19	0.02	0.19	0.19	0.00	0.17	0.17
Sat Flow, veh/h	1767	1021	707	1767	1772	71	1767	170	1428	1767	1167	584
Grp Volume(v), veh/h	5	0	88	71	0	52	18	0	94	3	0	12
Grp Sat Flow(s),veh/h/ln	1767	0	1728	1767	0	1843	1767	0	1598	1767	0	1751
Q Serve(g_s), s	0.1	0.0	1.4	1.1	0.0	0.7	0.3	0.0	1.5	0.0	0.0	0.2
Cycle Q Clear(g_c), s	0.1	0.0	1.4	1.1	0.0	0.7	0.3	0.0	1.5	0.0	0.0	0.2
Prop In Lane	1.00		0.41	1.00		0.04	1.00		0.89	1.00		0.33
Lane Grp Cap(c), veh/h	12	0	204	132	0	343	41	0	303	7	0	298
V/C Ratio(X)	0.42	0.00	0.43	0.54	0.00	0.15	0.44	0.00	0.31	0.41	0.00	0.04
Avail Cap(c_a), veh/h	301	0	1060	331	0	1162	301	0	1008	301	0	1104
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.5	0.0	12.0	13.1	0.0	10.0	14.1	0.0	10.2	14.6	0.0	10.2
Incr Delay (d2), s/veh	21.3	0.0	1.4	3.4	0.0	0.2	7.2	0.0	0.6	33.3	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.4	0.4	0.0	0.2	0.2	0.0	0.3	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.8	0.0	13.5	16.4	0.0	10.2	21.3	0.0	10.8	47.9	0.0	10.2
LnGrp LOS	D	A	B	B	A	B	C	A	B	D	A	B
Approach Vol, veh/h		93			123			112			15	
Approach Delay, s/veh		14.7			13.8			12.5			17.8	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.6	10.1	6.7	8.0	5.2	9.5	4.7	10.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	18.5	18.5	5.5	18.0	5.0	18.5	5.0	18.5				
Max Q Clear Time (g_c+1/2), s	12.0	3.5	3.1	3.4	2.3	2.2	2.1	2.7				
Green Ext Time (p_c), s	0.0	0.3	0.0	0.3	0.0	0.0	0.0	0.1				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay												13.8
HCM 6th LOS												B

Intersection				
Intersection Delay, s/veh	20.4			
Intersection LOS	C			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	2	2	2	2
Adj Approach Flow, veh/h	243	210	654	1039
Demand Flow Rate, veh/h	250	216	674	1070
Vehicles Circulating, veh/h	1073	678	225	240
Vehicles Exiting, veh/h	237	221	1098	654
Ped Vol Crossing Leg, #/h	20	20	20	0
Ped Cap Adj	1.000	0.997	0.997	1.000
Approach Delay, s/veh	13.7	7.7	10.3	31.0
Approach LOS	B	A	B	D
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.535	2.535	2.535	2.535
Critical Headway, s	4.328	4.328	4.328	4.328
Entry Flow, veh/h	250	216	674	1070
Cap Entry Lane, veh/h	570	798	1173	1158
Entry HV Adj Factor	0.971	0.972	0.971	0.971
Flow Entry, veh/h	243	210	654	1039
Cap Entry, veh/h	554	774	1136	1124
V/C Ratio	0.438	0.271	0.576	0.924
Control Delay, s/veh	13.7	7.7	10.3	31.0
LOS	B	A	B	D
95th %tile Queue, veh	2	1	4	15

# HCM 6th Signalized Intersection Summary

## 77: Lake Road & Virginia Smith Parkway

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	55	36	96	63	112	21	75	218	180	26	35
Future Volume (veh/h)	18	55	36	96	63	112	21	75	218	180	26	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.93		0.92	1.00		0.94	1.00		0.92	1.00		0.94
Parking Bus, Adj	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	20	60	39	104	68	122	23	82	237	196	28	38
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	303	119	77	149	575	457	50	412	321	251	231	313
Arrive On Green	0.12	0.12	0.12	0.08	0.31	0.31	0.03	0.22	0.22	0.14	0.34	0.34
Sat Flow, veh/h	1106	1013	659	1767	1856	1473	1767	1856	1447	1767	686	932
Grp Volume(v), veh/h	20	0	99	104	68	122	23	82	237	196	0	66
Grp Sat Flow(s),veh/h/ln	1106	0	1672	1767	1856	1473	1767	1856	1447	1767	0	1618
Q Serve(g_s), s	0.7	0.0	2.3	2.4	1.1	2.6	0.5	1.5	6.3	4.4	0.0	1.2
Cycle Q Clear(g_c), s	0.7	0.0	2.3	2.4	1.1	2.6	0.5	1.5	6.3	4.4	0.0	1.2
Prop In Lane	1.00		0.39	1.00		1.00	1.00		1.00	1.00		0.58
Lane Grp Cap(c), veh/h	303	0	196	149	575	457	50	412	321	251	0	544
V/C Ratio(X)	0.07	0.00	0.51	0.70	0.12	0.27	0.46	0.20	0.74	0.78	0.00	0.12
Avail Cap(c_a), veh/h	654	0	726	235	1254	996	213	851	663	405	0	918
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.4	0.0	17.2	18.5	10.2	10.7	19.8	13.1	15.0	17.1	0.0	9.5
Incr Delay (d2), s/veh	0.1	0.0	2.0	5.8	0.1	0.3	6.6	0.2	3.3	5.2	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.8	1.0	0.3	0.6	0.3	0.5	1.9	1.7	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.5	0.0	19.2	24.3	10.3	11.1	26.4	13.4	18.3	22.4	0.0	9.6
LnGrp LOS	B	A	B	C	B	B	C	B	B	C	A	A
Approach Vol, veh/h		119			294			342			262	
Approach Delay, s/veh		18.7			15.6			17.7			19.2	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	8					
Phs Duration (G+Y+Rc), s	10.4	13.7	8.0	9.4	5.7	18.4		17.3				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	19.5	19.0	5.5	18.0	5.0	23.5		28.0				
Max Q Clear Time (g_c+1/4), s	10.4	8.3	4.4	4.3	2.5	3.2		4.6				
Green Ext Time (p_c), s	0.1	0.9	0.0	0.4	0.0	0.2		0.7				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay											17.6	
HCM 6th LOS											B	

HCM 6th Roundabout  
78: Campus Parkway & Virginia Smith Parkway

02/23/2022

Intersection						
Intersection Delay, s/veh	19.9					
Intersection LOS	C					
Approach	EB	WB	NB		SB	
Entry Lanes	1	1	2		2	
Conflicting Circle Lanes	2	2	2		2	
Adj Approach Flow, veh/h	378	419	941		1000	
Demand Flow Rate, veh/h	390	431	970		1031	
Vehicles Circulating, veh/h	1094	863	387		395	
Vehicles Exiting, veh/h	332	494	1097		899	
Ped Vol Crossing Leg, #/h	20	20	20		20	
Ped Cap Adj	1.000	0.997	0.985		0.985	
Approach Delay, s/veh	23.9	17.6	29.0		10.9	
Approach LOS	C	C	D		B	
Lane	Left	Left	Left	Right	Left	Right
Designated Moves	LTR	LTR	LT	R	LT	TR
Assumed Moves	LTR	LTR	LT	R	LT	TR
RT Channelized						
Lane Util	1.000	1.000	0.868	0.132	0.470	0.530
Follow-Up Headway, s	2.535	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.328	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	390	431	842	128	485	546
Cap Entry Lane, veh/h	560	682	946	1022	939	1015
Entry HV Adj Factor	0.970	0.971	0.971	0.969	0.969	0.971
Flow Entry, veh/h	378	419	817	124	470	530
Cap Entry, veh/h	543	660	904	975	896	971
V/C Ratio	0.696	0.634	0.904	0.127	0.525	0.546
Control Delay, s/veh	23.9	17.6	32.7	4.9	11.0	10.8
LOS	C	C	D	A	B	B
95th %tile Queue, veh	5	5	13	0	3	3

HCM 6th TWSC  
79: Virginia Smith Parkway & Golden BOBcat

02/23/2022

Intersection												
Int Delay, s/veh	6.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷		↶	↷		↶	↷	
Traffic Vol, veh/h	36	258	52	41	239	25	62	38	39	29	36	46
Future Vol, veh/h	36	258	52	41	239	25	62	38	39	29	36	46
Conflicting Peds, #/hr	20	0	20	20	0	20	20	0	20	20	0	20
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	150	-	-	150	-	-
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	39	280	57	45	260	27	67	41	42	32	39	50

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	307	0	0	357	0	0	835	804	349	832	819	314
Stage 1	-	-	-	-	-	-	407	407	-	384	384	-
Stage 2	-	-	-	-	-	-	428	397	-	448	435	-
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	1248	-	-	1196	-	-	286	315	692	287	309	724
Stage 1	-	-	-	-	-	-	619	596	-	637	610	-
Stage 2	-	-	-	-	-	-	603	602	-	588	579	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1224	-	-	1173	-	-	216	282	666	218	277	697
Mov Cap-2 Maneuver	-	-	-	-	-	-	216	282	-	218	277	-
Stage 1	-	-	-	-	-	-	588	566	-	605	576	-
Stage 2	-	-	-	-	-	-	492	568	-	485	550	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.8			1.1			22			18.1		
HCM LOS							C			C		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	216	398	1224	-	-	1173	-	-	218	418
HCM Lane V/C Ratio	0.312	0.21	0.032	-	-	0.038	-	-	0.145	0.213
HCM Control Delay (s)	29	16.4	8	-	-	8.2	-	-	24.3	15.9
HCM Lane LOS	D	C	A	-	-	A	-	-	C	C
HCM 95th %tile Q(veh)	1.3	0.8	0.1	-	-	0.1	-	-	0.5	0.8



HCM 6th Roundabout  
80: Virginia Smith Parkway & Main Street

02/23/2022

Intersection				
Intersection Delay, s/veh	5.9			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	355	269	111	244
Demand Flow Rate, veh/h	366	277	115	252
Vehicles Circulating, veh/h	150	236	382	264
Vehicles Exiting, veh/h	366	261	134	249
Ped Vol Crossing Leg, #/h	20	20	20	20
Ped Cap Adj	0.997	0.997	0.997	0.997
Approach Delay, s/veh	6.1	5.9	5.2	5.8
Approach LOS	A	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	366	277	115	252
Cap Entry Lane, veh/h	1184	1085	935	1054
Entry HV Adj Factor	0.971	0.970	0.967	0.969
Flow Entry, veh/h	355	269	111	244
Cap Entry, veh/h	1146	1049	902	1019
V/C Ratio	0.310	0.256	0.123	0.240
Control Delay, s/veh	6.1	5.9	5.2	5.8
LOS	A	A	A	A
95th %tile Queue, veh	1	1	0	1

HCM 6th TWSC  
81: 4th Street & Virginia Smith Parkway

02/23/2022

Intersection												
Int Delay, s/veh	6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔		↔	↔		↔	↔	
Traffic Vol, veh/h	48	38	75	15	21	8	48	12	27	13	12	53
Future Vol, veh/h	48	38	75	15	21	8	48	12	27	13	12	53
Conflicting Peds, #/hr	0	0	20	20	0	0	20	0	20	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	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	52	41	82	16	23	9	52	13	29	14	13	58

Major/Minor	Major1		Major2		Minor1			Minor2				
Conflicting Flow All	32	0	0	143	0	0	321	270	122	287	307	48
Stage 1	-	-	-	-	-	-	206	206	-	60	60	-
Stage 2	-	-	-	-	-	-	115	64	-	227	247	-
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	1574	-	-	1434	-	-	630	635	926	663	605	1018
Stage 1	-	-	-	-	-	-	794	729	-	949	843	-
Stage 2	-	-	-	-	-	-	887	840	-	773	700	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1574	-	-	1407	-	-	542	596	891	598	567	999
Mov Cap-2 Maneuver	-	-	-	-	-	-	542	596	-	598	567	-
Stage 1	-	-	-	-	-	-	754	692	-	918	834	-
Stage 2	-	-	-	-	-	-	798	831	-	696	664	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	2.2		2.6		11.2		9.8	
HCM LOS					B		A	

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	542	773	1574	-	-	1407	-	-	598	876
HCM Lane V/C Ratio	0.096	0.055	0.033	-	-	0.012	-	-	0.024	0.081
HCM Control Delay (s)	12.3	9.9	7.4	-	-	7.6	-	-	11.2	9.5
HCM Lane LOS	B	A	A	-	-	A	-	-	B	A
HCM 95th %tile Q(veh)	0.3	0.2	0.1	-	-	0	-	-	0.1	0.3

**2030 Near Term Without Campus  
Parkway- With Recommended  
Improvements  
AM Peak Hour**

# HCM 6th Signalized Intersection Summary

## 1: Snelling Highway (SR 59) & Bellevue Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↖	↖	↗	↖	↖	↗	↗
Traffic Volume (veh/h)	17	276	8	227	181	81	8	76	340	110	84	28
Future Volume (veh/h)	17	276	8	227	181	81	8	76	340	110	84	28
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	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	18	300	9	247	197	88	9	83	370	120	91	30
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	36	339	10	294	621	526	20	651	552	121	546	180
Arrive On Green	0.02	0.19	0.19	0.17	0.33	0.33	0.01	0.35	0.35	0.07	0.41	0.41
Sat Flow, veh/h	1767	1792	54	1767	1856	1572	1767	1856	1572	1767	1336	440
Grp Volume(v), veh/h	18	0	309	247	197	88	9	83	370	120	0	121
Grp Sat Flow(s),veh/h/ln	1767	0	1846	1767	1856	1572	1767	1856	1572	1767	0	1776
Q Serve(g_s), s	0.8	0.0	13.0	10.8	6.3	3.2	0.4	2.4	16.0	5.4	0.0	3.5
Cycle Q Clear(g_c), s	0.8	0.0	13.0	10.8	6.3	3.2	0.4	2.4	16.0	5.4	0.0	3.5
Prop In Lane	1.00		0.03	1.00		1.00	1.00		1.00	1.00		0.25
Lane Grp Cap(c), veh/h	36	0	349	294	621	526	20	651	552	121	0	725
V/C Ratio(X)	0.49	0.00	0.89	0.84	0.32	0.17	0.45	0.13	0.67	0.99	0.00	0.17
Avail Cap(c_a), veh/h	110	0	358	563	835	708	110	651	552	121	0	725
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	0.81	0.81	0.81	0.79	0.79	0.79	1.00	0.00	1.00
Uniform Delay (d), s/veh	38.8	0.0	31.6	32.3	19.8	18.8	39.3	17.6	22.0	37.2	0.0	15.0
Incr Delay (d2), s/veh	10.0	0.0	22.0	5.3	0.2	0.1	12.0	0.3	5.1	77.6	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	7.3	4.6	2.4	1.0	0.2	1.0	5.8	4.8	0.0	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.8	0.0	53.6	37.6	20.0	18.9	51.3	18.0	27.1	114.9	0.0	15.5
LnGrp LOS	D	A	D	D	C	B	D	B	C	F	A	B
Approach Vol, veh/h		327			532			462			241	
Approach Delay, s/veh		53.4			28.0			25.9			65.0	
Approach LOS		D			C			C			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.0	32.6	17.8	19.6	5.4	37.2	6.1	31.3				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.5	15.5	25.5	15.5	5.0	16.0	5.0	36.0				
Max Q Clear Time (g_c+I1), s	7.4	18.0	12.8	15.0	2.4	5.5	2.8	8.3				
Green Ext Time (p_c), s	0.0	0.0	0.5	0.1	0.0	0.3	0.0	1.2				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			38.4									
HCM 6th LOS			D									

# HCM 6th Signalized Intersection Summary

## 2: G Street & Bellevue Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	351	170	106	199	22	149	347	337	16	355	63
Future Volume (veh/h)	67	351	170	106	199	22	149	347	337	16	355	63
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	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	73	382	185	115	216	24	162	377	366	17	386	68
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	93	362	175	169	562	476	172	1427	714	38	1160	517
Arrive On Green	0.05	0.31	0.31	0.05	0.30	0.30	0.10	0.40	0.40	0.02	0.33	0.33
Sat Flow, veh/h	1767	1181	572	3428	1856	1572	1767	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	73	0	567	115	216	24	162	377	366	17	386	68
Grp Sat Flow(s),veh/h/ln	1767	0	1753	1714	1856	1572	1767	1763	1572	1767	1763	1572
Q Serve(g_s), s	4.9	0.0	36.5	3.9	10.9	1.3	10.9	8.5	19.7	1.1	9.8	3.6
Cycle Q Clear(g_c), s	4.9	0.0	36.5	3.9	10.9	1.3	10.9	8.5	19.7	1.1	9.8	3.6
Prop In Lane	1.00		0.33	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	93	0	537	169	562	476	172	1427	714	38	1160	517
V/C Ratio(X)	0.78	0.00	1.06	0.68	0.38	0.05	0.94	0.26	0.51	0.44	0.33	0.13
Avail Cap(c_a), veh/h	157	0	537	193	562	476	172	1427	714	89	1160	517
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.8	0.0	41.3	55.7	32.8	29.4	53.4	23.6	23.2	57.6	30.1	28.0
Incr Delay (d2), s/veh	13.3	0.0	54.5	7.9	0.4	0.0	51.7	0.5	2.6	7.9	0.8	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	0.0	22.8	1.8	4.7	0.5	7.1	3.4	7.2	0.6	4.1	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.0	0.0	95.9	63.7	33.2	29.5	105.2	24.1	25.8	65.4	30.9	28.6
LnGrp LOS	E	A	F	E	C	C	F	C	C	E	C	C
Approach Vol, veh/h		640			355			905			471	
Approach Delay, s/veh		92.8			42.8			39.3			31.8	
Approach LOS		F			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.1	54.7	12.4	43.0	18.1	45.7	12.8	42.6				
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5				
Max Green Setting (Gmax), s	6.0	44.8	6.7	36.5	11.6	39.2	10.6	32.6				
Max Q Clear Time (g_c+1), s	13.5	21.7	5.9	38.5	12.9	11.8	6.9	12.9				
Green Ext Time (p_c), s	0.0	3.3	0.0	0.0	0.0	2.4	0.0	1.0				

### Intersection Summary

HCM 6th Ctrl Delay	52.8
HCM 6th LOS	D

# HCM 6th Signalized Intersection Summary

## 3: Lake Street/Lake Road & Bellevue Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↑	↗	↖	↑↑	↗
Traffic Volume (veh/h)	363	321	235	38	39	3	216	404	82	20	152	82
Future Volume (veh/h)	363	321	235	38	39	3	216	404	82	20	152	82
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	395	349	255	41	42	3	235	439	89	22	165	89
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	432	369	270	60	240	17	270	669	567	40	814	363
Arrive On Green	0.24	0.37	0.37	0.03	0.14	0.14	0.15	0.36	0.36	0.02	0.23	0.23
Sat Flow, veh/h	1767	996	728	1767	1711	122	1767	1856	1572	1767	3526	1572
Grp Volume(v), veh/h	395	0	604	41	0	45	235	439	89	22	165	89
Grp Sat Flow(s),veh/h/ln	1767	0	1724	1767	0	1834	1767	1856	1572	1767	1763	1572
Q Serve(g_s), s	21.9	0.0	34.1	2.3	0.0	2.2	13.1	19.9	3.9	1.2	3.8	4.6
Cycle Q Clear(g_c), s	21.9	0.0	34.1	2.3	0.0	2.2	13.1	19.9	3.9	1.2	3.8	4.6
Prop In Lane	1.00		0.42	1.00		0.07	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	432	0	639	60	0	257	270	669	567	40	814	363
V/C Ratio(X)	0.91	0.00	0.94	0.68	0.00	0.18	0.87	0.66	0.16	0.55	0.20	0.25
Avail Cap(c_a), veh/h	554	0	678	273	0	392	360	669	567	273	814	363
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.9	0.0	30.6	48.0	0.0	38.1	41.6	26.9	21.8	48.6	31.2	31.5
Incr Delay (d2), s/veh	16.9	0.0	21.5	12.9	0.0	0.3	16.0	5.0	0.6	11.0	0.6	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ft	0.7	0.0	16.4	1.2	0.0	0.9	6.7	9.3	1.4	0.7	1.6	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.8	0.0	52.1	60.9	0.0	38.4	57.7	31.9	22.4	59.6	31.8	33.1
LnGrp LOS	D	A	D	E	A	D	E	C	C	E	C	C
Approach Vol, veh/h		999			86			763			276	
Approach Delay, s/veh		52.8			49.1			38.7			34.4	
Approach LOS		D			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.8	42.1	7.9	43.8	19.8	29.0	31.1	20.6				
Change Period (Y+Rc), s	4.5	* 5.8	4.5	6.5	4.5	5.8	6.5	6.5				
Max Green Setting (Gmax), s	15.5	* 30	15.5	39.5	20.5	23.2	31.5	21.5				
Max Q Clear Time (g_c+1), s	13.2	21.9	4.3	36.1	15.1	6.6	23.9	4.2				
Green Ext Time (p_c), s	0.0	1.7	0.0	1.2	0.3	1.0	0.7	0.1				

### Intersection Summary

HCM 6th Ctrl Delay	45.2
HCM 6th LOS	D

### Notes

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

# HCM 6th Signalized Intersection Summary

## 4: G Street & Cardella Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕		↖	↗		↖	↕	↗
Traffic Volume (veh/h)	123	0	64	2	0	8	32	767	0	4	865	56
Future Volume (veh/h)	123	0	64	2	0	8	32	767	0	4	865	56
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	134	0	70	2	0	9	35	834	0	4	940	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	190	0	308	49	25	112	69	1029	0	69	1029	
Arrive On Green	0.20	0.00	0.20	0.20	0.00	0.20	0.04	0.55	0.00	0.04	0.55	0.00
Sat Flow, veh/h	549	0	1572	0	127	571	1767	1856	0	1767	1856	1572
Grp Volume(v), veh/h	134	0	70	11	0	0	35	834	0	4	940	0
Grp Sat Flow(s),veh/h/ln	549	0	1572	698	0	0	1767	1856	0	1767	1856	1572
Q Serve(g_s), s	0.0	0.0	3.3	0.0	0.0	0.0	1.7	31.8	0.0	0.2	40.0	0.0
Cycle Q Clear(g_c), s	17.1	0.0	3.3	17.1	0.0	0.0	1.7	31.8	0.0	0.2	40.0	0.0
Prop In Lane	1.00		1.00	0.18		0.82	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	190	0	308	185	0	0	69	1029	0	69	1029	
V/C Ratio(X)	0.71	0.00	0.23	0.06	0.00	0.00	0.50	0.81	0.00	0.06	0.91	
Avail Cap(c_a), veh/h	190	0	308	185	0	0	121	1029	0	121	1029	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	36.9	0.0	29.6	29.0	0.0	0.0	41.2	15.7	0.0	40.4	17.6	0.0
Incr Delay (d2), s/veh	11.3	0.0	0.4	0.1	0.0	0.0	5.6	6.9	0.0	0.3	13.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	0.0	1.2	0.2	0.0	0.0	0.8	12.3	0.0	0.1	16.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.2	0.0	30.0	29.2	0.0	0.0	46.7	22.7	0.0	40.8	31.2	0.0
LnGrp LOS	D	A	C	C	A	A	D	C	A	D	C	
Approach Vol, veh/h		204			11			869			944	A
Approach Delay, s/veh		42.0			29.2			23.6			31.3	
Approach LOS		D			C			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.9	55.0		22.5	9.9	55.0		22.5				
Change Period (Y+Rc), s	6.5	6.5		5.4	6.5	6.5		5.4				
Max Green Setting (Gmax), s	6.0	48.5		17.1	6.0	48.5		17.1				
Max Q Clear Time (g_c+1/2), s	12.2	33.8		19.1	3.7	42.0		19.1				
Green Ext Time (p_c), s	0.0	4.6		0.0	0.0	3.2		0.0				

### Intersection Summary

HCM 6th Ctrl Delay	29.1
HCM 6th LOS	C

### Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

# HCM 6th Signalized Intersection Summary

## 5: Lake Road & Cardella Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	30	1	98	30	39	2	984	78	39	420	9
Future Volume (veh/h)	11	30	1	98	30	39	2	984	78	39	420	9
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	12	33	1	107	33	42	2	1070	85	42	457	10
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	27	436	13	219	53	53	5	1126	954	154	957	21
Arrive On Green	0.02	0.24	0.24	0.15	0.15	0.15	0.00	0.61	0.61	0.53	0.53	0.53
Sat Flow, veh/h	1767	1791	54	807	348	347	1767	1856	1572	483	1809	40
Grp Volume(v), veh/h	12	0	34	182	0	0	2	1070	85	42	0	467
Grp Sat Flow(s),veh/h/ln	1767	0	1846	1502	0	0	1767	1856	1572	483	0	1848
Q Serve(g_s), s	0.4	0.0	0.9	6.3	0.0	0.0	0.1	32.1	1.3	4.3	0.0	9.6
Cycle Q Clear(g_c), s	0.4	0.0	0.9	7.0	0.0	0.0	0.1	32.1	1.3	31.7	0.0	9.6
Prop In Lane	1.00		0.03	0.59		0.23	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	27	0	449	325	0	0	5	1126	954	154	0	978
V/C Ratio(X)	0.45	0.00	0.08	0.56	0.00	0.00	0.41	0.95	0.09	0.27	0.00	0.48
Avail Cap(c_a), veh/h	147	0	769	481	0	0	147	1126	954	154	0	978
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	0.00	0.26	0.26	0.26	0.87	0.00	0.87
Uniform Delay (d), s/veh	29.3	0.0	17.5	24.4	0.0	0.0	29.9	11.0	4.9	28.3	0.0	8.9
Incr Delay (d2), s/veh	11.4	0.0	0.1	1.5	0.0	0.0	14.1	6.2	0.0	3.8	0.0	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/lr	0.2	0.0	0.3	2.5	0.0	0.0	0.0	8.4	0.2	0.7	0.0	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.7	0.0	17.6	25.9	0.0	0.0	43.9	17.2	5.0	32.0	0.0	10.4
LnGrp LOS	D	A	B	C	A	A	D	B	A	C	A	B
Approach Vol, veh/h		46			182			1157			509	
Approach Delay, s/veh		23.6			25.9			16.3			12.1	
Approach LOS		C			C			B			B	
Timer - Assigned Phs		2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s		40.9		19.1	4.7	36.2	5.4	13.7				
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s		26.0		25.0	5.0	16.5	5.0	15.5				
Max Q Clear Time (g_c+I1), s		34.1		2.9	2.1	33.7	2.4	9.0				
Green Ext Time (p_c), s		0.0		0.1	0.0	0.0	0.0	0.5				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				16.3								
HCM 6th LOS				B								



# HCM 6th Signalized Intersection Summary

## 6: Snelling Highway (SR 59) & Yosemite Avenue

02/23/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	215	398	347	220	488	412
Future Volume (veh/h)	215	398	347	220	488	412
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	234	433	377	239	530	448
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	353	816	505	428	564	1231
Arrive On Green	0.20	0.20	0.27	0.27	0.32	0.66
Sat Flow, veh/h	1767	1572	1856	1572	1767	1856
Grp Volume(v), veh/h	234	433	377	239	530	448
Grp Sat Flow(s),veh/h/ln	1767	1572	1856	1572	1767	1856
Q Serve(g_s), s	11.0	16.5	16.7	11.7	26.3	9.6
Cycle Q Clear(g_c), s	11.0	16.5	16.7	11.7	26.3	9.6
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	353	816	505	428	564	1231
V/C Ratio(X)	0.66	0.53	0.75	0.56	0.94	0.36
Avail Cap(c_a), veh/h	353	816	505	428	599	1231
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.2	14.4	29.9	28.1	29.8	6.7
Incr Delay (d2), s/veh	4.6	0.7	9.7	5.2	22.5	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	5.2	8.1	4.6	13.4	2.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	37.8	15.0	39.6	33.3	52.3	7.6
LnGrp LOS	D	B	D	C	D	A
Approach Vol, veh/h	667		616		978	
Approach Delay, s/veh	23.0		37.1		31.8	
Approach LOS	C		D		C	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	35.2	31.0			66.2	23.8
Change Period (Y+Rc), s	6.5	6.5			6.5	5.8
Max Green Setting (Gmax), s	30.5	22.7			59.7	18.0
Max Q Clear Time (g_c+20), s	29.3	18.7			11.6	18.5
Green Ext Time (p_c), s	0.4	1.1			2.5	0.0
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			30.7			
HCM 6th LOS			C			

# HCM 6th Signalized Intersection Summary

## 7: G Street & Yosemite Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑	↗	↔↔	↑↑	↗	↔↔	↑↑	↗	↔↔	↑↑	↗
Traffic Volume (veh/h)	229	772	128	427	606	132	241	672	350	131	601	175
Future Volume (veh/h)	229	772	128	427	606	132	241	672	350	131	601	175
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	249	839	139	464	659	143	262	730	380	142	653	190
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	323	957	427	542	1182	527	343	988	689	211	852	380
Arrive On Green	0.09	0.27	0.27	0.16	0.34	0.34	0.10	0.28	0.28	0.06	0.24	0.24
Sat Flow, veh/h	3428	3526	1572	3428	3526	1572	3428	3526	1572	3428	3526	1572
Grp Volume(v), veh/h	249	839	139	464	659	143	262	730	380	142	653	190
Grp Sat Flow(s),veh/h/ln	1714	1763	1572	1714	1763	1572	1714	1763	1572	1714	1763	1572
Q Serve(g_s), s	7.2	23.1	5.1	13.4	15.5	6.7	7.5	19.0	3.8	4.1	17.5	10.6
Cycle Q Clear(g_c), s	7.2	23.1	5.1	13.4	15.5	6.7	7.5	19.0	3.8	4.1	17.5	10.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	323	957	427	542	1182	527	343	988	689	211	852	380
V/C Ratio(X)	0.77	0.88	0.33	0.86	0.56	0.27	0.76	0.74	0.55	0.67	0.77	0.50
Avail Cap(c_a), veh/h	480	1044	465	649	1218	543	649	988	689	480	852	380
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.8	35.3	14.7	41.6	27.5	24.6	44.4	33.1	8.2	46.6	35.8	33.1
Incr Delay (d2), s/veh	4.4	8.1	0.4	9.6	0.5	0.3	3.6	4.9	3.2	3.7	6.5	4.6
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	3.1	10.4	2.6	6.1	6.2	2.4	3.3	8.4	3.5	1.8	7.9	4.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.3	43.4	15.1	51.1	28.1	24.9	48.0	38.1	11.3	50.3	42.3	37.8
LnGrp LOS	D	D	B	D	C	C	D	D	B	D	D	D
Approach Vol, veh/h		1227			1266			1372			985	
Approach Delay, s/veh		41.4			36.2			32.6			42.6	
Approach LOS		D			D			C			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	2.0	34.2	21.8	33.3	15.9	30.3	15.3	39.8				
Change Period (Y+Rc), s	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8				
Max Green Setting (Gmax), s	1.2	28.4	19.2	30.0	19.2	23.4	14.2	35.0				
Max Q Clear Time (g_c+1/10), s	1.0	21.0	15.4	25.1	9.5	19.5	9.2	17.5				
Green Ext Time (p_c), s	0.2	3.4	0.7	2.5	0.6	1.7	0.4	4.3				

### Intersection Summary

HCM 6th Ctrl Delay	37.8
HCM 6th LOS	D

HCM 6th Signalized Intersection Summary  
 8: Parsons Avenue/Gardner Avenue & Yosemite Avenue

02/23/2022

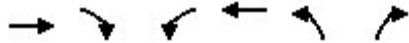


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	852	125	21	835	28	206	47	34	51	133	67
Future Volume (veh/h)	48	852	125	21	835	28	206	47	34	51	133	67
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	52	926	136	23	908	30	224	51	37	55	145	73
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	67	1692	248	41	954	32	299	300	217	409	349	176
Arrive On Green	0.04	0.55	0.55	0.02	0.53	0.53	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	1767	3084	453	1767	1786	59	1154	1000	725	1299	1164	586
Grp Volume(v), veh/h	52	529	533	23	0	938	224	0	88	55	0	218
Grp Sat Flow(s),veh/h/ln	1767	1763	1774	1767	0	1845	1154	0	1725	1299	0	1750
Q Serve(g_s), s	3.1	20.4	20.4	1.4	0.0	50.7	20.3	0.0	4.0	3.4	0.0	10.5
Cycle Q Clear(g_c), s	3.1	20.4	20.4	1.4	0.0	50.7	30.7	0.0	4.0	7.4	0.0	10.5
Prop In Lane	1.00		0.26	1.00		0.03	1.00		0.42	1.00		0.33
Lane Grp Cap(c), veh/h	67	967	974	41	0	985	299	0	517	409	0	524
V/C Ratio(X)	0.77	0.55	0.55	0.56	0.00	0.95	0.75	0.00	0.17	0.13	0.00	0.42
Avail Cap(c_a), veh/h	261	1157	1164	101	0	1044	299	0	517	409	0	524
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	50.1	15.3	15.3	50.8	0.0	23.2	41.8	0.0	27.2	29.9	0.0	29.5
Incr Delay (d2), s/veh	17.0	0.5	0.5	11.4	0.0	17.1	15.7	0.0	0.7	0.7	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	1.6	7.4	7.4	0.7	0.0	23.8	6.8	0.0	1.7	1.1	0.0	4.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.1	15.8	15.8	62.2	0.0	40.3	57.5	0.0	27.9	30.6	0.0	31.9
LnGrp LOS	E	B	B	E	A	D	E	A	C	C	A	C
Approach Vol, veh/h		1114			961			312			273	
Approach Delay, s/veh		18.2			40.8			49.1			31.6	
Approach LOS		B			D			D			C	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		36.0	6.9	62.2		36.0	8.5	60.6				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		31.5	6.0	69.0		31.5	15.5	59.5				
Max Q Clear Time (g_c+I1), s		32.7	3.4	22.4		12.5	5.1	52.7				
Green Ext Time (p_c), s		0.0	0.0	7.8		1.2	0.1	3.5				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				31.4								
HCM 6th LOS				C								

# HCM 6th Signalized Intersection Summary

## 9: McKee Road & Yosemite Avenue

02/23/2022

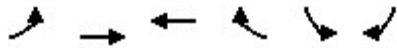


Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑	↵	↵
Traffic Volume (veh/h)	717	149	190	682	232	258
Future Volume (veh/h)	717	149	190	682	232	258
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	779	162	207	741	252	280
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	842	175	248	953	554	493
Arrive On Green	0.29	0.29	0.14	0.51	0.31	0.31
Sat Flow, veh/h	2998	604	1767	1856	1767	1572
Grp Volume(v), veh/h	473	468	207	741	252	280
Grp Sat Flow(s),veh/h/ln	1763	1747	1767	1856	1767	1572
Q Serve(g_s), s	18.1	18.1	7.9	22.5	7.9	10.3
Cycle Q Clear(g_c), s	18.1	18.1	7.9	22.5	7.9	10.3
Prop In Lane		0.35	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	511	506	248	953	554	493
V/C Ratio(X)	0.92	0.92	0.83	0.78	0.45	0.57
Avail Cap(c_a), veh/h	512	508	259	966	554	493
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.9	23.9	29.1	13.7	19.1	19.9
Incr Delay (d2), s/veh	22.8	22.9	19.7	4.0	2.7	4.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/lr	9.8	9.7	4.4	8.2	3.2	3.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	46.7	46.9	48.8	17.7	21.8	24.6
LnGrp LOS	D	D	D	B	C	C
Approach Vol, veh/h	941			948	532	
Approach Delay, s/veh	46.8			24.5	23.3	
Approach LOS	D			C	C	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		28.0	15.6	26.0		41.5
Change Period (Y+Rc), s		6.2	5.8	5.8		5.8
Max Green Setting (Gmax), s		21.8	10.2	20.2		36.2
Max Q Clear Time (g_c+l1), s		12.3	9.9	20.1		24.5
Green Ext Time (p_c), s		1.2	0.0	0.1		3.7
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			32.9			
HCM 6th LOS			C			

# HCM 6th Signalized Intersection Summary

## 10: Yosemite Avenue & Lake Road

02/23/2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	603	292	253	255	129	310
Future Volume (veh/h)	603	292	253	255	129	310
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	655	317	275	277	140	337
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	677	1350	250	251	270	843
Arrive On Green	0.38	0.73	0.29	0.29	0.15	0.15
Sat Flow, veh/h	1767	1856	848	854	1767	1572
Grp Volume(v), veh/h	655	317	0	552	140	337
Grp Sat Flow(s),veh/h/ln	1767	1856	0	1702	1767	1572
Q Serve(g_s), s	32.7	5.0	0.0	26.5	6.6	11.4
Cycle Q Clear(g_c), s	32.7	5.0	0.0	26.5	6.6	11.4
Prop In Lane	1.00			0.50	1.00	1.00
Lane Grp Cap(c), veh/h	677	1350	0	501	270	843
V/C Ratio(X)	0.97	0.23	0.00	1.10	0.52	0.40
Avail Cap(c_a), veh/h	677	1350	0	501	304	874
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.47	0.47	0.00	1.00	0.91	0.91
Uniform Delay (d), s/veh	27.2	4.0	0.0	31.8	35.1	12.3
Incr Delay (d2), s/veh	16.4	0.2	0.0	70.9	1.4	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	1.2	0.0	19.7	2.7	3.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	43.6	4.2	0.0	102.6	36.5	12.6
LnGrp LOS	D	A	A	F	D	B
Approach Vol, veh/h		972	552		477	
Approach Delay, s/veh		30.8	102.6		19.6	
Approach LOS		C	F		B	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	39.0	31.0			70.0	18.3
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	34.5	26.5			65.5	15.5
Max Q Clear Time (g_c+Q), s	34.5	28.5			7.0	13.4
Green Ext Time (p_c), s	0.0	0.0			1.7	0.4
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			47.9			
HCM 6th LOS			D			

# HCM 6th Signalized Intersection Summary

## 11: Snelling Highway (SR 59) & Santa Fe Drive/Olive Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	891	135	210	617	69	81	489	258	83	457	78
Future Volume (veh/h)	160	891	135	210	617	69	81	489	258	83	457	78
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	174	968	147	228	671	75	88	532	280	90	497	85
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	208	1009	550	271	873	489	112	1128	627	112	1128	688
Arrive On Green	0.12	0.29	0.29	0.08	0.25	0.25	0.06	0.32	0.32	0.06	0.32	0.32
Sat Flow, veh/h	1767	3526	1572	3428	3526	1572	1767	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	174	968	147	228	671	75	88	532	280	90	497	85
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1714	1763	1572	1767	1763	1572	1767	1763	1572
Q Serve(g_s), s	9.2	25.7	1.4	6.2	16.8	3.3	4.7	11.5	12.4	4.8	10.6	1.7
Cycle Q Clear(g_c), s	9.2	25.7	1.4	6.2	16.8	3.3	4.7	11.5	12.4	4.8	10.6	1.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	208	1009	550	271	873	489	112	1128	627	112	1128	688
V/C Ratio(X)	0.84	0.96	0.27	0.84	0.77	0.15	0.79	0.47	0.45	0.81	0.44	0.12
Avail Cap(c_a), veh/h	264	1009	550	271	873	489	112	1128	627	112	1128	688
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	0.80	0.80	0.80	0.62	0.62	0.62	0.86	0.86	0.86
Uniform Delay (d), s/veh	41.0	33.4	8.9	43.2	33.2	23.7	43.9	25.9	20.9	43.9	25.6	5.6
Incr Delay (d2), s/veh	16.9	19.1	0.3	17.2	3.4	0.1	20.5	0.9	1.4	29.9	1.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	12.9	1.1	3.2	7.1	1.2	2.6	4.6	4.4	2.9	4.2	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.9	52.5	9.2	60.4	36.6	23.8	64.4	26.7	22.3	73.9	26.6	5.9
LnGrp LOS	E	D	A	E	D	C	E	C	C	E	C	A
Approach Vol, veh/h		1289			974			900			672	
Approach Delay, s/veh		48.3			41.2			29.0			30.3	
Approach LOS		D			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	2.5	36.2	13.3	33.0	11.8	36.9	17.0	29.3				
Change Period (Y+Rc), s	6.5	5.8	5.8	5.8	5.8	6.5	5.8	5.8				
Max Green Setting (Gmax), s	6.0	30.4	7.5	27.2	6.0	30.4	14.2	20.5				
Max Q Clear Time (g_c+1/3), s	6.0	14.4	8.2	27.7	6.7	12.6	11.2	18.8				
Green Ext Time (p_c), s	0.0	3.8	0.0	0.0	0.0	2.9	0.1	0.8				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay												38.8
HCM 6th LOS												D

# HCM 6th Signalized Intersection Summary

## 12: R Street & Olive Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑	↗	↘	↑↑↑	↗	↘	↑↑		↘	↑↑	↗
Traffic Volume (veh/h)	119	790	134	230	709	148	138	550	129	171	624	67
Future Volume (veh/h)	119	790	134	230	709	148	138	550	129	171	624	67
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	129	859	146	250	771	161	150	598	140	186	678	73
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	155	1009	470	268	1333	621	177	938	219	233	1278	708
Arrive On Green	0.09	0.20	0.20	0.15	0.26	0.26	0.10	0.33	0.33	0.13	0.36	0.36
Sat Flow, veh/h	1767	5066	1572	1767	5066	1572	1767	2837	663	1767	3526	1572
Grp Volume(v), veh/h	129	859	146	250	771	161	150	371	367	186	678	73
Grp Sat Flow(s),veh/h/ln	1767	1689	1572	1767	1689	1572	1767	1763	1736	1767	1763	1572
Q Serve(g_s), s	8.6	19.6	8.6	16.8	15.9	1.9	10.0	21.4	21.5	12.3	18.2	3.2
Cycle Q Clear(g_c), s	8.6	19.6	8.6	16.8	15.9	1.9	10.0	21.4	21.5	12.3	18.2	3.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.38	1.00		1.00
Lane Grp Cap(c), veh/h	155	1009	470	268	1333	621	177	583	574	233	1278	708
V/C Ratio(X)	0.83	0.85	0.31	0.93	0.58	0.26	0.85	0.64	0.64	0.80	0.53	0.10
Avail Cap(c_a), veh/h	174	1098	498	268	1368	632	206	583	574	233	1278	708
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.46	0.46	0.46	0.23	0.23	0.23	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.9	46.3	32.5	50.3	38.4	10.7	53.1	34.0	34.1	50.6	30.2	19.0
Incr Delay (d2), s/veh	13.5	3.0	0.2	13.3	0.1	0.1	24.1	5.2	5.4	17.7	1.6	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	8.3	3.2	8.2	6.4	1.6	5.6	9.8	9.7	6.5	7.8	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.4	49.3	32.7	63.6	38.6	10.7	77.2	39.3	39.4	68.2	31.8	19.3
LnGrp LOS	E	D	C	E	D	B	E	D	D	E	C	B
Approach Vol, veh/h		1134			1182			888			937	
Approach Delay, s/veh		49.2			40.1			45.7			38.0	
Approach LOS		D			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	31.2	45.1	24.0	29.7	17.4	48.9	16.3	37.4				
Change Period (Y+Rc), s	5.4	5.4	5.8	5.8	5.4	5.4	5.8	5.8				
Max Green Setting (Gmax), s	39.7	39.7	18.2	26.0	14.0	39.4	11.8	32.4				
Max Q Clear Time (g_c+1/3), s	23.5	23.5	18.8	21.6	12.0	20.2	10.6	17.9				
Green Ext Time (p_c), s	0.0	4.0	0.0	2.3	0.1	4.5	0.0	4.7				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			43.3									
HCM 6th LOS			D									



# HCM 6th Signalized Intersection Summary

## 13: M Street & Olive Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↑↑↑	↘	↗	↑↑↑		↗	↑↑		↗	↑↑	
Traffic Volume (veh/h)	157	837	144	181	905	135	142	455	140	256	667	102
Future Volume (veh/h)	157	837	144	181	905	135	142	455	140	256	667	102
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	171	910	157	197	984	147	154	495	152	278	725	111
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	194	1108	505	223	1045	156	181	790	241	303	1122	172
Arrive On Green	0.11	0.22	0.22	0.13	0.23	0.23	0.10	0.30	0.30	0.17	0.37	0.37
Sat Flow, veh/h	1767	5066	1572	1767	4450	663	1767	2660	812	1767	3065	469
Grp Volume(v), veh/h	171	910	157	197	746	385	154	327	320	278	417	419
Grp Sat Flow(s),veh/h/ln	1767	1689	1572	1767	1689	1736	1767	1763	1709	1767	1763	1771
Q Serve(g_s), s	11.4	20.5	9.0	13.2	26.0	26.1	10.3	19.2	19.4	18.6	23.6	23.6
Cycle Q Clear(g_c), s	11.4	20.5	9.0	13.2	26.0	26.1	10.3	19.2	19.4	18.6	23.6	23.6
Prop In Lane	1.00		1.00	1.00		0.38	1.00		0.48	1.00		0.26
Lane Grp Cap(c), veh/h	194	1108	505	223	793	408	181	524	508	303	645	648
V/C Ratio(X)	0.88	0.82	0.31	0.88	0.94	0.94	0.85	0.62	0.63	0.92	0.65	0.65
Avail Cap(c_a), veh/h	194	1108	505	224	794	408	211	524	508	303	645	648
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.43	0.43	0.43	0.10	0.10	0.10	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.6	44.6	30.7	51.6	45.1	45.1	53.0	36.4	36.5	48.9	31.6	31.6
Incr Delay (d2), s/veh	17.8	2.2	0.1	4.6	2.9	5.5	24.2	5.5	5.8	31.3	4.9	4.9
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/lr	5.9	8.5	3.3	5.9	10.8	11.5	5.7	8.9	8.7	10.6	10.6	10.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	70.4	46.9	30.9	56.1	48.0	50.7	77.2	41.9	42.3	80.2	36.5	36.5
LnGrp LOS	E	D	C	E	D	D	E	D	D	F	D	D
Approach Vol, veh/h		1238			1328			801			1114	
Approach Delay, s/veh		48.1			50.0			48.9			47.4	
Approach LOS		D			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	36.0	41.1	20.9	32.0	17.7	49.3	19.0	34.0				
Change Period (Y+Rc), s	5.4	5.4	5.8	5.8	5.4	5.4	5.8	5.8				
Max Green Setting (Gmax), s	20.6	35.6	15.2	26.2	14.3	41.9	13.2	28.2				
Max Q Clear Time (g_c+Q), s	20.6	21.4	15.2	22.5	12.3	25.6	13.4	28.1				
Green Ext Time (p_c), s	0.0	3.2	0.0	2.1	0.1	4.6	0.0	0.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			48.6									
HCM 6th LOS			D									



# HCM 6th Signalized Intersection Summary

## 14: Olive Avenue & G Street

02/23/2022

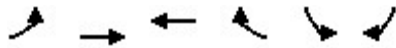


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	350	401	226	231	681	88	277	1083	123	89	1009	464
Future Volume (veh/h)	350	401	226	231	681	88	277	1083	123	89	1009	464
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	380	436	246	251	740	96	301	1177	134	97	1097	504
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	317	838	598	266	656	85	251	1332	831	110	1050	750
Arrive On Green	0.18	0.24	0.24	0.15	0.21	0.21	0.14	0.38	0.38	0.06	0.30	0.30
Sat Flow, veh/h	1767	3526	1572	1767	3138	407	1767	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	380	436	246	251	416	420	301	1177	134	97	1097	504
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1782	1767	1763	1572	1767	1763	1572
Q Serve(g_s), s	24.2	14.5	15.5	19.0	28.2	28.2	19.2	42.1	5.9	7.4	40.2	11.8
Cycle Q Clear(g_c), s	24.2	14.5	15.5	19.0	28.2	28.2	19.2	42.1	5.9	7.4	40.2	11.8
Prop In Lane	1.00		1.00	1.00		0.23	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	317	838	598	266	368	372	251	1332	831	110	1050	750
V/C Ratio(X)	1.20	0.52	0.41	0.94	1.13	1.13	1.20	0.88	0.16	0.88	1.04	0.67
Avail Cap(c_a), veh/h	317	838	598	266	368	372	251	1332	831	110	1050	750
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.4	44.8	30.8	56.8	53.4	53.4	57.9	39.2	16.4	62.8	47.4	9.7
Incr Delay (d2), s/veh	116.2	0.6	0.5	40.3	86.5	86.6	120.9	8.8	0.4	50.9	40.3	4.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.7	6.3	5.8	11.3	21.0	21.2	16.8	19.1	2.2	4.8	22.9	5.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	171.6	45.3	31.2	97.1	139.9	140.0	178.8	48.0	16.8	113.8	87.7	14.5
LnGrp LOS	F	D	C	F	F	F	F	D	B	F	F	B
Approach Vol, veh/h		1062			1087			1612			1698	
Approach Delay, s/veh		87.2			130.1			69.8			67.4	
Approach LOS		F			F			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.2	56.8	26.1	37.9	25.0	46.0	30.0	34.0				
Change Period (Y+Rc), s	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8				
Max Green Setting (Gmax), s	3.4	51.0	20.3	32.1	19.2	40.2	24.2	28.2				
Max Q Clear Time (g_c+19.4), s	19.4	44.1	21.0	17.5	21.2	42.2	26.2	30.2				
Green Ext Time (p_c), s	0.0	4.2	0.0	3.0	0.0	0.0	0.0	0.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay											84.5	
HCM 6th LOS											F	

# HCM 6th Signalized Intersection Summary

## 15: 16th Street & Snelling Highway (SR 59)

02/23/2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations	↖	↑	↗	↘	↙	↘	
Traffic Volume (veh/h)	378	768	321	367	389	420	
Future Volume (veh/h)	378	768	321	367	389	420	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	
Adj Flow Rate, veh/h	411	835	349	0	423	0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	3	3	3	3	3	3	
Cap, veh/h	475	955	605		596		
Arrive On Green	0.27	0.51	0.17	0.00	0.34	0.00	
Sat Flow, veh/h	1767	1856	3618	1572	1767	1572	
Grp Volume(v), veh/h	411	835	349	0	423	0	
Grp Sat Flow(s),veh/h/ln	1767	1856	1763	1572	1767	1572	
Q Serve(g_s), s	13.5	24.1	5.5	0.0	12.7	0.0	
Cycle Q Clear(g_c), s	13.5	24.1	5.5	0.0	12.7	0.0	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	475	955	605		596		
V/C Ratio(X)	0.86	0.87	0.58		0.71		
Avail Cap(c_a), veh/h	741	1389	899		596		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(l)	1.00	1.00	1.00	0.00	1.00	0.00	
Uniform Delay (d), s/veh	21.2	13.0	23.1	0.0	17.5	0.0	
Incr Delay (d2), s/veh	6.6	4.5	0.9	0.0	7.0	0.0	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/lr	5.3	7.5	2.1	0.0	5.4	0.0	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	27.8	17.6	24.0	0.0	24.6	0.0	
LnGrp LOS	C	B	C		C		
Approach Vol, veh/h		1246	349	A	423	A	
Approach Delay, s/veh		20.9	24.0		24.6		
Approach LOS		C	C		C		
Timer - Assigned Phs			4		6	7	8
Phs Duration (G+Y+Rc), s			35.8		25.0	20.8	14.9
Change Period (Y+Rc), s			4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s			45.5		20.5	25.5	15.5
Max Q Clear Time (g_c+I1), s			26.1		14.7	15.5	7.5
Green Ext Time (p_c), s			5.1		0.7	0.9	1.2
<b>Intersection Summary</b>							
HCM 6th Ctrl Delay			22.2				
HCM 6th LOS			C				
<b>Notes</b>							
Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.							

# HCM 6th Signalized Intersection Summary

## 16: MLK JR Way & SR 99 NB Ramps

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕		↕	↑↑			↑↑	
Traffic Volume (veh/h)	0	0	0	69	0	107	274	681	0	0	359	310
Future Volume (veh/h)	0	0	0	69	0	107	274	681	0	0	359	310
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No			No	
Adj Sat Flow, veh/h/ln				1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h				75	0	116	298	740	0	0	390	337
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				97	0	150	362	2389	0	0	697	596
Arrive On Green				0.15	0.00	0.15	0.20	0.68	0.00	0.00	0.39	0.39
Sat Flow, veh/h				645	0	998	1767	3618	0	0	1893	1541
Grp Volume(v), veh/h				191	0	0	298	740	0	0	382	345
Grp Sat Flow(s),veh/h/ln				1644	0	0	1767	1763	0	0	1763	1578
Q Serve(g_s), s				5.9	0.0	0.0	8.4	4.5	0.0	0.0	8.9	9.0
Cycle Q Clear(g_c), s				5.9	0.0	0.0	8.4	4.5	0.0	0.0	8.9	9.0
Prop In Lane				0.39		0.61	1.00		0.00	0.00		0.98
Lane Grp Cap(c), veh/h				247	0	0	362	2389	0	0	682	611
V/C Ratio(X)				0.77	0.00	0.00	0.82	0.31	0.00	0.00	0.56	0.57
Avail Cap(c_a), veh/h				486	0	0	523	2389	0	0	682	611
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				21.4	0.0	0.0	19.9	3.4	0.0	0.0	12.6	12.6
Incr Delay (d2), s/veh				5.1	0.0	0.0	7.0	0.3	0.0	0.0	3.3	3.8
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.3	0.0	0.0	3.8	1.0	0.0	0.0	3.6	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				26.5	0.0	0.0	26.9	3.8	0.0	0.0	15.9	16.4
LnGrp LOS				C	A	A	C	A	A	A	B	B
Approach Vol, veh/h					191			1038			727	
Approach Delay, s/veh					26.5			10.4			16.1	
Approach LOS					C			B			B	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		40.0			15.2	24.8		12.4				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		35.5			15.5	15.5		15.5				
Max Q Clear Time (g_c+I1), s		6.5			10.4	11.0		7.9				
Green Ext Time (p_c), s		5.8			0.4	1.9		0.6				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay											14.1	
HCM 6th LOS											B	

HCM 6th Signalized Intersection Summary  
 17: G Street & 14th Street/SR 99 NB Off Ramp

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	0	6	51	7	137	9	516	0	0	545	55
Future Volume (veh/h)	49	0	6	51	7	137	9	516	0	0	545	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	0	1856	1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h	53	0	7	55	8	149	10	561	0	0	592	60
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	0	3	3	3	3	3	3	0	0	3	3
Cap, veh/h	0	0	0	75	11	204	561	1854	0	0	1700	172
Arrive On Green	0.00	0.00	0.00	0.18	0.18	0.18	0.53	0.53	0.00	0.00	0.53	0.53
Sat Flow, veh/h		0		422	61	1144	774	3618	0	0	3325	327
Grp Volume(v), veh/h		0.0		212	0	0	10	561	0	0	322	330
Grp Sat Flow(s),veh/h/ln				1628	0	0	774	1763	0	0	1763	1797
Q Serve(g_s), s				3.7	0.0	0.0	0.2	2.7	0.0	0.0	3.2	3.2
Cycle Q Clear(g_c), s				3.7	0.0	0.0	3.5	2.7	0.0	0.0	3.2	3.2
Prop In Lane				0.26		0.70	1.00		0.00	0.00		0.18
Lane Grp Cap(c), veh/h				290	0	0	561	1854	0	0	927	945
V/C Ratio(X)				0.73	0.00	0.00	0.02	0.30	0.00	0.00	0.35	0.35
Avail Cap(c_a), veh/h				830	0	0	561	1854	0	0	927	945
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				11.8	0.0	0.0	5.2	4.1	0.0	0.0	4.2	4.2
Incr Delay (d2), s/veh				3.5	0.0	0.0	0.1	0.4	0.0	0.0	1.0	1.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.2	0.0	0.0	0.0	0.4	0.0	0.0	0.6	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				15.3	0.0	0.0	5.3	4.5	0.0	0.0	5.2	5.2
LnGrp LOS				B	A	A	A	A	A	A	A	A
Approach Vol, veh/h								571			652	
Approach Delay, s/veh								4.5			5.2	
Approach LOS								A			A	
Timer - Assigned Phs		2					6	8				
Phs Duration (G+Y+Rc), s		20.5					20.5	9.9				
Change Period (Y+Rc), s		4.5					4.5	4.5				
Max Green Setting (Gmax), s		16.0					16.0	15.5				
Max Q Clear Time (g_c+I1), s		5.5					5.2	5.7				
Green Ext Time (p_c), s		2.7					2.9	0.8				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				6.4								
HCM 6th LOS				A								

HCM 6th Roundabout  
18: Campus Parkway & Yosemite Avenue

02/23/2022

Intersection					
Intersection Delay, s/veh	5.4				
Intersection LOS	A				
Approach	EB		WB	NB	
Entry Lanes	2		2	2	
Conflicting Circle Lanes	2		2	2	
Adj Approach Flow, veh/h	458		239	368	
Demand Flow Rate, veh/h	472		246	379	
Vehicles Circulating, veh/h	26		348	232	
Vehicles Exiting, veh/h	568		263	266	
Ped Vol Crossing Leg, #/h	0		0	0	
Ped Cap Adj	1.000		1.000	1.000	
Approach Delay, s/veh	4.2		6.3	6.3	
Approach LOS	A		A	A	
Lane	Left	Right	Left	Left	Right
Designated Moves	LT	TR	LT	L	TR
Assumed Moves	LT	R	LT	L	TR
RT Channelized					
Lane Util	0.492	0.508	1.000	0.918	0.082
Follow-Up Headway, s	2.667	2.535	2.667	2.667	2.535
Critical Headway, s	4.645	4.328	4.645	4.645	4.328
Entry Flow, veh/h	232	240	246	348	31
Cap Entry Lane, veh/h	1318	1389	980	1090	1166
Entry HV Adj Factor	0.971	0.971	0.970	0.971	0.968
Flow Entry, veh/h	225	233	239	338	30
Cap Entry, veh/h	1280	1349	951	1059	1128
V/C Ratio	0.176	0.173	0.251	0.319	0.027
Control Delay, s/veh	4.3	4.1	6.3	6.6	3.4
LOS	A	A	A	A	A
95th %tile Queue, veh	1	1	1	1	0

HCM 6th Roundabout  
19: Campus Parkway & Olive Avenue

02/23/2022

Intersection									
Intersection Delay, s/veh 4.4									
Intersection LOS A									
Approach	EB		WB		NB		SB		
Entry Lanes	2		2		2		2		
Conflicting Circle Lanes	2		2		2		2		
Adj Approach Flow, veh/h	119		137		457		178		
Demand Flow Rate, veh/h	123		141		471		182		
Vehicles Circulating, veh/h	182		443		118		139		
Vehicles Exiting, veh/h	139		146		187		445		
Ped Vol Crossing Leg, #/h	0		0		0		0		
Ped Cap Adj	1.000		1.000		1.000		1.000		
Approach Delay, s/veh	3.6		4.7		4.6		4.2		
Approach LOS	A		A		A		A		
Lane	Left	Right	Left	Right	Left	Right	Left	Right	
Designated Moves	LT	TR	LT	TR	LT	TR	LT	R	
Assumed Moves	LT	TR	LT	TR	LT	TR	LT	R	
RT Channelized									
Lane Util	0.472	0.528	0.468	0.532	0.469	0.531	0.918	0.082	
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.667	2.535	2.667	2.535	
Critical Headway, s	4.645	4.328	4.645	4.328	4.645	4.328	4.645	4.328	
Entry Flow, veh/h	58	65	66	75	221	250	167	15	
Cap Entry Lane, veh/h	1142	1217	898	974	1211	1285	1188	1262	
Entry HV Adj Factor	0.963	0.969	0.975	0.967	0.973	0.970	0.974	1.000	
Flow Entry, veh/h	56	63	64	73	215	242	163	15	
Cap Entry, veh/h	1100	1179	875	942	1178	1246	1157	1262	
V/C Ratio	0.051	0.053	0.073	0.077	0.182	0.195	0.141	0.012	
Control Delay, s/veh	3.7	3.5	4.8	4.5	4.6	4.6	4.3	2.9	
LOS	A	A	A	A	A	A	A	A	
95th %tile Queue, veh	0	0	0	0	1	1	0	0	

# HCM 6th Signalized Intersection Summary

## 20: Campus Parkway & Connector Road

02/23/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖↗	↖	↕↕	↖	↖↗	↕↕
Traffic Volume (veh/h)	38	27	394	42	15	152
Future Volume (veh/h)	38	27	394	42	15	152
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	41	0	428	0	16	165
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	205		2425		77	2790
Arrive On Green	0.06	0.00	0.69	0.00	0.02	0.79
Sat Flow, veh/h	3428	1572	3618	1572	3428	3618
Grp Volume(v), veh/h	41	0	428	0	16	165
Grp Sat Flow(s),veh/h/ln	1714	1572	1763	1572	1714	1763
Q Serve(g_s), s	0.9	0.0	3.5	0.0	0.4	0.8
Cycle Q Clear(g_c), s	0.9	0.0	3.5	0.0	0.4	0.8
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	205		2425		77	2790
V/C Ratio(X)	0.20		0.18		0.21	0.06
Avail Cap(c_a), veh/h	1414		2425		257	2790
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.99	0.00	1.00	1.00
Uniform Delay (d), s/veh	35.8	0.0	4.4	0.0	38.4	1.8
Incr Delay (d2), s/veh	0.5	0.0	0.2	0.0	1.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.8	0.0	0.2	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	36.3	0.0	4.6	0.0	39.7	1.9
LnGrp LOS	D		A		D	A
Approach Vol, veh/h	41	A	428	A		181
Approach Delay, s/veh	36.3		4.6			5.2
Approach LOS	D		A			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	8.3	61.5			69.8	10.2
Change Period (Y+Rc), s	6.5	6.5			6.5	5.4
Max Green Setting (Gmax), s	6.0	22.6			35.1	33.0
Max Q Clear Time (g_c+1/2), s	12.4	5.5			2.8	2.9
Green Ext Time (p_c), s	0.0	2.2			0.9	0.1

### Intersection Summary

HCM 6th Ctrl Delay	6.8
HCM 6th LOS	A

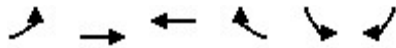
### Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

# HCM 6th Signalized Intersection Summary

## 21: SR 140 & Connector Road

02/23/2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations	↶	↷	↶	↷	↶	↷	
Traffic Volume (veh/h)	39	180	118	28	19	38	
Future Volume (veh/h)	39	180	118	28	19	38	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			0.50	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	
Adj Flow Rate, veh/h	42	196	128	30	21	41	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	3	3	3	3	3	3	
Cap, veh/h	93	701	364	154	684	609	
Arrive On Green	0.05	0.38	0.20	0.20	0.39	0.39	
Sat Flow, veh/h	1767	1856	1856	786	1767	1572	
Grp Volume(v), veh/h	42	196	128	30	21	41	
Grp Sat Flow(s),veh/h/ln	1767	1856	1856	786	1767	1572	
Q Serve(g_s), s	1.2	3.7	3.0	1.6	0.4	0.8	
Cycle Q Clear(g_c), s	1.2	3.7	3.0	1.6	0.4	0.8	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	93	701	364	154	684	609	
V/C Ratio(X)	0.45	0.28	0.35	0.19	0.03	0.07	
Avail Cap(c_a), veh/h	227	1412	935	396	684	609	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	23.3	11.0	17.6	17.0	9.6	9.8	
Incr Delay (d2), s/veh	3.4	0.2	0.6	0.6	0.1	0.2	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.5	1.1	1.1	0.3	0.1	0.0	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	26.6	11.2	18.1	17.6	9.7	10.0	
LnGrp LOS	C	B	B	B	A	A	
Approach Vol, veh/h		238	158		62		
Approach Delay, s/veh		13.9	18.0		9.9		
Approach LOS		B	B		A		
Timer - Assigned Phs			4		6	7	8
Phs Duration (G+Y+Rc), s			25.6		25.0	9.2	16.4
Change Period (Y+Rc), s			6.5		5.4	6.5	6.5
Max Green Setting (Gmax), s			38.5		19.6	6.5	25.5
Max Q Clear Time (g_c+I1), s			5.7		2.8	3.2	5.0
Green Ext Time (p_c), s			0.9		0.1	0.0	0.7
<b>Intersection Summary</b>							
HCM 6th Ctrl Delay			14.8				
HCM 6th LOS			B				



HCM 6th Signalized Intersection Summary  
 22: Campus Parkway & Childs Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	113	85	89	115	8	66	410	36	17	157	16
Future Volume (veh/h)	18	113	85	89	115	8	66	410	36	17	157	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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	20	123	92	97	125	9	72	446	39	18	171	17
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	49	421	188	132	624	278	227	1455	649	45	1312	585
Arrive On Green	0.03	0.12	0.12	0.07	0.18	0.18	0.07	0.41	0.41	0.03	0.37	0.37
Sat Flow, veh/h	1767	3526	1572	1767	3526	1572	3428	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	20	123	92	97	125	9	72	446	39	18	171	17
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1572	1714	1763	1572	1767	1763	1572
Q Serve(g_s), s	0.7	2.1	3.7	3.6	2.0	0.3	1.3	5.7	1.0	0.7	2.1	0.5
Cycle Q Clear(g_c), s	0.7	2.1	3.7	3.6	2.0	0.3	1.3	5.7	1.0	0.7	2.1	0.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	49	421	188	132	624	278	227	1455	649	45	1312	585
V/C Ratio(X)	0.41	0.29	0.49	0.73	0.20	0.03	0.32	0.31	0.06	0.40	0.13	0.03
Avail Cap(c_a), veh/h	158	2054	916	296	2328	1038	307	1455	649	158	1312	585
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.0	26.9	27.6	30.3	23.5	22.8	29.8	13.2	11.8	32.1	13.9	13.3
Incr Delay (d2), s/veh	5.3	0.4	2.0	7.6	0.2	0.0	0.8	0.5	0.2	5.6	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.9	1.4	1.7	0.8	0.1	0.5	1.9	0.3	0.3	0.7	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.3	27.3	29.5	37.9	23.7	22.8	30.6	13.8	12.0	37.7	14.1	13.4
LnGrp LOS	D	C	C	D	C	C	C	B	B	D	B	B
Approach Vol, veh/h		235			231			557			206	
Approach Delay, s/veh		29.0			29.6			15.8			16.1	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.2	34.1	10.8	13.8	10.9	31.4	7.0	17.6				
Change Period (Y+Rc), s	6.5	6.5	5.8	* 5.8	6.5	6.5	5.1	5.8				
Max Green Setting (Gmax), s	6.0	24.9	11.2	* 39	6.0	24.9	6.0	44.2				
Max Q Clear Time (g_c+1/2), s	11.2	7.7	5.6	5.7	3.3	4.1	2.7	4.0				
Green Ext Time (p_c), s	0.0	2.4	0.1	1.0	0.0	0.8	0.0	0.7				

Intersection Summary

HCM 6th Ctrl Delay	21.0
HCM 6th LOS	C

Notes

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

HCM 6th Signalized Intersection Summary  
 23: Campus Parkway & Gerard Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑↑	↖	↖↗	↑↑	↖	↖↗	↑↑	↖	↖↗	↑↑	↖
Traffic Volume (veh/h)	65	15	85	77	22	5	33	442	9	7	245	79
Future Volume (veh/h)	65	15	85	77	22	5	33	442	9	7	245	79
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	71	16	92	84	24	5	36	480	10	8	266	86
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	209	364	162	224	411	183	144	1692	755	42	1588	708
Arrive On Green	0.06	0.10	0.10	0.07	0.12	0.12	0.04	0.48	0.48	0.01	0.45	0.45
Sat Flow, veh/h	3428	3526	1572	3428	3526	1572	3428	3526	1572	3428	3526	1572
Grp Volume(v), veh/h	71	16	92	84	24	5	36	480	10	8	266	86
Grp Sat Flow(s),veh/h/ln	1714	1763	1572	1714	1763	1572	1714	1763	1572	1714	1763	1572
Q Serve(g_s), s	1.5	0.3	4.3	1.8	0.5	0.2	0.8	6.3	0.3	0.2	3.4	2.4
Cycle Q Clear(g_c), s	1.5	0.3	4.3	1.8	0.5	0.2	0.8	6.3	0.3	0.2	3.4	2.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	209	364	162	224	411	183	144	1692	755	42	1588	708
V/C Ratio(X)	0.34	0.04	0.57	0.38	0.06	0.03	0.25	0.28	0.01	0.19	0.17	0.12
Avail Cap(c_a), veh/h	277	1730	772	295	1749	780	268	1692	755	268	1588	708
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.5	30.9	32.7	34.3	30.1	30.0	35.5	12.0	10.4	37.5	12.5	12.2
Incr Delay (d2), s/veh	1.0	0.0	3.1	1.0	0.1	0.1	0.9	0.4	0.0	2.2	0.2	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.1	1.6	0.7	0.2	0.1	0.3	2.1	0.1	0.1	1.2	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.4	31.0	35.8	35.4	30.2	30.1	36.4	12.4	10.5	39.6	12.7	12.6
LnGrp LOS	D	C	D	D	C	C	D	B	B	D	B	B
Approach Vol, veh/h		179			113			526			360	
Approach Delay, s/veh		35.2			34.0			14.0			13.3	
Approach LOS		D			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.4	43.3	11.5	14.4	9.7	41.0	10.5	15.4				
Change Period (Y+Rc), s	6.5	6.5	6.5	* 6.5	6.5	6.5	5.8	6.5				
Max Green Setting (Gmax), s	6.0	34.5	6.6	* 38	6.0	34.5	6.2	38.0				
Max Q Clear Time (g_c+1/2), s	11.2	8.3	3.8	6.3	2.8	5.4	3.5	2.5				
Green Ext Time (p_c), s	0.0	2.8	0.0	0.3	0.0	1.7	0.0	0.1				

Intersection Summary

HCM 6th Ctrl Delay	18.9
HCM 6th LOS	B

Notes

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

# HCM 6th Signalized Intersection Summary

## 24: Coffee Street & Campus Parkway

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	113	356	52	33	359	15	110	33	14	321	128	103
Future Volume (veh/h)	113	356	52	33	359	15	110	33	14	321	128	103
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	123	387	57	36	390	16	120	36	15	349	139	112
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	147	993	443	0	512	21	151	873	342	381	459	370
Arrive On Green	0.08	0.28	0.28	0.00	0.15	0.15	0.09	0.35	0.35	0.22	0.48	0.48
Sat Flow, veh/h	1767	3526	1572	0	3452	141	1767	2475	969	1767	951	766
Grp Volume(v), veh/h	123	387	57	0	199	207	120	25	26	349	0	251
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	0	1763	1830	1767	1763	1681	1767	0	1718
Q Serve(g_s), s	6.2	8.0	2.4	0.0	9.7	9.8	6.0	0.8	0.9	17.4	0.0	8.0
Cycle Q Clear(g_c), s	6.2	8.0	2.4	0.0	9.7	9.8	6.0	0.8	0.9	17.4	0.0	8.0
Prop In Lane	1.00		1.00	0.00		0.08	1.00		0.58	1.00		0.45
Lane Grp Cap(c), veh/h	147	993	443	0	262	272	151	622	593	381	0	829
V/C Ratio(X)	0.84	0.39	0.13	0.00	0.76	0.76	0.79	0.04	0.04	0.92	0.00	0.30
Avail Cap(c_a), veh/h	147	1058	472	0	480	498	245	622	593	383	0	829
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.95	0.95	0.95	0.00	0.99	0.99	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	40.6	26.1	24.1	0.0	36.8	36.8	40.4	19.1	19.1	34.5	0.0	14.1
Incr Delay (d2), s/veh	30.8	0.2	0.1	0.0	4.5	4.4	9.1	0.1	0.1	26.3	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/lr	3.8	3.1	0.8	0.0	4.2	4.4	2.9	0.3	0.4	9.9	0.0	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	71.5	26.3	24.2	0.0	41.2	41.2	49.4	19.2	19.3	60.8	0.0	15.0
LnGrp LOS	E	C	C	A	D	D	D	B	B	E	A	B
Approach Vol, veh/h		567			406			171			600	
Approach Delay, s/veh		35.9			41.2			40.4			41.7	
Approach LOS		D			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	33.9	36.3	0.0	29.9	12.2	48.0	12.0	17.9				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	19.5	20.5	5.0	27.0	12.5	27.5	7.5	24.5				
Max Q Clear Time (g_c+1), s	19.4	2.9	0.0	10.0	8.0	10.0	8.2	11.8				
Green Ext Time (p_c), s	0.0	0.1	0.0	2.1	0.1	1.2	0.0	1.6				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay											39.6	
HCM 6th LOS											D	

HCM 6th Signalized Intersection Summary  
 25: SR 99 NB Ramps & Campus Parkway

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	208	511	0	0	402	170	26	3	10	0	0	0
Future Volume (veh/h)	208	511	0	0	402	170	26	3	10	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1856	1856	0	0	1856	1856	1856	1856	1856			
Adj Flow Rate, veh/h	226	555	0	0	437	185	28	3	11			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	3	3	0	0	3	3	3	3	3			
Cap, veh/h	258	1495	0	0	627	280	620	66	608			
Arrive On Green	0.15	0.42	0.00	0.00	0.18	0.18	0.39	0.39	0.39			
Sat Flow, veh/h	1767	3618	0	0	3618	1572	1604	172	1572			
Grp Volume(v), veh/h	226	555	0	0	437	185	31	0	11			
Grp Sat Flow(s),veh/h/ln	1767	1763	0	0	1763	1572	1775	0	1572			
Q Serve(g_s), s	8.1	7.0	0.0	0.0	7.6	7.1	0.7	0.0	0.3			
Cycle Q Clear(g_c), s	8.1	7.0	0.0	0.0	7.6	7.1	0.7	0.0	0.3			
Prop In Lane	1.00		0.00	0.00		1.00	0.90		1.00			
Lane Grp Cap(c), veh/h	258	1495	0	0	627	280	686	0	608			
V/C Ratio(X)	0.88	0.37	0.00	0.00	0.70	0.66	0.05	0.00	0.02			
Avail Cap(c_a), veh/h	258	1844	0	0	976	435	686	0	608			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(l)	1.00	1.00	0.00	0.00	0.09	0.09	1.00	0.00	1.00			
Uniform Delay (d), s/veh	27.2	12.8	0.0	0.0	25.1	24.9	12.4	0.0	12.3			
Incr Delay (d2), s/veh	26.6	0.2	0.0	0.0	0.1	0.2	0.1	0.0	0.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	4.9	2.1	0.0	0.0	2.7	2.3	0.3	0.0	0.1			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.8	12.9	0.0	0.0	25.2	25.1	12.6	0.0	12.4			
LnGrp LOS	D	B	A	A	C	C	B	A	B			
Approach Vol, veh/h		781			622			42				
Approach Delay, s/veh		24.8			25.2			12.5				
Approach LOS		C			C			B				
Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		30.9		34.1			16.0	18.1				
Change Period (Y+Rc), s		5.8		6.5			6.5	6.5				
Max Green Setting (Gmax), s		18.7		34.0			9.5	18.0				
Max Q Clear Time (g_c+I1), s		2.7		9.0			10.1	9.6				
Green Ext Time (p_c), s		0.1		3.2			0.0	2.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay					24.6							
HCM 6th LOS					C							

# HCM 6th Signalized Intersection Summary

## 26: Lake Street & Meyers Gate Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	30	10	49	30	49	20	654	39	39	386	10
Future Volume (veh/h)	20	30	10	49	30	49	20	654	39	39	386	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	22	33	11	53	33	53	22	711	42	42	420	11
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	46	114	38	91	71	114	46	823	49	77	885	23
Arrive On Green	0.03	0.09	0.09	0.05	0.11	0.11	0.03	0.47	0.47	0.04	0.49	0.49
Sat Flow, veh/h	1767	1332	444	1767	641	1029	1767	1735	102	1767	1800	47
Grp Volume(v), veh/h	22	0	44	53	0	86	22	0	753	42	0	431
Grp Sat Flow(s),veh/h/ln	1767	0	1776	1767	0	1670	1767	0	1837	1767	0	1847
Q Serve(g_s), s	0.6	0.0	1.2	1.5	0.0	2.5	0.6	0.0	19.0	1.2	0.0	8.1
Cycle Q Clear(g_c), s	0.6	0.0	1.2	1.5	0.0	2.5	0.6	0.0	19.0	1.2	0.0	8.1
Prop In Lane	1.00		0.25	1.00		0.62	1.00		0.06	1.00		0.03
Lane Grp Cap(c), veh/h	46	0	151	91	0	185	46	0	872	77	0	909
V/C Ratio(X)	0.48	0.00	0.29	0.58	0.00	0.47	0.48	0.00	0.86	0.54	0.00	0.47
Avail Cap(c_a), veh/h	173	0	616	173	0	580	173	0	1187	173	0	1194
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.0	0.0	22.4	24.2	0.0	21.7	25.0	0.0	12.2	24.4	0.0	8.8
Incr Delay (d2), s/veh	7.4	0.0	1.0	5.8	0.0	1.8	7.4	0.0	5.2	5.8	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/lr	0.3	0.0	0.5	0.7	0.0	1.0	0.3	0.0	5.9	0.5	0.0	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.4	0.0	23.4	30.0	0.0	23.6	32.4	0.0	17.4	30.3	0.0	9.2
LnGrp LOS	C	A	C	C	A	C	C	A	B	C	A	A
Approach Vol, veh/h		66			139			775				473
Approach Delay, s/veh		26.4			26.0			17.8				11.0
Approach LOS		C			C			B				B
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.8	29.2	7.2	8.9	5.9	30.2	5.9	10.3				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.0	33.7	5.1	18.1	5.1	33.7	5.1	18.1				
Max Q Clear Time (g_c+1/3), s	13.2	21.0	3.5	3.2	2.6	10.1	2.6	4.5				
Green Ext Time (p_c), s	0.0	3.7	0.0	0.1	0.0	2.2	0.0	0.3				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				16.8								
HCM 6th LOS				B								

HCM 6th Roundabout  
76: Campus Parkway & Meyers Gate Road

02/23/2022

Intersection				
Intersection Delay, s/veh	3.6			
Intersection LOS	A			
Approach	EB	WB	NB	
Entry Lanes	1	1	2	
Conflicting Circle Lanes	2	2	2	
Adj Approach Flow, veh/h	97	101	131	
Demand Flow Rate, veh/h	100	104	135	
Vehicles Circulating, veh/h	16	126	75	
Vehicles Exiting, veh/h	214	84	41	
Ped Vol Crossing Leg, #/h	20	20	20	
Ped Cap Adj	0.997	0.997	0.978	
Approach Delay, s/veh	3.2	3.6	3.8	
Approach LOS	A	A	A	
Lane	Left	Left	Left	Right
Designated Moves	TR	LT	L	TR
Assumed Moves	TR	LT	L	TR
RT Channelized				
Lane Util	1.000	1.000	0.933	0.067
Follow-Up Headway, s	2.535	2.535	2.667	2.535
Critical Headway, s	4.328	4.328	4.645	4.328
Entry Flow, veh/h	100	104	126	9
Cap Entry Lane, veh/h	1401	1276	1260	1332
Entry HV Adj Factor	0.968	0.975	0.968	1.000
Flow Entry, veh/h	97	101	122	9
Cap Entry, veh/h	1353	1241	1194	1304
V/C Ratio	0.072	0.082	0.102	0.007
Control Delay, s/veh	3.2	3.6	3.9	2.8
LOS	A	A	A	A
95th %tile Queue, veh	0	0	0	0

HCM 6th Signalized Intersection Summary  
 77: Lake Road & Virginia Smith Parkway

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	30	10	146	30	98	20	595	117	78	357	10
Future Volume (veh/h)	20	30	10	146	30	98	20	595	117	78	357	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.91		0.90	1.00		0.93	1.00		0.95	1.00		0.95
Parking Bus, Adj	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	22	33	11	159	33	107	22	647	127	85	388	11
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	230	113	38	201	526	415	46	749	601	117	796	23
Arrive On Green	0.09	0.09	0.09	0.11	0.28	0.28	0.03	0.40	0.40	0.07	0.44	0.44
Sat Flow, veh/h	1122	1292	431	1767	1856	1467	1767	1856	1489	1767	1792	51
Grp Volume(v), veh/h	22	0	44	159	33	107	22	647	127	85	0	399
Grp Sat Flow(s),veh/h/ln	1122	0	1723	1767	1856	1467	1767	1856	1489	1767	0	1843
Q Serve(g_s), s	1.0	0.0	1.3	4.8	0.7	3.1	0.7	17.5	3.0	2.6	0.0	8.4
Cycle Q Clear(g_c), s	1.0	0.0	1.3	4.8	0.7	3.1	0.7	17.5	3.0	2.6	0.0	8.4
Prop In Lane	1.00		0.25	1.00		1.00	1.00		1.00	1.00		0.03
Lane Grp Cap(c), veh/h	230	0	151	201	526	415	46	749	601	117	0	818
V/C Ratio(X)	0.10	0.00	0.29	0.79	0.06	0.26	0.48	0.86	0.21	0.73	0.00	0.49
Avail Cap(c_a), veh/h	552	0	646	242	1102	871	307	933	748	533	0	1162
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.2	0.0	23.4	23.6	14.3	15.2	26.3	14.9	10.6	25.1	0.0	10.8
Incr Delay (d2), s/veh	0.2	0.0	1.1	13.7	0.0	0.3	7.6	7.1	0.2	8.2	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/lr	0.2	0.0	0.5	2.5	0.3	0.9	0.3	6.5	0.8	1.2	0.0	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.4	0.0	24.4	37.4	14.4	15.5	33.8	22.0	10.8	33.3	0.0	11.2
LnGrp LOS	C	A	C	D	B	B	C	C	B	C	A	B
Approach Vol, veh/h		66			299			796			484	
Approach Delay, s/veh		24.1			27.0			20.6			15.1	
Approach LOS		C			C			C			B	
Timer - Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	8.1	26.6	10.7	9.3	5.9	28.8		20.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	16.5	27.5	7.5	20.5	9.5	34.5		32.5				
Max Q Clear Time (g_c+14), s	14.6	19.5	6.8	3.3	2.7	10.4		5.1				
Green Ext Time (p_c), s	0.1	2.6	0.0	0.2	0.0	2.0		0.5				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				20.3								
HCM 6th LOS				C								

HCM 6th Roundabout  
78: Campus Parkway & Virginia Smith Parkway

02/23/2022

Intersection							
Intersection Delay, s/veh	4.1						
Intersection LOS	A						
Approach	EB	WB		NB		SB	
Entry Lanes	1	2		2		2	
Conflicting Circle Lanes	2	2		2		2	
Adj Approach Flow, veh/h	188	292		161		100	
Demand Flow Rate, veh/h	193	300		166		103	
Vehicles Circulating, veh/h	170	131		216		299	
Vehicles Exiting, veh/h	232	251		147		132	
Ped Vol Crossing Leg, #/h	20	20		20		20	
Ped Cap Adj	0.997	0.979		0.981		0.983	
Approach Delay, s/veh	4.4	4.1		3.9		4.0	
Approach LOS	A	A		A		A	
Lane	Left	Left	Right	Left	Right	Left	Right
Designated Moves	LTR	LT	TR	LT	TR	LT	TR
Assumed Moves	LTR	LT	TR	LT	TR	LT	TR
RT Channelized							
Lane Util	1.000	0.470	0.530	0.470	0.530	0.466	0.534
Follow-Up Headway, s	2.535	2.667	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.328	4.645	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	193	141	159	78	88	48	55
Cap Entry Lane, veh/h	1229	1197	1270	1107	1182	1025	1101
Entry HV Adj Factor	0.972	0.972	0.972	0.971	0.971	0.983	0.967
Flow Entry, veh/h	188	137	155	76	85	47	53
Cap Entry, veh/h	1192	1140	1210	1055	1126	990	1047
V/C Ratio	0.157	0.120	0.128	0.072	0.076	0.048	0.051
Control Delay, s/veh	4.4	4.2	4.0	4.0	3.8	4.1	3.9
LOS	A	A	A	A	A	A	A
95th %tile Queue, veh	1	0	0	0	0	0	0



HCM 6th TWSC  
79: Virginia Smith Parkway & Golden BObc

02/23/2022

Intersection												
Int Delay, s/veh	4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔		↔	↔		↔	↔	
Traffic Vol, veh/h	28	159	37	24	155	15	36	21	24	15	21	21
Future Vol, veh/h	28	159	37	24	155	15	36	21	24	15	21	21
Conflicting Peds, #/hr	20	0	20	20	0	20	20	0	20	20	0	20
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	150	-	-	150	-	-
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	30	173	40	26	168	16	39	23	26	16	23	23

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	204	0	0	233	0	0	544	529	233	546	541	216
Stage 1	-	-	-	-	-	-	273	273	-	248	248	-
Stage 2	-	-	-	-	-	-	271	256	-	298	293	-
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	1362	-	-	1329	-	-	448	454	804	447	447	821
Stage 1	-	-	-	-	-	-	731	682	-	754	699	-
Stage 2	-	-	-	-	-	-	733	694	-	709	668	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1336	-	-	1304	-	-	388	419	774	386	412	790
Mov Cap-2 Maneuver	-	-	-	-	-	-	388	419	-	386	412	-
Stage 1	-	-	-	-	-	-	701	654	-	723	672	-
Stage 2	-	-	-	-	-	-	661	667	-	634	641	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1			1			13.5			12.9		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	388	555	1336	-	-	1304	-	-	386	542
HCM Lane V/C Ratio	0.101	0.088	0.023	-	-	0.02	-	-	0.042	0.084
HCM Control Delay (s)	15.3	12.1	7.8	-	-	7.8	-	-	14.7	12.3
HCM Lane LOS	C	B	A	-	-	A	-	-	B	B
HCM 95th %tile Q(veh)	0.3	0.3	0.1	-	-	0.1	-	-	0.1	0.3

HCM 6th Roundabout  
80: Virginia Smith Parkway & Main Street

02/23/2022

Intersection				
Intersection Delay, s/veh	4.3			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	216	157	77	147
Demand Flow Rate, veh/h	222	161	79	151
Vehicles Circulating, veh/h	86	145	229	154
Vehicles Exiting, veh/h	219	163	79	152
Ped Vol Crossing Leg, #/h	20	20	20	20
Ped Cap Adj	0.997	0.997	0.997	0.997
Approach Delay, s/veh	4.4	4.3	4.0	4.2
Approach LOS	A	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	222	161	79	151
Cap Entry Lane, veh/h	1264	1190	1092	1179
Entry HV Adj Factor	0.972	0.974	0.974	0.973
Flow Entry, veh/h	216	157	77	147
Cap Entry, veh/h	1225	1156	1062	1145
V/C Ratio	0.176	0.136	0.073	0.128
Control Delay, s/veh	4.4	4.3	4.0	4.2
LOS	A	A	A	A
95th %tile Queue, veh	1	0	0	0

HCM 6th TWSC  
81: 4th Street & Virginia Smith Parkway

02/23/2022

Intersection												
Int Delay, s/veh	5.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷		↶	↷		↶	↷	
Traffic Vol, veh/h	33	26	47	15	21	8	50	4	8	9	4	32
Future Vol, veh/h	33	26	47	15	21	8	50	4	8	9	4	32
Conflicting Peds, #/hr	0	0	20	20	0	0	20	0	20	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	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	36	28	51	16	23	9	54	4	9	10	4	35

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	32	0	0	99	0	0	245	210	94	212	231	48
Stage 1	-	-	-	-	-	-	146	146	-	60	60	-
Stage 2	-	-	-	-	-	-	99	64	-	152	171	-
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	1574	-	-	1488	-	-	707	685	960	743	667	1018
Stage 1	-	-	-	-	-	-	854	774	-	949	843	-
Stage 2	-	-	-	-	-	-	905	840	-	848	755	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1574	-	-	1460	-	-	636	649	924	700	632	999
Mov Cap-2 Maneuver	-	-	-	-	-	-	636	649	-	700	632	-
Stage 1	-	-	-	-	-	-	819	741	-	927	834	-
Stage 2	-	-	-	-	-	-	843	831	-	800	723	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.3	2.6	10.9	9.2
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	636	810	1574	-	-	1460	-	-	700	938
HCM Lane V/C Ratio	0.085	0.016	0.023	-	-	0.011	-	-	0.014	0.042
HCM Control Delay (s)	11.2	9.5	7.3	-	-	7.5	-	-	10.2	9
HCM Lane LOS	B	A	A	-	-	A	-	-	B	A
HCM 95th %tile Q(veh)	0.3	0	0.1	-	-	0	-	-	0	0.1

**2030 Near Term Without Campus  
Parkway- With Recommended  
Improvements  
PM Peak Hour**

# HCM 6th Signalized Intersection Summary

## 1: Snelling Highway (SR 59) & Bellevue Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	118	9	325	247	102	7	86	252	106	169	21
Future Volume (veh/h)	14	118	9	325	247	102	7	86	252	106	169	21
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	15	128	10	353	268	111	8	93	274	115	184	23
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	31	173	14	400	576	488	18	702	595	121	706	88
Arrive On Green	0.02	0.10	0.10	0.23	0.31	0.31	0.01	0.38	0.38	0.07	0.44	0.44
Sat Flow, veh/h	1767	1699	133	1767	1856	1572	1767	1856	1572	1767	1617	202
Grp Volume(v), veh/h	15	0	138	353	268	111	8	93	274	115	0	207
Grp Sat Flow(s),veh/h/ln	1767	0	1832	1767	1856	1572	1767	1856	1572	1767	0	1819
Q Serve(g_s), s	0.7	0.0	5.9	15.5	9.3	4.2	0.4	2.6	10.5	5.2	0.0	5.8
Cycle Q Clear(g_c), s	0.7	0.0	5.9	15.5	9.3	4.2	0.4	2.6	10.5	5.2	0.0	5.8
Prop In Lane	1.00		0.07	1.00		1.00	1.00		1.00	1.00		0.11
Lane Grp Cap(c), veh/h	31	0	187	400	576	488	18	702	595	121	0	794
V/C Ratio(X)	0.48	0.00	0.74	0.88	0.47	0.23	0.44	0.13	0.46	0.95	0.00	0.26
Avail Cap(c_a), veh/h	110	0	355	563	835	708	110	702	595	121	0	794
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.63	0.63	0.63	0.69	0.69	0.69	1.00	0.00	1.00
Uniform Delay (d), s/veh	38.9	0.0	34.9	29.9	22.2	20.5	39.4	16.3	18.7	37.1	0.0	14.3
Incr Delay (d2), s/veh	10.9	0.0	5.7	7.7	0.4	0.1	11.4	0.3	1.8	65.0	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	2.7	6.7	3.6	1.4	0.2	1.0	3.5	4.2	0.0	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.8	0.0	40.5	37.7	22.6	20.6	50.8	16.6	20.5	102.1	0.0	15.1
LnGrp LOS	D	A	D	D	C	C	D	B	C	F	A	B
Approach Vol, veh/h		153			732			375				322
Approach Delay, s/veh		41.5			29.6			20.2				46.2
Approach LOS		D			C			C				D
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.0	34.8	22.6	12.6	5.3	39.4	5.9	29.3				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.5	15.5	25.5	15.5	5.0	16.0	5.0	36.0				
Max Q Clear Time (g_c+I1), s	7.2	12.5	17.5	7.9	2.4	7.8	2.7	11.3				
Green Ext Time (p_c), s	0.0	0.4	0.7	0.3	0.0	0.5	0.0	1.6				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				31.9								
HCM 6th LOS				C								

# HCM 6th Signalized Intersection Summary

## 2: G Street & Bellevue Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	274	137	427	456	13	133	231	252	8	190	38
Future Volume (veh/h)	55	274	137	427	456	13	133	231	252	8	190	38
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	60	298	149	464	496	14	145	251	274	9	207	41
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	77	297	148	541	684	579	166	1340	846	23	1055	471
Arrive On Green	0.04	0.25	0.25	0.16	0.37	0.37	0.09	0.38	0.38	0.01	0.30	0.30
Sat Flow, veh/h	1767	1167	584	3428	1856	1572	1767	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	60	0	447	464	496	14	145	251	274	9	207	41
Grp Sat Flow(s),veh/h/ln	1767	0	1751	1714	1856	1572	1767	1763	1572	1767	1763	1572
Q Serve(g_s), s	4.5	0.0	33.9	17.6	30.7	0.8	10.8	6.3	13.0	0.7	5.8	2.5
Cycle Q Clear(g_c), s	4.5	0.0	33.9	17.6	30.7	0.8	10.8	6.3	13.0	0.7	5.8	2.5
Prop In Lane	1.00		0.33	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	77	0	445	541	684	579	166	1340	846	23	1055	471
V/C Ratio(X)	0.78	0.00	1.00	0.86	0.73	0.02	0.88	0.19	0.32	0.40	0.20	0.09
Avail Cap(c_a), veh/h	155	0	445	969	834	706	166	1340	846	80	1055	471
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	63.1	0.0	49.7	54.7	36.3	26.8	59.7	27.6	17.2	65.3	34.8	33.6
Incr Delay (d2), s/veh	15.4	0.0	43.8	4.1	2.5	0.0	37.0	0.3	1.0	11.0	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.0	19.5	7.6	13.6	0.3	6.4	2.6	4.6	0.4	2.5	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	78.5	0.0	93.5	58.8	38.8	26.8	96.6	27.9	18.2	76.3	35.2	34.0
LnGrp LOS	E	A	F	E	D	C	F	C	B	E	D	C
Approach Vol, veh/h		507			974			670			257	
Approach Delay, s/veh		91.7			48.1			38.8			36.4	
Approach LOS		F			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.2	57.2	27.5	40.4	19.0	46.4	12.3	55.6				
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5				
Max Green Setting (Gmax), s	6.0	46.4	37.7	33.9	12.5	39.9	11.7	59.9				
Max Q Clear Time (g_c+1/2), s	11.7	15.0	19.6	35.9	12.8	7.8	6.5	32.7				
Green Ext Time (p_c), s	0.0	2.3	1.5	0.0	0.0	1.2	0.0	2.8				

### Intersection Summary

HCM 6th Ctrl Delay	53.5
HCM 6th LOS	D

# HCM 6th Signalized Intersection Summary

## 3: Lake Street/Lake Road & Bellevue Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	205	107	237	79	221	24	280	255	33	15	405	333
Future Volume (veh/h)	205	107	237	79	221	24	280	255	33	15	405	333
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		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	223	116	258	86	240	26	304	277	36	16	440	362
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	259	142	316	112	280	30	338	727	616	33	772	344
Arrive On Green	0.15	0.28	0.28	0.06	0.17	0.17	0.19	0.39	0.39	0.02	0.22	0.22
Sat Flow, veh/h	1767	512	1139	1767	1645	178	1767	1856	1572	1767	3526	1572
Grp Volume(v), veh/h	223	0	374	86	0	266	304	277	36	16	440	362
Grp Sat Flow(s),veh/h/ln	1767	0	1651	1767	0	1823	1767	1856	1572	1767	1763	1572
Q Serve(g_s), s	10.5	0.0	18.1	4.1	0.0	12.1	14.3	9.1	1.2	0.8	9.5	18.7
Cycle Q Clear(g_c), s	10.5	0.0	18.1	4.1	0.0	12.1	14.3	9.1	1.2	0.8	9.5	18.7
Prop In Lane	1.00		0.69	1.00		0.10	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	259	0	457	112	0	310	338	727	616	33	772	344
V/C Ratio(X)	0.86	0.00	0.82	0.77	0.00	0.86	0.90	0.38	0.06	0.49	0.57	1.05
Avail Cap(c_a), veh/h	279	0	457	321	0	384	341	727	616	321	772	344
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.6	0.0	28.9	39.4	0.0	34.4	33.7	18.6	16.2	41.5	29.8	33.4
Incr Delay (d2), s/veh	21.8	0.0	11.1	10.7	0.0	14.6	25.2	1.5	0.2	10.9	3.0	62.7
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/lr	5.7	0.0	7.8	2.0	0.0	6.1	8.2	3.9	0.4	0.4	4.1	12.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.4	0.0	39.9	50.1	0.0	49.1	58.9	20.1	16.3	52.4	32.8	96.0
LnGrp LOS	E	A	D	D	A	D	E	C	B	D	C	F
Approach Vol, veh/h		597			352			617			818	
Approach Delay, s/veh		46.5			49.3			39.0			61.2	
Approach LOS		D			D			D			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.1	39.3	9.9	30.2	20.9	24.5	19.0	21.0				
Change Period (Y+Rc), s	4.5	* 5.8	4.5	6.5	4.5	5.8	6.5	6.5				
Max Green Setting (Gmax), s	15.5	* 21	15.5	18.0	16.5	18.7	13.5	18.0				
Max Q Clear Time (g_c+I), s	12.8	11.1	6.1	20.1	16.3	20.7	12.5	14.1				
Green Ext Time (p_c), s	0.0	1.1	0.1	0.0	0.0	0.0	0.1	0.4				

### Intersection Summary

HCM 6th Ctrl Delay	50.0
HCM 6th LOS	D

### Notes

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

# HCM 6th Signalized Intersection Summary

## 4: G Street & Cardella Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕		↗	↖		↗	↖	↗
Traffic Volume (veh/h)	75	0	55	0	1	5	61	829	0	9	810	81
Future Volume (veh/h)	75	0	55	0	1	5	61	829	0	9	810	81
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	82	0	60	0	1	5	66	901	0	10	880	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	168	0	125	0	21	107	85	1392	0	25	1329	
Arrive On Green	0.08	0.00	0.08	0.00	0.08	0.08	0.05	0.75	0.00	0.01	0.72	0.00
Sat Flow, veh/h	1338	0	1572	0	269	1345	1767	1856	0	1767	1856	1572
Grp Volume(v), veh/h	82	0	60	0	0	6	66	901	0	10	880	0
Grp Sat Flow(s),veh/h/ln	1338	0	1572	0	0	1614	1767	1856	0	1767	1856	1572
Q Serve(g_s), s	6.8	0.0	4.3	0.0	0.0	0.4	4.4	27.8	0.0	0.7	30.2	0.0
Cycle Q Clear(g_c), s	7.2	0.0	4.3	0.0	0.0	0.4	4.4	27.8	0.0	0.7	30.2	0.0
Prop In Lane	1.00		1.00	0.00		0.83	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	168	0	125	0	0	129	85	1392	0	25	1329	
V/C Ratio(X)	0.49	0.00	0.48	0.00	0.00	0.05	0.78	0.65	0.00	0.40	0.66	
Avail Cap(c_a), veh/h	259	0	228	0	0	234	157	1392	0	90	1329	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	53.5	0.0	51.9	0.0	0.0	50.1	55.5	7.2	0.0	57.7	9.0	0.0
Incr Delay (d2), s/veh	2.2	0.0	2.8	0.0	0.0	0.1	14.2	2.3	0.0	9.9	2.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	0.0	1.8	0.0	0.0	0.2	2.2	8.2	0.0	0.4	9.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.7	0.0	54.8	0.0	0.0	50.3	69.7	9.5	0.0	67.5	11.6	0.0
LnGrp LOS	E	A	D	A	A	D	E	A	A	E	B	
Approach Vol, veh/h		142			6			967			890	A
Approach Delay, s/veh		55.3			50.3			13.6			12.3	
Approach LOS		E			D			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.2	95.0		14.8	12.2	91.0		14.8				
Change Period (Y+Rc), s	6.5	6.5		5.4	6.5	6.5		5.4				
Max Green Setting (Gmax), s	6.0	88.5		17.1	10.5	84.0		17.1				
Max Q Clear Time (g_c+1/2), s	12.5	29.8		9.2	6.4	32.2		2.4				
Green Ext Time (p_c), s	0.0	7.2		0.3	0.0	6.8		0.0				

### Intersection Summary

HCM 6th Ctrl Delay	16.1
HCM 6th LOS	B

### Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.



# HCM 6th Signalized Intersection Summary

## 5: Lake Road & Cardella Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	30	3	113	30	57	1	586	118	59	1045	9
Future Volume (veh/h)	8	30	3	113	30	57	1	586	118	59	1045	9
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	9	33	3	123	33	62	1	637	128	64	1136	10
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	516	337	31	318	65	86	213	988	837	414	978	9
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.53	0.53	0.53	0.53	0.53	0.53
Sat Flow, veh/h	1290	1676	152	753	324	428	487	1856	1572	697	1836	16
Grp Volume(v), veh/h	9	0	36	218	0	0	1	637	128	64	0	1146
Grp Sat Flow(s),veh/h/ln	1290	0	1828	1505	0	0	487	1856	1572	697	0	1853
Q Serve(g_s), s	0.0	0.0	0.5	3.9	0.0	0.0	0.0	8.3	1.4	2.4	0.0	18.0
Cycle Q Clear(g_c), s	0.2	0.0	0.5	4.5	0.0	0.0	18.0	8.3	1.4	10.7	0.0	18.0
Prop In Lane	1.00		0.08	0.56		0.28	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	516	0	368	470	0	0	213	988	837	414	0	986
V/C Ratio(X)	0.02	0.00	0.10	0.46	0.00	0.00	0.00	0.64	0.15	0.15	0.00	1.16
Avail Cap(c_a), veh/h	944	0	973	959	0	0	213	988	837	414	0	986
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.8	0.0	11.0	12.5	0.0	0.0	16.9	5.6	4.0	9.4	0.0	7.9
Incr Delay (d2), s/veh	0.0	0.0	0.1	0.7	0.0	0.0	0.0	1.5	0.1	0.2	0.0	84.1
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/lr	0.0	0.0	0.2	1.3	0.0	0.0	0.0	0.8	0.1	0.2	0.0	23.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.9	0.0	11.1	13.3	0.0	0.0	16.9	7.1	4.1	9.6	0.0	92.0
LnGrp LOS	B	A	B	B	A	A	B	A	A	A	A	F
Approach Vol, veh/h		45			218			766			1210	
Approach Delay, s/veh		11.1			13.3			6.6			87.7	
Approach LOS		B			B			A			F	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		22.5		11.3		22.5		11.3				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		18.0		18.0		18.0		18.0				
Max Q Clear Time (g_c+I1), s		20.0		2.5		20.0		6.5				
Green Ext Time (p_c), s		0.0		0.1		0.0		0.9				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				51.1								
HCM 6th LOS				D								

HCM 6th Signalized Intersection Summary  
6: Snelling Highway (SR 59) & Yosemite Avenue

02/23/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	240	422	450	263	407	515
Future Volume (veh/h)	240	422	450	263	407	515
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	261	459	489	286	442	560
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	353	737	598	507	475	1231
Arrive On Green	0.20	0.20	0.32	0.32	0.27	0.66
Sat Flow, veh/h	1767	1572	1856	1572	1767	1856
Grp Volume(v), veh/h	261	459	489	286	442	560
Grp Sat Flow(s),veh/h/ln	1767	1572	1856	1572	1767	1856
Q Serve(g_s), s	12.5	18.0	21.8	13.6	21.9	13.1
Cycle Q Clear(g_c), s	12.5	18.0	21.8	13.6	21.9	13.1
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	353	737	598	507	475	1231
V/C Ratio(X)	0.74	0.62	0.82	0.56	0.93	0.45
Avail Cap(c_a), veh/h	353	737	598	507	501	1231
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	0.78	0.78	0.77	0.77
Uniform Delay (d), s/veh	33.8	17.9	28.1	25.3	32.1	7.3
Incr Delay (d2), s/veh	7.9	1.6	9.5	3.5	19.6	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/lr	5.8	6.6	10.1	5.0	11.0	3.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	41.7	19.6	37.5	28.8	51.6	8.2
LnGrp LOS	D	B	D	C	D	A
Approach Vol, veh/h	720		775			1002
Approach Delay, s/veh	27.6		34.3			27.4
Approach LOS	C		C			C
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	30.7	35.5			66.2	23.8
Change Period (Y+Rc), s	6.5	6.5			6.5	5.8
Max Green Setting (Gmax), s	25.5	27.7			59.7	18.0
Max Q Clear Time (g_c+Q), s	23.8	23.8			15.1	20.0
Green Ext Time (p_c), s	0.3	1.4			3.3	0.0
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			29.6			
HCM 6th LOS			C			

# HCM 6th Signalized Intersection Summary

## 7: G Street & Yosemite Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑	↗	↔↔	↑↑	↗	↔↔	↑↑	↗	↔↔	↑↑	↗
Traffic Volume (veh/h)	219	906	153	427	778	91	273	749	513	152	624	311
Future Volume (veh/h)	219	906	153	427	778	91	273	749	513	152	624	311
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	238	985	166	464	846	99	297	814	558	165	678	338
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	302	926	413	525	1156	515	367	1114	738	228	971	433
Arrive On Green	0.09	0.26	0.26	0.15	0.33	0.33	0.11	0.32	0.32	0.07	0.28	0.28
Sat Flow, veh/h	3428	3526	1572	3428	3526	1572	3428	3526	1572	3428	3526	1572
Grp Volume(v), veh/h	238	985	166	464	846	99	297	814	558	165	678	338
Grp Sat Flow(s),veh/h/ln	1714	1763	1572	1714	1763	1572	1714	1763	1572	1714	1763	1572
Q Serve(g_s), s	7.8	30.2	7.2	15.2	24.4	5.2	9.7	23.6	9.6	5.4	19.8	22.8
Cycle Q Clear(g_c), s	7.8	30.2	7.2	15.2	24.4	5.2	9.7	23.6	9.6	5.4	19.8	22.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	302	926	413	525	1156	515	367	1114	738	228	971	433
V/C Ratio(X)	0.79	1.06	0.40	0.88	0.73	0.19	0.81	0.73	0.76	0.72	0.70	0.78
Avail Cap(c_a), veh/h	423	926	413	572	1156	515	572	1114	738	423	971	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(l)	1.00	1.00	1.00	1.00	1.00	1.00	0.09	0.09	0.09	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.4	42.4	18.0	47.7	34.2	27.7	50.2	35.0	10.7	52.6	37.4	38.5
Incr Delay (d2), s/veh	6.5	48.1	0.6	14.4	2.4	0.2	0.5	0.4	0.7	4.3	4.2	13.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	18.7	3.7	7.3	10.4	1.9	4.1	9.7	5.7	2.4	8.8	10.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.9	90.5	18.6	62.0	36.6	27.9	50.6	35.4	11.3	57.0	41.6	51.5
LnGrp LOS	E	F	B	E	D	C	D	D	B	E	D	D
Approach Vol, veh/h		1389			1409			1669			1181	
Approach Delay, s/veh		76.3			44.4			30.1			46.6	
Approach LOS		E			D			C			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	3.4	42.1	23.4	36.0	18.1	37.5	15.9	43.5				
Change Period (Y+Rc), s	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8				
Max Green Setting (Gmax), s	1.2	28.2	19.2	30.2	19.2	23.2	14.2	35.2				
Max Q Clear Time (g_c+1), s	17.4	25.6	17.2	32.2	11.7	24.8	9.8	26.4				
Green Ext Time (p_c), s	0.3	1.7	0.4	0.0	0.6	0.0	0.3	3.7				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay												48.5
HCM 6th LOS												D

# HCM 6th Signalized Intersection Summary

## 8: Parsons Avenue/Gardner Avenue & Yosemite Avenue

02/23/2022

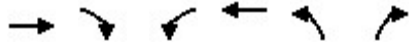


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖		↖	↖		↖	↖	
Traffic Volume (veh/h)	95	975	168	48	1005	41	103	119	20	53	96	68
Future Volume (veh/h)	95	975	168	48	1005	41	103	119	20	53	96	68
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		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	103	1060	183	52	1092	45	112	129	22	58	104	74
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	128	1921	331	67	1069	44	204	326	56	230	213	151
Arrive On Green	0.07	0.64	0.64	0.04	0.60	0.60	0.21	0.21	0.21	0.21	0.21	0.21
Sat Flow, veh/h	1767	3007	518	1767	1769	73	1197	1545	263	1227	1009	718
Grp Volume(v), veh/h	103	620	623	52	0	1137	112	0	151	58	0	178
Grp Sat Flow(s),veh/h/ln	1767	1763	1762	1767	0	1842	1197	0	1808	1227	0	1726
Q Serve(g_s), s	6.9	23.5	23.7	3.5	0.0	72.5	10.9	0.0	8.6	5.1	0.0	10.9
Cycle Q Clear(g_c), s	6.9	23.5	23.7	3.5	0.0	72.5	21.8	0.0	8.6	13.8	0.0	10.9
Prop In Lane	1.00		0.29	1.00		0.04	1.00		0.15	1.00		0.42
Lane Grp Cap(c), veh/h	128	1126	1126	67	0	1113	204	0	381	230	0	364
V/C Ratio(X)	0.80	0.55	0.55	0.78	0.00	1.02	0.55	0.00	0.40	0.25	0.00	0.49
Avail Cap(c_a), veh/h	228	1156	1156	137	0	1113	204	0	381	230	0	364
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	0.45	0.00	0.45	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	54.8	12.1	12.1	57.2	0.0	23.8	51.3	0.0	40.8	46.7	0.0	41.7
Incr Delay (d2), s/veh	11.0	0.5	0.5	8.4	0.0	23.7	10.3	0.0	3.1	2.6	0.0	4.6
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	3.4	8.3	8.4	1.7	0.0	34.4	3.8	0.0	4.1	1.7	0.0	5.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.8	12.6	12.7	65.6	0.0	47.5	61.5	0.0	43.8	49.3	0.0	46.3
LnGrp LOS	E	B	B	E	A	F	E	A	D	D	A	D
Approach Vol, veh/h		1346			1189			263			236	
Approach Delay, s/veh		16.7			48.3			51.4			47.0	
Approach LOS		B			D			D			D	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		29.8	9.0	81.2		29.8	13.2	77.0				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		18.5	9.3	78.7		18.5	15.5	72.5				
Max Q Clear Time (g_c+I1), s		23.8	5.5	25.7		15.8	8.9	74.5				
Green Ext Time (p_c), s		0.0	0.0	10.2		0.3	0.1	0.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				34.4								
HCM 6th LOS				C								

# HCM 6th Signalized Intersection Summary

## 9: McKee Road & Yosemite Avenue

02/23/2022

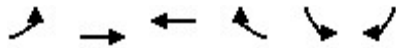


Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑	↵	↵
Traffic Volume (veh/h)	774	235	276	931	160	214
Future Volume (veh/h)	774	235	276	931	160	214
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	841	255	300	1012	174	233
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	908	275	338	1111	465	413
Arrive On Green	0.34	0.34	0.19	0.60	0.26	0.26
Sat Flow, veh/h	2758	808	1767	1856	1767	1572
Grp Volume(v), veh/h	556	540	300	1012	174	233
Grp Sat Flow(s),veh/h/ln	1763	1710	1767	1856	1767	1572
Q Serve(g_s), s	26.3	26.4	14.3	41.7	7.0	11.1
Cycle Q Clear(g_c), s	26.3	26.4	14.3	41.7	7.0	11.1
Prop In Lane		0.47	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	600	582	338	1111	465	413
V/C Ratio(X)	0.93	0.93	0.89	0.91	0.37	0.56
Avail Cap(c_a), veh/h	614	596	391	1181	465	413
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.5	27.6	34.2	15.4	26.1	27.7
Incr Delay (d2), s/veh	20.0	20.6	19.3	10.2	2.3	5.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ft	3.3	13.0	7.6	16.7	3.0	4.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	47.5	48.2	53.5	25.6	28.4	33.1
LnGrp LOS	D	D	D	C	C	C
Approach Vol, veh/h	1096			1312	407	
Approach Delay, s/veh	47.9			32.0	31.1	
Approach LOS	D			C	C	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		29.0	22.4	35.3		57.7
Change Period (Y+Rc), s		6.2	5.8	5.8		5.8
Max Green Setting (Gmax), s		22.8	19.2	30.2		55.2
Max Q Clear Time (g_c+I1), s		13.1	16.3	28.4		43.7
Green Ext Time (p_c), s		0.9	0.3	1.1		5.5
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			38.0			
HCM 6th LOS			D			

# HCM 6th Signalized Intersection Summary

## 10: Yosemite Avenue & Lake Road

02/23/2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	419	260	327	180	277	645	
Future Volume (veh/h)	419	260	327	180	277	645	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	
Adj Flow Rate, veh/h	455	283	355	196	301	701	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	3	3	3	3	3	3	
Cap, veh/h	492	1212	358	198	414	806	
Arrive On Green	0.28	0.65	0.32	0.32	0.23	0.23	
Sat Flow, veh/h	1767	1856	1124	620	1767	1572	
Grp Volume(v), veh/h	455	283	0	551	301	701	
Grp Sat Flow(s),veh/h/ln	1767	1856	0	1744	1767	1572	
Q Serve(g_s), s	20.0	5.0	0.0	25.2	12.6	18.7	
Cycle Q Clear(g_c), s	20.0	5.0	0.0	25.2	12.6	18.7	
Prop In Lane	1.00			0.36	1.00	1.00	
Lane Grp Cap(c), veh/h	492	1212	0	556	414	806	
V/C Ratio(X)	0.92	0.23	0.00	0.99	0.73	0.87	
Avail Cap(c_a), veh/h	519	1241	0	556	414	806	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(l)	0.41	0.41	0.00	1.00	0.09	0.09	
Uniform Delay (d), s/veh	28.1	5.7	0.0	27.1	28.3	17.2	
Incr Delay (d2), s/veh	11.2	0.0	0.0	35.8	0.6	1.1	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/lr	0.0	1.3	0.0	14.7	4.8	23.4	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	39.2	5.7	0.0	63.0	28.9	18.2	
LnGrp LOS	D	A	A	E	C	B	
Approach Vol, veh/h		738	551		1002		
Approach Delay, s/veh		26.4	63.0		21.4		
Approach LOS		C	E		C		
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				56.8	23.2	26.8	30.0
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				53.5	17.5	23.5	25.5
Max Q Clear Time (g_c+I1), s				7.0	20.7	22.0	27.2
Green Ext Time (p_c), s				1.5	0.0	0.3	0.0
<b>Intersection Summary</b>							
HCM 6th Ctrl Delay			33.0				
HCM 6th LOS			C				

# HCM 6th Signalized Intersection Summary

## 11: Snelling Highway (SR 59) & Santa Fe Drive/Olive Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	153	908	159	324	918	144	106	576	373	153	545	122
Future Volume (veh/h)	153	908	159	324	918	144	106	576	373	153	545	122
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		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	166	987	173	352	998	157	115	626	405	166	592	133
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	197	1031	610	372	1021	605	168	974	605	168	974	609
Arrive On Green	0.11	0.29	0.29	0.11	0.29	0.29	0.10	0.28	0.28	0.10	0.28	0.28
Sat Flow, veh/h	1767	3526	1572	3428	3526	1572	1767	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	166	987	173	352	998	157	115	626	405	166	592	133
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1714	1763	1572	1767	1763	1572	1767	1763	1572
Q Serve(g_s), s	9.7	28.9	2.1	10.7	29.4	7.2	6.6	16.4	22.4	9.8	15.3	3.3
Cycle Q Clear(g_c), s	9.7	28.9	2.1	10.7	29.4	7.2	6.6	16.4	22.4	9.8	15.3	3.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	197	1031	610	372	1021	605	168	974	605	168	974	609
V/C Ratio(X)	0.84	0.96	0.28	0.95	0.98	0.26	0.68	0.64	0.67	0.99	0.61	0.22
Avail Cap(c_a), veh/h	239	1031	610	372	1021	605	168	974	605	168	974	609
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	0.42	0.42	0.42	0.50	0.50	0.50	0.81	0.81	0.81
Uniform Delay (d), s/veh	45.8	36.5	8.3	46.5	36.9	22.1	46.0	33.4	26.8	47.4	33.1	8.1
Incr Delay (d2), s/veh	20.1	18.6	0.3	18.4	13.3	0.1	5.6	1.6	3.0	58.3	2.3	0.7
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/lr	5.2	14.4	1.3	5.3	13.8	2.5	3.1	6.9	8.3	6.8	6.4	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.9	55.1	8.6	64.9	50.2	22.2	51.6	35.1	29.7	105.8	35.3	8.8
LnGrp LOS	E	E	A	E	D	C	D	D	C	F	D	A
Approach Vol, veh/h		1326			1507			1146			891	
Approach Delay, s/veh		50.4			50.7			34.8			44.5	
Approach LOS		D			D			C			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.5	34.8	17.2	36.5	15.8	35.5	17.5	36.2				
Change Period (Y+Rc), s	6.5	5.8	5.8	5.8	5.8	6.5	5.8	5.8				
Max Green Setting (Gmax), s	10.0	29.0	11.4	30.7	10.0	29.0	14.2	27.9				
Max Q Clear Time (g_c+fl), s	10.0	24.4	12.7	30.9	8.6	17.3	11.7	31.4				
Green Ext Time (p_c), s	0.0	2.2	0.0	0.0	0.0	3.0	0.1	0.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay					45.8							
HCM 6th LOS					D							



# HCM 6th Signalized Intersection Summary

## 12: R Street & Olive Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑	↗	↘	↑↑↑	↗	↘	↑↑		↘	↑↑	↗
Traffic Volume (veh/h)	223	1095	211	282	1065	213	303	814	132	196	768	146
Future Volume (veh/h)	223	1095	211	282	1065	213	303	814	132	196	768	146
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		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	242	1190	229	307	1158	232	329	885	143	213	835	159
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	256	1174	656	307	1321	614	328	943	152	229	897	628
Arrive On Green	0.14	0.23	0.23	0.17	0.26	0.26	0.19	0.31	0.31	0.13	0.25	0.25
Sat Flow, veh/h	1767	5066	1572	1767	5066	1572	1767	3039	491	1767	3526	1572
Grp Volume(v), veh/h	242	1190	229	307	1158	232	329	513	515	213	835	159
Grp Sat Flow(s),veh/h/ln	1767	1689	1572	1767	1689	1572	1767	1763	1767	1767	1763	1572
Q Serve(g_s), s	19.7	33.6	14.4	25.2	31.8	4.6	26.9	41.1	41.1	17.3	33.5	9.8
Cycle Q Clear(g_c), s	19.7	33.6	14.4	25.2	31.8	4.6	26.9	41.1	41.1	17.3	33.5	9.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.28	1.00		1.00
Lane Grp Cap(c), veh/h	256	1174	656	307	1321	614	328	547	548	229	897	628
V/C Ratio(X)	0.95	1.01	0.35	1.00	0.88	0.38	1.00	0.94	0.94	0.93	0.93	0.25
Avail Cap(c_a), veh/h	256	1174	656	307	1321	614	328	547	548	229	897	628
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.40	0.40	0.40	0.09	0.09	0.09	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.4	55.7	28.8	59.9	51.4	13.2	59.1	48.6	48.7	62.4	52.8	29.1
Incr Delay (d2), s/veh	23.0	20.1	0.1	15.3	0.7	0.0	50.6	25.9	25.9	40.5	17.3	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ft	0.3	16.1	5.4	12.3	13.2	2.8	16.5	21.6	21.7	10.3	16.8	3.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	84.5	75.8	28.9	75.2	52.1	13.2	109.6	74.5	74.5	103.0	70.1	30.1
LnGrp LOS	F	F	C	E	D	B	F	E	E	F	E	C
Approach Vol, veh/h		1661			1697			1357			1207	
Approach Delay, s/veh		70.6			50.9			83.0			70.6	
Approach LOS		E			D			F			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	34.2	50.4	31.0	39.4	32.3	42.3	26.8	43.6				
Change Period (Y+Rc), s	5.4	5.4	5.8	5.8	5.4	5.4	5.8	5.8				
Max Green Setting (Gmax), s	45.0	45.0	25.2	33.6	26.9	36.9	21.0	37.8				
Max Q Clear Time (g_c+119), s	43.1	43.1	27.2	35.6	28.9	35.5	21.7	33.8				
Green Ext Time (p_c), s	0.0	1.1	0.0	0.0	0.0	0.8	0.0	2.7				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			67.8									
HCM 6th LOS			E									



# HCM 6th Signalized Intersection Summary

## 13: M Street & Olive Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵ ↑↑↑	↑↑↑	↵	↵ ↑↑↑	↑↑↑		↵ ↑↑	↑↑		↵ ↑↑	↑↑	
Traffic Volume (veh/h)	203	1175	178	233	1086	121	278	798	167	344	673	182
Future Volume (veh/h)	203	1175	178	233	1086	121	278	798	167	344	673	182
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	221	1277	193	253	1180	132	302	867	182	374	732	198
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	204	1165	640	230	1129	126	313	841	177	336	831	225
Arrive On Green	0.12	0.23	0.23	0.13	0.24	0.24	0.18	0.29	0.29	0.19	0.30	0.30
Sat Flow, veh/h	1767	5066	1572	1767	4623	517	1767	2900	609	1767	2743	742
Grp Volume(v), veh/h	221	1277	193	253	862	450	302	527	522	374	470	460
Grp Sat Flow(s),veh/h/ln	1767	1689	1572	1767	1689	1762	1767	1763	1746	1767	1763	1722
Q Serve(g_s), s	16.2	32.2	11.6	18.2	34.2	34.2	23.7	40.6	40.6	26.6	35.5	35.5
Cycle Q Clear(g_c), s	16.2	32.2	11.6	18.2	34.2	34.2	23.7	40.6	40.6	26.6	35.5	35.5
Prop In Lane	1.00		1.00	1.00		0.29	1.00		0.35	1.00		0.43
Lane Grp Cap(c), veh/h	204	1165	640	230	825	431	313	511	506	336	534	522
V/C Ratio(X)	1.08	1.10	0.30	1.10	1.04	1.05	0.96	1.03	1.03	1.11	0.88	0.88
Avail Cap(c_a), veh/h	204	1165	640	230	825	431	313	511	506	336	534	522
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.09	0.09	0.09	0.22	0.22	0.22	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.9	53.9	28.0	60.9	52.9	52.9	57.2	49.7	49.7	56.7	46.4	46.4
Incr Delay (d2), s/veh	44.9	44.8	0.0	59.8	28.2	33.4	41.3	47.9	48.2	83.4	18.6	18.9
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/lr	9.7	18.1	4.3	11.8	17.3	18.7	14.0	24.3	24.1	19.5	18.0	17.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	106.8	98.7	28.1	120.7	81.1	86.3	98.4	97.6	97.9	140.1	65.0	65.3
LnGrp LOS	F	F	C	F	F	F	F	F	F	F	E	E
Approach Vol, veh/h		1691			1565			1351			1304	
Approach Delay, s/veh		91.7			89.0			97.9			86.7	
Approach LOS		F			F			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	32.0	46.0	24.0	38.0	30.2	47.8	22.0	40.0				
Change Period (Y+Rc), s	5.4	5.4	5.8	5.8	5.4	5.4	5.8	5.8				
Max Green Setting (Gmax), s	26.6	40.6	18.2	32.2	24.8	42.4	16.2	34.2				
Max Q Clear Time (g_c+29.6), s	26.6	42.6	20.2	34.2	25.7	37.5	18.2	36.2				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	2.4	0.0	0.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			91.3									
HCM 6th LOS			F									

# HCM 6th Signalized Intersection Summary

## 14: Olive Avenue & G Street

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑		↘	↑↑	↗	↘	↑↑	↗
Traffic Volume (veh/h)	523	790	302	199	562	98	239	1170	237	130	1135	472
Future Volume (veh/h)	523	790	302	199	562	98	239	1170	237	130	1135	472
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	568	859	328	216	611	107	260	1272	258	141	1234	513
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	417	1053	645	230	579	101	197	1225	752	112	1055	842
Arrive On Green	0.24	0.30	0.30	0.13	0.19	0.19	0.11	0.35	0.35	0.06	0.30	0.30
Sat Flow, veh/h	1767	3526	1572	1767	3000	524	1767	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	568	859	328	216	359	359	260	1272	258	141	1234	513
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1761	1767	1763	1572	1767	1763	1572
Q Serve(g_s), s	34.2	32.8	22.5	17.6	28.0	28.0	16.2	50.4	14.9	9.2	43.4	10.7
Cycle Q Clear(g_c), s	34.2	32.8	22.5	17.6	28.0	28.0	16.2	50.4	14.9	9.2	43.4	10.7
Prop In Lane	1.00		1.00	1.00		0.30	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	417	1053	645	230	340	340	197	1225	752	112	1055	842
V/C Ratio(X)	1.36	0.82	0.51	0.94	1.05	1.06	1.32	1.04	0.34	1.26	1.17	0.61
Avail Cap(c_a), veh/h	417	1053	645	230	340	340	197	1225	752	112	1055	842
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.09	0.09	0.09	1.00	1.00	1.00	1.00	1.00	1.00	0.57	0.57	0.57
Uniform Delay (d), s/veh	55.4	47.2	31.9	62.5	58.5	58.5	64.4	47.3	23.6	67.9	50.8	8.3
Incr Delay (d2), s/veh	164.7	0.5	0.1	42.3	63.5	64.6	173.7	36.1	1.2	150.3	82.4	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	33.9	14.1	8.4	10.4	18.2	18.3	16.7	27.5	5.6	8.8	30.7	4.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	220.1	47.6	31.9	104.8	122.0	123.1	238.1	83.4	24.9	218.2	133.2	10.2
LnGrp LOS	F	D	C	F	F	F	F	F	C	F	F	B
Approach Vol, veh/h		1755			934			1790			1888	
Approach Delay, s/veh		100.5			118.4			97.4			106.2	
Approach LOS		F			F			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.0	56.2	24.7	49.1	22.0	49.2	40.0	33.8				
Change Period (Y+Rc), s	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8				
Max Green Setting (Gmax), s	5.0	50.4	18.9	43.3	16.2	43.4	34.2	28.0				
Max Q Clear Time (g_c+fl), s	5.0	52.4	19.6	34.8	18.2	45.4	36.2	30.0				
Green Ext Time (p_c), s	0.0	0.0	0.0	4.2	0.0	0.0	0.0	0.0				

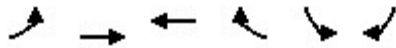
### Intersection Summary

HCM 6th Ctrl Delay		104.0										
HCM 6th LOS			F									

# HCM 6th Signalized Intersection Summary

## 15: 16th Street & Snelling Highway (SR 59)

02/23/2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations	↖	↑	↗	↘	↙	↘	
Traffic Volume (veh/h)	417	531	578	567	413	438	
Future Volume (veh/h)	417	531	578	567	413	438	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	
Adj Flow Rate, veh/h	453	577	628	0	449	0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	3	3	3	3	3	3	
Cap, veh/h	500	1012	714		591		
Arrive On Green	0.28	0.55	0.20	0.00	0.33	0.00	
Sat Flow, veh/h	1767	1856	3618	1572	1767	1572	
Grp Volume(v), veh/h	453	577	628	0	449	0	
Grp Sat Flow(s),veh/h/ln	1767	1856	1763	1572	1767	1572	
Q Serve(g_s), s	18.5	15.4	13.0	0.0	17.0	0.0	
Cycle Q Clear(g_c), s	18.5	15.4	13.0	0.0	17.0	0.0	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	500	1012	714		591		
V/C Ratio(X)	0.91	0.57	0.88		0.76		
Avail Cap(c_a), veh/h	601	1126	729		591		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(l)	1.00	1.00	1.00	0.00	0.70	0.00	
Uniform Delay (d), s/veh	25.9	11.2	29.0	0.0	22.3	0.0	
Incr Delay (d2), s/veh	15.6	0.6	11.8	0.0	6.3	0.0	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	8.8	4.7	6.2	0.0	7.2	0.0	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	41.6	11.8	40.8	0.0	28.6	0.0	
LnGrp LOS	D	B	D		C		
Approach Vol, veh/h		1030	628	A	449	A	
Approach Delay, s/veh		24.9	40.8		28.6		
Approach LOS		C	D		C		
Timer - Assigned Phs			4		6	7	8
Phs Duration (G+Y+Rc), s			45.4		29.6	25.7	19.7
Change Period (Y+Rc), s			4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s			45.5		20.5	25.5	15.5
Max Q Clear Time (g_c+I1), s			17.4		19.0	20.5	15.0
Green Ext Time (p_c), s			3.3		0.3	0.7	0.2
<b>Intersection Summary</b>							
HCM 6th Ctrl Delay			30.4				
HCM 6th LOS			C				
<b>Notes</b>							
Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.							

# HCM 6th Signalized Intersection Summary

## 16: MLK JR Way & SR 99 NB Ramps

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕		↕	↑↑			↑↑	
Traffic Volume (veh/h)	0	0	0	37	0	82	290	708	0	0	644	446
Future Volume (veh/h)	0	0	0	37	0	82	290	708	0	0	644	446
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No			No	
Adj Sat Flow, veh/h/ln				1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h				40	0	89	315	770	0	0	700	485
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				52	0	115	359	2677	0	0	971	669
Arrive On Green				0.10	0.00	0.10	0.20	0.76	0.00	0.00	0.49	0.49
Sat Flow, veh/h				505	0	1123	1767	3618	0	0	2089	1375
Grp Volume(v), veh/h				129	0	0	315	770	0	0	618	567
Grp Sat Flow(s),veh/h/ln				1628	0	0	1767	1763	0	0	1763	1608
Q Serve(g_s), s				5.0	0.0	0.0	11.2	4.4	0.0	0.0	18.0	18.2
Cycle Q Clear(g_c), s				5.0	0.0	0.0	11.2	4.4	0.0	0.0	18.0	18.2
Prop In Lane				0.31		0.69	1.00		0.00	0.00		0.86
Lane Grp Cap(c), veh/h				167	0	0	359	2677	0	0	858	782
V/C Ratio(X)				0.77	0.00	0.00	0.88	0.29	0.00	0.00	0.72	0.72
Avail Cap(c_a), veh/h				388	0	0	367	2677	0	0	858	782
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)				1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				28.4	0.0	0.0	25.1	2.4	0.0	0.0	13.2	13.2
Incr Delay (d2), s/veh				7.5	0.0	0.0	20.3	0.3	0.0	0.0	5.2	5.8
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.1	0.0	0.0	6.4	0.8	0.0	0.0	7.3	6.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				35.9	0.0	0.0	45.4	2.7	0.0	0.0	18.4	19.0
LnGrp LOS				D	A	A	D	A	A	A	B	B
Approach Vol, veh/h								1085				1185
Approach Delay, s/veh								15.1				18.7
Approach LOS								B				B
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		53.8			17.7	36.1		11.2				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		40.5			13.5	22.5		15.5				
Max Q Clear Time (g_c+I1), s		6.4			13.2	20.2		7.0				
Green Ext Time (p_c), s		6.3			0.0	1.6		0.4				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay											18.0	
HCM 6th LOS											B	

HCM 6th Signalized Intersection Summary  
 17: G Street & 14th Street/SR 99 NB Off Ramp

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	0	8	16	9	125	11	593	0	0	608	75
Future Volume (veh/h)	60	0	8	16	9	125	11	593	0	0	608	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	0	1856	1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h	65	0	9	17	10	136	12	645	0	0	661	82
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	0	3	3	3	3	3	3	0	0	3	3
Cap, veh/h	0	0	0	21	13	171	584	2623	0	0	2349	291
Arrive On Green	0.00	0.00	0.00	0.13	0.13	0.13	0.74	0.74	0.00	0.00	0.74	0.74
Sat Flow, veh/h		0		167	99	1340	711	3618	0	0	3250	391
Grp Volume(v), veh/h		0.0		163	0	0	12	645	0	0	369	374
Grp Sat Flow(s),veh/h/ln				1606	0	0	711	1763	0	0	1763	1785
Q Serve(g_s), s				6.9	0.0	0.0	0.4	4.0	0.0	0.0	4.7	4.8
Cycle Q Clear(g_c), s				6.9	0.0	0.0	5.1	4.0	0.0	0.0	4.7	4.8
Prop In Lane				0.10		0.83	1.00		0.00	0.00		0.22
Lane Grp Cap(c), veh/h				205	0	0	584	2623	0	0	1312	1328
V/C Ratio(X)				0.80	0.00	0.00	0.02	0.25	0.00	0.00	0.28	0.28
Avail Cap(c_a), veh/h				356	0	0	584	2623	0	0	1312	1328
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)				1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				29.7	0.0	0.0	3.7	2.8	0.0	0.0	2.9	2.9
Incr Delay (d2), s/veh				6.9	0.0	0.0	0.1	0.2	0.0	0.0	0.5	0.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.9	0.0	0.0	0.0	0.8	0.0	0.0	1.1	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				36.6	0.0	0.0	3.8	3.0	0.0	0.0	3.4	3.4
LnGrp LOS				D	A	A	A	A	A	A	A	A
Approach Vol, veh/h					163			657			743	
Approach Delay, s/veh					36.6			3.0			3.4	
Approach LOS					D			A			A	
Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		56.6				56.6		13.4				
Change Period (Y+Rc), s		4.5				4.5		4.5				
Max Green Setting (Gmax), s		16.0				16.0		15.5				
Max Q Clear Time (g_c+I1), s		7.1				6.8		8.9				
Green Ext Time (p_c), s		2.8				3.1		0.4				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay											6.7	
HCM 6th LOS											A	

HCM 6th Roundabout  
 18: Campus Parkway & Yosemite Avenue

02/23/2022

Intersection			
Intersection Delay, s/veh	5.3		
Intersection LOS	A		
Approach	EB	WB	NB
Entry Lanes	2	2	0
Conflicting Circle Lanes	2	2	2
Adj Approach Flow, veh/h	583	277	0
Demand Flow Rate, veh/h	601	285	0
Vehicles Circulating, veh/h	37	319	225
Vehicles Exiting, veh/h	567	255	413
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	4.8	6.5	0.0
Approach LOS	A	A	-
Lane	Left	Right	Left
Designated Moves	LT	TR	LT
Assumed Moves	LT	R	LT
RT Channelized			
Lane Util	0.374	0.626	1.000
Follow-Up Headway, s	2.667	2.535	2.667
Critical Headway, s	4.645	4.328	4.645
Entry Flow, veh/h	225	376	285
Cap Entry Lane, veh/h	1305	1376	1007
Entry HV Adj Factor	0.971	0.971	0.971
Flow Entry, veh/h	218	365	277
Cap Entry, veh/h	1267	1336	978
V/C Ratio	0.172	0.273	0.283
Control Delay, s/veh	4.3	5.1	6.5
LOS	A	A	A
95th %tile Queue, veh	1	1	1

HCM 6th Roundabout  
19: Campus Parkway & Olive Avenue

02/23/2022

Intersection									
Intersection Delay, s/veh 5.4									
Intersection LOS A									
Approach	EB		WB		NB		SB		
Entry Lanes	2		2		2		2		
Conflicting Circle Lanes	2		2		2		2		
Adj Approach Flow, veh/h	161		121		362		403		
Demand Flow Rate, veh/h	167		125		373		416		
Vehicles Circulating, veh/h	408		370		169		146		
Vehicles Exiting, veh/h	154		172		406		349		
Ped Vol Crossing Leg, #/h	0		0		0		0		
Ped Cap Adj	1.000		1.000		1.000		1.000		
Approach Delay, s/veh	4.7		4.3		5.3		6.1		
Approach LOS	A		A		A		A		
Lane	Left	Right	Left	Right	Left	Right	Left	Right	
Designated Moves	LT	TR	LT	TR	L	TR	LT	R	
Assumed Moves	LT	TR	LT	TR	L	TR	LT	R	
RT Channelized									
Lane Util	0.467	0.533	0.472	0.528	0.107	0.893	0.928	0.072	
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.667	2.535	2.667	2.535	
Critical Headway, s	4.645	4.328	4.645	4.328	4.645	4.328	4.645	4.328	
Entry Flow, veh/h	78	89	59	66	40	333	386	30	
Cap Entry Lane, veh/h	927	1004	960	1037	1155	1230	1180	1254	
Entry HV Adj Factor	0.971	0.960	0.960	0.968	0.975	0.970	0.970	0.967	
Flow Entry, veh/h	76	85	57	64	39	323	374	29	
Cap Entry, veh/h	901	964	922	1004	1127	1193	1145	1213	
V/C Ratio	0.084	0.089	0.061	0.064	0.035	0.271	0.327	0.024	
Control Delay, s/veh	4.8	4.5	4.5	4.1	3.5	5.5	6.3	3.2	
LOS	A	A	A	A	A	A	A	A	
95th %tile Queue, veh	0	0	0	0	0	1	1	0	

# HCM 6th Signalized Intersection Summary

## 20: Campus Parkway & Connector Road

02/23/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖↗	↖	↕↕	↖	↖↗	↕↕
Traffic Volume (veh/h)	49	38	295	43	30	332
Future Volume (veh/h)	49	38	295	43	30	332
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	53	0	321	0	33	361
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	284		1813		150	2415
Arrive On Green	0.08	0.00	0.51	0.00	0.04	0.69
Sat Flow, veh/h	3428	1572	3618	1572	3428	3618
Grp Volume(v), veh/h	53	0	321	0	33	361
Grp Sat Flow(s),veh/h/ln	1714	1572	1763	1572	1714	1763
Q Serve(g_s), s	0.7	0.0	2.5	0.0	0.5	1.8
Cycle Q Clear(g_c), s	0.7	0.0	2.5	0.0	0.5	1.8
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	284		1813		150	2415
V/C Ratio(X)	0.19		0.18		0.22	0.15
Avail Cap(c_a), veh/h	2208		1813		435	2415
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	21.9	0.0	6.6	0.0	23.6	2.8
Incr Delay (d2), s/veh	0.3	0.0	0.2	0.0	0.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.6	0.0	0.2	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	22.2	0.0	6.9	0.0	24.4	3.0
LnGrp LOS	C		A		C	A
Approach Vol, veh/h	53	A	321	A		394
Approach Delay, s/veh	22.2		6.9			4.8
Approach LOS	C		A			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	8.7	32.9			41.6	9.6
Change Period (Y+Rc), s	6.5	6.5			6.5	5.4
Max Green Setting (Gmax), s	6.5	22.1			35.1	33.0
Max Q Clear Time (g_c+1/2), s	12.5	4.5			3.8	2.7
Green Ext Time (p_c), s	0.0	1.6			2.1	0.1

### Intersection Summary

HCM 6th Ctrl Delay	6.8
HCM 6th LOS	A

### Notes

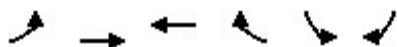
Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.



# HCM 6th Signalized Intersection Summary

## 21: SR 140 & Connector Road

02/23/2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↙	↑	↑	↘	↙	↘
Traffic Volume (veh/h)	54	248	198	33	29	44
Future Volume (veh/h)	54	248	198	33	29	44
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.50	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	59	270	215	36	32	48
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	118	720	361	153	672	598
Arrive On Green	0.07	0.39	0.19	0.19	0.38	0.38
Sat Flow, veh/h	1767	1856	1856	784	1767	1572
Grp Volume(v), veh/h	59	270	215	36	32	48
Grp Sat Flow(s),veh/h/ln	1767	1856	1856	784	1767	1572
Q Serve(g_s), s	1.7	5.3	5.4	2.0	0.6	1.0
Cycle Q Clear(g_c), s	1.7	5.3	5.4	2.0	0.6	1.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	118	720	361	153	672	598
V/C Ratio(X)	0.50	0.38	0.59	0.24	0.05	0.08
Avail Cap(c_a), veh/h	227	1396	922	390	672	598
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.1	11.2	18.8	17.4	10.0	10.2
Incr Delay (d2), s/veh	3.3	0.3	1.6	0.8	0.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	1.5	2.0	0.3	0.2	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	26.4	11.6	20.4	18.2	10.2	10.4
LnGrp LOS	C	B	C	B	B	B
Approach Vol, veh/h		329	251		80	
Approach Delay, s/veh		14.2	20.1		10.3	
Approach LOS		B	C		B	
Timer - Assigned Phs			4		6	7
Phs Duration (G+Y+Rc), s			26.4		24.9	9.9
Change Period (Y+Rc), s			6.5		5.4	6.5
Max Green Setting (Gmax), s			38.6		19.5	6.6
Max Q Clear Time (g_c+I1), s			7.3		3.0	3.7
Green Ext Time (p_c), s			1.3		0.2	0.0
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			16.0			
HCM 6th LOS			B			

HCM 6th Signalized Intersection Summary  
 22: Campus Parkway & Childs Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	129	41	65	101	9	62	318	37	8	351	22
Future Volume (veh/h)	11	129	41	65	101	9	62	318	37	8	351	22
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	12	140	45	71	110	10	67	346	40	9	382	24
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	32	419	187	116	624	278	219	1536	685	24	1360	606
Arrive On Green	0.02	0.12	0.12	0.07	0.18	0.18	0.06	0.44	0.44	0.01	0.39	0.39
Sat Flow, veh/h	1767	3526	1572	1767	3526	1572	3428	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	12	140	45	71	110	10	67	346	40	9	382	24
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1572	1714	1763	1572	1767	1763	1572
Q Serve(g_s), s	0.5	2.4	1.7	2.6	1.8	0.4	1.3	4.1	1.0	0.3	5.0	0.6
Cycle Q Clear(g_c), s	0.5	2.4	1.7	2.6	1.8	0.4	1.3	4.1	1.0	0.3	5.0	0.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	32	419	187	116	624	278	219	1536	685	24	1360	606
V/C Ratio(X)	0.38	0.33	0.24	0.61	0.18	0.04	0.31	0.23	0.06	0.37	0.28	0.04
Avail Cap(c_a), veh/h	158	2047	913	268	2268	1011	306	1536	685	158	1360	606
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.6	27.2	26.8	30.5	23.5	22.9	30.0	11.9	11.0	32.8	14.2	12.9
Incr Delay (d2), s/veh	7.3	0.5	0.7	5.2	0.1	0.1	0.8	0.3	0.2	9.0	0.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.0	0.6	1.2	0.7	0.1	0.5	1.3	0.3	0.2	1.7	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.9	27.6	27.5	35.7	23.6	23.0	30.8	12.2	11.1	41.9	14.7	13.0
LnGrp LOS	D	C	C	D	C	C	C	B	B	D	B	B
Approach Vol, veh/h		197			191			453			415	
Approach Delay, s/veh		28.3			28.1			14.9			15.2	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.4	35.8	10.2	13.8	10.8	32.4	6.3	17.7				
Change Period (Y+Rc), s	6.5	6.5	5.8	* 5.8	6.5	6.5	5.1	5.8				
Max Green Setting (Gmax), s	6.0	25.9	10.2	* 39	6.0	25.9	6.0	43.2				
Max Q Clear Time (g_c+1/3), s	12.3	6.1	4.6	4.4	3.3	7.0	2.5	3.8				
Green Ext Time (p_c), s	0.0	1.9	0.1	1.0	0.0	2.0	0.0	0.6				

Intersection Summary

HCM 6th Ctrl Delay	19.1
HCM 6th LOS	B

Notes

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

# HCM 6th Signalized Intersection Summary

## 23: Campus Parkway & Gerard Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑	↗	↖	↑↑		↖	↑↑		↖	↗	
Traffic Volume (veh/h)	87	27	36	233	16	8	73	322	25	6	380	71
Future Volume (veh/h)	87	27	36	233	16	8	73	322	25	6	380	71
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	95	29	39	253	17	9	79	350	27	7	413	77
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	164	235	105	258	391	191	93	1860	143	18	789	147
Arrive On Green	0.05	0.07	0.07	0.15	0.17	0.17	0.05	0.56	0.56	0.01	0.52	0.52
Sat Flow, veh/h	3428	3526	1572	1767	2297	1120	1767	3318	255	1767	1521	284
Grp Volume(v), veh/h	95	29	39	253	13	13	79	185	192	7	0	490
Grp Sat Flow(s),veh/h/ln	1714	1763	1572	1767	1763	1654	1767	1763	1810	1767	0	1804
Q Serve(g_s), s	3.3	0.9	2.8	17.1	0.7	0.8	5.3	6.2	6.3	0.5	0.0	21.5
Cycle Q Clear(g_c), s	3.3	0.9	2.8	17.1	0.7	0.8	5.3	6.2	6.3	0.5	0.0	21.5
Prop In Lane	1.00		1.00	1.00		0.68	1.00		0.14	1.00		0.16
Lane Grp Cap(c), veh/h	164	235	105	258	300	282	93	988	1014	18	0	936
V/C Ratio(X)	0.58	0.12	0.37	0.98	0.04	0.05	0.85	0.19	0.19	0.38	0.00	0.52
Avail Cap(c_a), veh/h	206	1087	485	258	695	652	93	988	1014	88	0	936
HCM Platoon Ratio	1.00	1.00	1.00	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	0.95	0.95	0.95	0.98	0.00	0.98
Uniform Delay (d), s/veh	55.9	52.7	53.6	51.1	41.6	41.6	56.4	12.9	13.0	59.0	0.0	19.1
Incr Delay (d2), s/veh	3.2	0.2	2.2	50.8	0.1	0.1	47.4	0.4	0.4	12.2	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	1.4	0.4	1.1	10.9	0.3	0.3	3.5	2.3	2.4	0.3	0.0	8.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.1	52.9	55.8	101.9	41.7	41.7	103.8	13.3	13.4	71.2	0.0	21.2
LnGrp LOS	E	D	E	F	D	D	F	B	B	E	A	C
Approach Vol, veh/h		163			279			456			497	
Approach Delay, s/veh		57.2			96.3			29.0			21.9	
Approach LOS		E			F			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.7	73.8	24.0	14.5	12.8	68.7	11.5	26.9				
Change Period (Y+Rc), s	6.5	6.5	6.5	* 6.5	6.5	6.5	5.8	6.5				
Max Green Setting (Gmax), s	6.0	34.2	17.5	* 37	6.3	33.9	7.2	47.3				
Max Q Clear Time (g_c+1/2), s	12.5	8.3	19.1	4.8	7.3	23.5	5.3	2.8				
Green Ext Time (p_c), s	0.0	1.8	0.0	0.2	0.0	1.9	0.0	0.1				

### Intersection Summary

HCM 6th Ctrl Delay	43.2
HCM 6th LOS	D

### Notes

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

HCM 6th Signalized Intersection Summary  
 24: Coffee Street & Campus Parkway

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑		↘	↑↑		↘	↗	
Traffic Volume (veh/h)	84	376	85	15	625	9	110	33	14	7	246	122
Future Volume (veh/h)	84	376	85	15	625	9	110	33	14	7	246	122
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	91	409	92	16	679	10	120	36	15	8	267	133
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	116	987	440	34	831	12	150	1023	401	18	396	197
Arrive On Green	0.07	0.28	0.28	0.02	0.23	0.23	0.08	0.41	0.41	0.01	0.34	0.34
Sat Flow, veh/h	1767	3526	1572	1767	3557	52	1767	2475	969	1767	1169	582
Grp Volume(v), veh/h	91	409	92	16	336	353	120	25	26	8	0	400
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1846	1767	1763	1681	1767	0	1751
Q Serve(g_s), s	3.3	6.1	2.9	0.6	11.8	11.8	4.3	0.5	0.6	0.3	0.0	12.7
Cycle Q Clear(g_c), s	3.3	6.1	2.9	0.6	11.8	11.8	4.3	0.5	0.6	0.3	0.0	12.7
Prop In Lane	1.00		1.00	1.00		0.03	1.00		0.58	1.00		0.33
Lane Grp Cap(c), veh/h	116	987	440	34	412	431	150	729	695	18	0	594
V/C Ratio(X)	0.78	0.41	0.21	0.47	0.82	0.82	0.80	0.03	0.04	0.44	0.00	0.67
Avail Cap(c_a), veh/h	136	987	440	136	488	511	150	729	695	136	0	594
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.96	0.96	0.96	0.69	0.69	0.69	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.9	19.1	17.9	31.5	23.6	23.6	29.2	11.3	11.4	32.0	0.0	18.4
Incr Delay (d2), s/veh	21.3	0.3	0.2	6.8	6.4	6.2	26.1	0.1	0.1	15.6	0.0	6.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	2.1	0.9	0.3	4.8	5.0	2.8	0.2	0.2	0.2	0.0	5.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.2	19.3	18.1	38.3	30.0	29.7	55.3	11.4	11.5	47.6	0.0	24.4
LnGrp LOS	D	B	B	D	C	C	E	B	B	D	A	C
Approach Vol, veh/h		592			705			171			408	
Approach Delay, s/veh		24.0			30.1			42.2			24.9	
Approach LOS		C			C			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.2	31.4	5.8	22.7	10.0	26.5	8.8	19.7				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.0	19.0	5.0	18.0	5.5	18.5	5.0	18.0				
Max Q Clear Time (g_c+1), s	12.3	2.6	2.6	8.1	6.3	14.7	5.3	13.8				
Green Ext Time (p_c), s	0.0	0.1	0.0	1.8	0.0	0.8	0.0	1.4				

Intersection Summary

HCM 6th Ctrl Delay	28.1
HCM 6th LOS	C

HCM 6th Signalized Intersection Summary  
 25: SR 99 NB Ramps & Campus Parkway

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	111	424	0	0	484	322	28	18	121	0	0	0
Future Volume (veh/h)	111	424	0	0	484	322	28	18	121	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1856	1856	0	0	1856	1856	1856	1856	1856			
Adj Flow Rate, veh/h	121	461	0	0	526	350	30	20	132			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	3	3	0	0	3	3	3	3	3			
Cap, veh/h	149	1413	0	0	924	412	537	358	781			
Arrive On Green	0.08	0.40	0.00	0.00	0.26	0.26	0.50	0.50	0.50			
Sat Flow, veh/h	1767	3618	0	0	3618	1572	1081	721	1572			
Grp Volume(v), veh/h	121	461	0	0	526	350	50	0	132			
Grp Sat Flow(s),veh/h/ln	1767	1763	0	0	1763	1572	1801	0	1572			
Q Serve(g_s), s	8.1	10.8	0.0	0.0	15.5	25.3	1.7	0.0	5.5			
Cycle Q Clear(g_c), s	8.1	10.8	0.0	0.0	15.5	25.3	1.7	0.0	5.5			
Prop In Lane	1.00		0.00	0.00		1.00	0.60		1.00			
Lane Grp Cap(c), veh/h	149	1413	0	0	924	412	895	0	781			
V/C Ratio(X)	0.81	0.33	0.00	0.00	0.57	0.85	0.06	0.00	0.17			
Avail Cap(c_a), veh/h	376	2336	0	0	1396	622	895	0	781			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(l)	1.00	1.00	0.00	0.00	0.56	0.56	1.00	0.00	1.00			
Uniform Delay (d), s/veh	54.0	24.8	0.0	0.0	38.4	42.0	15.6	0.0	16.6			
Incr Delay (d2), s/veh	10.1	0.1	0.0	0.0	0.3	4.1	0.1	0.0	0.5			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	3.9	4.3	0.0	0.0	6.4	9.7	0.7	0.0	2.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.1	24.9	0.0	0.0	38.7	46.1	15.7	0.0	17.1			
LnGrp LOS	E	C	A	A	D	D	B	A	B			
Approach Vol, veh/h		582			876			182				
Approach Delay, s/veh		33.1			41.6			16.7				
Approach LOS		C			D			B				
Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		65.4		54.6			16.6	38.0				
Change Period (Y+Rc), s		5.8		6.5			6.5	6.5				
Max Green Setting (Gmax), s		28.2		79.5			25.5	47.5				
Max Q Clear Time (g_c+I1), s		7.5		12.8			10.1	27.3				
Green Ext Time (p_c), s		0.6		2.8			0.2	4.1				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay												35.8
HCM 6th LOS												D

HCM 6th Signalized Intersection Summary  
 26: Lake Street & Meyers Gate Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	30	10	57	30	57	20	511	59	59	663	10
Future Volume (veh/h)	20	30	10	57	30	57	20	511	59	59	663	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	22	33	11	62	33	62	22	555	64	64	721	11
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	47	119	40	102	70	131	47	707	81	104	848	13
Arrive On Green	0.03	0.09	0.09	0.06	0.12	0.12	0.03	0.43	0.43	0.06	0.47	0.47
Sat Flow, veh/h	1767	1332	444	1767	577	1084	1767	1633	188	1767	1823	28
Grp Volume(v), veh/h	22	0	44	62	0	95	22	0	619	64	0	732
Grp Sat Flow(s),veh/h/ln	1767	0	1776	1767	0	1660	1767	0	1822	1767	0	1851
Q Serve(g_s), s	0.6	0.0	1.2	1.7	0.0	2.7	0.6	0.0	14.6	1.8	0.0	17.4
Cycle Q Clear(g_c), s	0.6	0.0	1.2	1.7	0.0	2.7	0.6	0.0	14.6	1.8	0.0	17.4
Prop In Lane	1.00		0.25	1.00		0.65	1.00		0.10	1.00		0.02
Lane Grp Cap(c), veh/h	47	0	159	102	0	201	47	0	788	104	0	861
V/C Ratio(X)	0.47	0.00	0.28	0.61	0.00	0.47	0.47	0.00	0.79	0.61	0.00	0.85
Avail Cap(c_a), veh/h	181	0	641	184	0	603	181	0	1224	188	0	1251
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.9	0.0	21.2	22.9	0.0	20.4	23.9	0.0	12.2	22.9	0.0	11.8
Incr Delay (d2), s/veh	7.3	0.0	0.9	5.7	0.0	1.7	7.3	0.0	1.8	5.8	0.0	3.9
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/lr	0.3	0.0	0.5	0.8	0.0	1.0	0.3	0.0	4.0	0.8	0.0	5.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.2	0.0	22.1	28.6	0.0	22.2	31.2	0.0	14.0	28.7	0.0	15.7
LnGrp LOS	C	A	C	C	A	C	C	A	B	C	A	B
Approach Vol, veh/h		66			157			641			796	
Approach Delay, s/veh		25.1			24.7			14.6			16.7	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.4	26.1	7.4	9.0	5.8	27.7	5.8	10.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.3	33.5	5.2	18.0	5.1	33.7	5.1	18.1				
Max Q Clear Time (g_c+1/3), s	13.8	16.6	3.7	3.2	2.6	19.4	2.6	4.7				
Green Ext Time (p_c), s	0.0	3.3	0.0	0.1	0.0	3.8	0.0	0.3				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay											17.0	
HCM 6th LOS											B	

HCM 6th Roundabout  
76: Campus Parkway & Meyers Gate Road

02/23/2022

Intersection			
Intersection Delay, s/veh	3.7		
Intersection LOS	A		
Approach	EB	WB	NB
Entry Lanes	1	1	0
Conflicting Circle Lanes	2	2	2
Adj Approach Flow, veh/h	128	133	0
Demand Flow Rate, veh/h	132	137	0
Vehicles Circulating, veh/h	23	165	99
Vehicles Exiting, veh/h	279	110	56
Ped Vol Crossing Leg, #/h	20	20	20
Ped Cap Adj	0.997	0.997	1.000
Approach Delay, s/veh	3.4	4.0	0.0
Approach LOS	A	A	-
Lane	Left	Left	
Designated Moves	TR	LT	
Assumed Moves	TR	LT	
RT Channelized			
Lane Util	1.000	1.000	
Follow-Up Headway, s	2.535	2.535	
Critical Headway, s	4.328	4.328	
Entry Flow, veh/h	132	137	
Cap Entry Lane, veh/h	1393	1234	
Entry HV Adj Factor	0.971	0.968	
Flow Entry, veh/h	128	133	
Cap Entry, veh/h	1348	1192	
V/C Ratio	0.095	0.111	
Control Delay, s/veh	3.4	4.0	
LOS	A	A	
95th %tile Queue, veh	0	0	



HCM 6th Signalized Intersection Summary  
 77: Lake Road & Virginia Smith Parkway

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	30	10	170	30	113	20	457	176	118	602	10
Future Volume (veh/h)	20	30	10	170	30	113	20	457	176	118	602	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.91		0.90	1.00		0.94	1.00		0.94	1.00		0.95
Parking Bus, Adj	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	22	33	11	185	33	123	22	497	191	128	654	11
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	229	114	38	234	562	445	46	664	530	165	773	13
Arrive On Green	0.09	0.09	0.09	0.13	0.30	0.30	0.03	0.36	0.36	0.09	0.43	0.43
Sat Flow, veh/h	1109	1292	431	1767	1856	1472	1767	1856	1482	1767	1818	31
Grp Volume(v), veh/h	22	0	44	185	33	123	22	497	191	128	0	665
Grp Sat Flow(s),veh/h/ln	1109	0	1723	1767	1856	1472	1767	1856	1482	1767	0	1848
Q Serve(g_s), s	1.0	0.0	1.3	5.6	0.7	3.5	0.7	12.9	5.2	3.9	0.0	17.7
Cycle Q Clear(g_c), s	1.0	0.0	1.3	5.6	0.7	3.5	0.7	12.9	5.2	3.9	0.0	17.7
Prop In Lane	1.00		0.25	1.00		1.00	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	229	0	152	234	562	445	46	664	530	165	0	786
V/C Ratio(X)	0.10	0.00	0.29	0.79	0.06	0.28	0.48	0.75	0.36	0.78	0.00	0.85
Avail Cap(c_a), veh/h	495	0	565	371	1150	912	164	1110	886	313	0	1260
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.3	0.0	23.4	23.0	13.6	14.6	26.3	15.4	13.0	24.3	0.0	14.2
Incr Delay (d2), s/veh	0.2	0.0	1.0	5.9	0.0	0.3	7.6	1.7	0.4	7.6	0.0	3.1
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/lr	0.2	0.0	0.5	2.4	0.3	1.0	0.3	4.2	1.5	1.7	0.0	5.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.4	0.0	24.4	28.9	13.6	14.9	33.9	17.2	13.4	31.9	0.0	17.3
LnGrp LOS	C	A	C	C	B	B	C	B	B	C	A	B
Approach Vol, veh/h		66			341			710			793	
Approach Delay, s/veh		24.1			22.4			16.7			19.6	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	8					
Phs Duration (G+Y+Rc), s	9.6	24.1	11.8	9.3	5.9	27.8		21.1				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	32.8	32.8	11.5	18.0	5.1	37.4		34.0				
Max Q Clear Time (g_c+1/3), s	14.9	14.9	7.6	3.3	2.7	19.7		5.5				
Green Ext Time (p_c), s	0.1	3.1	0.2	0.2	0.0	3.6		0.6				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay											19.2	
HCM 6th LOS											B	



HCM 6th Roundabout  
78: Campus Parkway & Virginia Smith Parkway

02/23/2022

Intersection							
Intersection Delay, s/veh	4.7						
Intersection LOS	A						
Approach	EB	WB		NB		SB	
Entry Lanes	1	2		2		2	
Conflicting Circle Lanes	2	2		2		2	
Adj Approach Flow, veh/h	269	347		196		125	
Demand Flow Rate, veh/h	277	357		202		128	
Vehicles Circulating, veh/h	210	142		306		349	
Vehicles Exiting, veh/h	267	366		181		150	
Ped Vol Crossing Leg, #/h	20	20		20		20	
Ped Cap Adj	0.997	0.980		0.983		0.984	
Approach Delay, s/veh	5.3	4.4		4.7		4.2	
Approach LOS	A	A		A		A	
Lane	Left	Left	Right	Left	Right	Left	Right
Designated Moves	TR	LT	TR	L	TR	LT	TR
Assumed Moves	TR	LT	TR	L	TR	LT	TR
RT Channelized							
Lane Util	1.000	0.471	0.529	0.203	0.797	0.469	0.531
Follow-Up Headway, s	2.535	2.667	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.328	4.645	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	277	168	189	41	161	60	68
Cap Entry Lane, veh/h	1188	1185	1259	1019	1095	979	1056
Entry HV Adj Factor	0.970	0.970	0.972	0.976	0.970	0.980	0.975
Flow Entry, veh/h	269	163	184	40	156	59	66
Cap Entry, veh/h	1149	1126	1199	977	1043	944	1012
V/C Ratio	0.234	0.145	0.153	0.041	0.150	0.062	0.065
Control Delay, s/veh	5.3	4.5	4.3	4.0	4.8	4.4	4.1
LOS	A	A	A	A	A	A	A
95th %tile Queue, veh	1	1	1	0	1	0	0

HCM 6th TWSC  
79: Virginia Smith Parkway & Golden BObc

02/23/2022

Intersection												
Int Delay, s/veh	4.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Vol, veh/h	37	208	48	32	203	19	47	27	32	19	27	28
Future Vol, veh/h	37	208	48	32	203	19	47	27	32	19	27	28
Conflicting Peds, #/hr	20	0	20	20	0	20	20	0	20	20	0	20
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	150	-	-	150	-	-
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	40	226	52	35	221	21	51	29	35	21	29	30

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	262	0	0	298	0	0	703	684	292	706	700	272
Stage 1	-	-	-	-	-	-	352	352	-	322	322	-
Stage 2	-	-	-	-	-	-	351	332	-	384	378	-
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	1296	-	-	1258	-	-	351	370	745	349	362	764
Stage 1	-	-	-	-	-	-	663	630	-	688	649	-
Stage 2	-	-	-	-	-	-	664	643	-	637	613	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1271	-	-	1234	-	-	288	335	717	285	328	735
Mov Cap-2 Maneuver	-	-	-	-	-	-	288	335	-	285	328	-
Stage 1	-	-	-	-	-	-	630	599	-	654	619	-
Stage 2	-	-	-	-	-	-	578	613	-	548	583	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	1		1		16.6		15.3	
HCM LOS					C		C	

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	288	471	1271	-	-	1234	-	-	285	457
HCM Lane V/C Ratio	0.177	0.136	0.032	-	-	0.028	-	-	0.072	0.131
HCM Control Delay (s)	20.2	13.8	7.9	-	-	8	-	-	18.6	14.1
HCM Lane LOS	C	B	A	-	-	A	-	-	C	B
HCM 95th %tile Q(veh)	0.6	0.5	0.1	-	-	0.1	-	-	0.2	0.4

HCM 6th Roundabout  
 80: Virginia Smith Parkway & Main Street

02/23/2022

Intersection				
Intersection Delay, s/veh	4.9			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	283	204	93	192
Demand Flow Rate, veh/h	291	210	96	197
Vehicles Circulating, veh/h	112	182	300	195
Vehicles Exiting, veh/h	280	214	103	197
Ped Vol Crossing Leg, #/h	20	20	20	20
Ped Cap Adj	0.997	0.997	0.997	0.997
Approach Delay, s/veh	5.1	4.9	4.5	4.8
Approach LOS	A	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	291	210	96	197
Cap Entry Lane, veh/h	1231	1146	1016	1131
Entry HV Adj Factor	0.972	0.971	0.966	0.973
Flow Entry, veh/h	283	204	93	192
Cap Entry, veh/h	1193	1109	979	1098
V/C Ratio	0.237	0.184	0.095	0.175
Control Delay, s/veh	5.1	4.9	4.5	4.8
LOS	A	A	A	A
95th %tile Queue, veh	1	1	0	1

HCM 6th TWSC  
81: 4th Street & Virginia Smith Parkway

02/23/2022

Intersection												
Int Delay, s/veh	5.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Vol, veh/h	43	34	61	20	28	11	66	5	10	12	5	42
Future Vol, veh/h	43	34	61	20	28	11	66	5	10	12	5	42
Conflicting Peds, #/hr	0	0	20	20	0	0	20	0	20	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	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	47	37	66	22	30	12	72	5	11	13	5	46

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	42	0	0	123	0	0	310	270	110	272	297	56
Stage 1	-	-	-	-	-	-	184	184	-	80	80	-
Stage 2	-	-	-	-	-	-	126	86	-	192	217	-
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	1561	-	-	1458	-	-	641	635	941	678	613	1008
Stage 1	-	-	-	-	-	-	815	746	-	926	826	-
Stage 2	-	-	-	-	-	-	875	822	-	807	721	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1561	-	-	1430	-	-	564	595	905	630	574	989
Mov Cap-2 Maneuver	-	-	-	-	-	-	564	595	-	630	574	-
Stage 1	-	-	-	-	-	-	775	710	-	898	814	-
Stage 2	-	-	-	-	-	-	801	810	-	753	686	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	2.3			2.6			11.8			9.5		
HCM LOS							B			A		
























Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	564	771	1561	-	-	1430	-	-	630	918
HCM Lane V/C Ratio	0.127	0.021	0.03	-	-	0.015	-	-	0.021	0.056
HCM Control Delay (s)	12.3	9.8	7.4	-	-	7.6	-	-	10.8	9.2
HCM Lane LOS	B	A	A	-	-	A	-	-	B	A
HCM 95th %tile Q(veh)	0.4	0.1	0.1	-	-	0	-	-	0.1	0.2

**2030 Near Term With Campus  
Parkway- With Recommended  
Improvements  
AM Peak Hour**

# HCM 6th Signalized Intersection Summary

## 1: Snelling Highway (SR 59) & Bellevue Road

02/23/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	276	8	227	181	81	8	76	340	110	84	28
Future Volume (veh/h)	17	276	8	227	181	81	8	76	340	110	84	28
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	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	18	300	9	247	197	88	9	83	370	120	91	30
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	38	360	11	306	654	554	20	463	393	153	433	143
Arrive On Green	0.02	0.20	0.20	0.17	0.35	0.35	0.01	0.25	0.25	0.09	0.32	0.32
Sat Flow, veh/h	1767	1792	54	1767	1856	1572	1767	1856	1572	1767	1336	440
Grp Volume(v), veh/h	18	0	309	247	197	88	9	83	370	120	0	121
Grp Sat Flow(s),veh/h/ln	1767	0	1846	1767	1856	1572	1767	1856	1572	1767	0	1776
Q Serve(g_s), s	0.6	0.0	10.0	8.3	4.8	2.4	0.3	2.2	14.3	4.1	0.0	3.1
Cycle Q Clear(g_c), s	0.6	0.0	10.0	8.3	4.8	2.4	0.3	2.2	14.3	4.1	0.0	3.1
Prop In Lane	1.00		0.03	1.00		1.00	1.00		1.00	1.00		0.25
Lane Grp Cap(c), veh/h	38	0	371	306	654	554	20	463	393	153	0	576
V/C Ratio(X)	0.47	0.00	0.83	0.81	0.30	0.16	0.44	0.18	0.94	0.79	0.00	0.21
Avail Cap(c_a), veh/h	142	0	461	726	1076	912	142	463	393	157	0	576
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.0	0.0	23.8	24.7	14.6	13.8	30.5	18.3	22.8	27.8	0.0	15.2
Incr Delay (d2), s/veh	8.9	0.0	10.3	5.0	0.3	0.1	14.1	0.8	32.9	22.4	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	4.7	3.4	1.6	0.7	0.2	0.9	7.9	2.5	0.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.9	0.0	34.1	29.7	14.8	13.9	44.6	19.1	55.8	50.2	0.0	16.0
LnGrp LOS	D	A	C	C	B	B	D	B	E	D	A	B
Approach Vol, veh/h		327			532			462			241	
Approach Delay, s/veh		34.4			21.6			49.0			33.0	
Approach LOS		C			C			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.9	20.0	15.2	17.0	5.2	24.6	5.8	26.4				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.5	15.5	25.5	15.5	5.0	16.0	5.0	36.0				
Max Q Clear Time (g_c+I1), s	6.1	16.3	10.3	12.0	2.3	5.1	2.6	6.8				
Green Ext Time (p_c), s	0.0	0.0	0.6	0.5	0.0	0.3	0.0	1.2				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			34.1									
HCM 6th LOS			C									

# HCM 6th Signalized Intersection Summary

## 2: G Street & Bellevue Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	351	170	106	199	22	149	347	337	16	355	63
Future Volume (veh/h)	67	351	170	106	199	22	149	347	337	16	355	63
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	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	73	382	185	115	216	24	162	377	366	17	386	68
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	93	362	175	169	562	476	172	1427	714	38	1160	517
Arrive On Green	0.05	0.31	0.31	0.05	0.30	0.30	0.10	0.40	0.40	0.02	0.33	0.33
Sat Flow, veh/h	1767	1181	572	3428	1856	1572	1767	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	73	0	567	115	216	24	162	377	366	17	386	68
Grp Sat Flow(s),veh/h/ln	1767	0	1753	1714	1856	1572	1767	1763	1572	1767	1763	1572
Q Serve(g_s), s	4.9	0.0	36.5	3.9	10.9	1.3	10.9	8.5	19.7	1.1	9.8	3.6
Cycle Q Clear(g_c), s	4.9	0.0	36.5	3.9	10.9	1.3	10.9	8.5	19.7	1.1	9.8	3.6
Prop In Lane	1.00		0.33	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	93	0	537	169	562	476	172	1427	714	38	1160	517
V/C Ratio(X)	0.78	0.00	1.06	0.68	0.38	0.05	0.94	0.26	0.51	0.44	0.33	0.13
Avail Cap(c_a), veh/h	157	0	537	193	562	476	172	1427	714	89	1160	517
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.8	0.0	41.3	55.7	32.8	29.4	53.4	23.6	23.2	57.6	30.1	28.0
Incr Delay (d2), s/veh	13.3	0.0	54.5	7.9	0.4	0.0	51.7	0.5	2.6	7.9	0.8	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	0.0	22.8	1.8	4.7	0.5	7.1	3.4	7.2	0.6	4.1	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.0	0.0	95.9	63.7	33.2	29.5	105.2	24.1	25.8	65.4	30.9	28.6
LnGrp LOS	E	A	F	E	C	C	F	C	C	E	C	C
Approach Vol, veh/h		640			355			905			471	
Approach Delay, s/veh		92.8			42.8			39.3			31.8	
Approach LOS		F			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.1	54.7	12.4	43.0	18.1	45.7	12.8	42.6				
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5				
Max Green Setting (Gmax), s	6.0	44.8	6.7	36.5	11.6	39.2	10.6	32.6				
Max Q Clear Time (g_c+1), s	13.5	21.7	5.9	38.5	12.9	11.8	6.9	12.9				
Green Ext Time (p_c), s	0.0	3.3	0.0	0.0	0.0	2.4	0.0	1.0				

### Intersection Summary

HCM 6th Ctrl Delay	52.8
HCM 6th LOS	D

# HCM 6th Signalized Intersection Summary

## 3: Lake Street/Lake Road & Bellevue Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↑	↗	↖	↑↑	↗
Traffic Volume (veh/h)	363	321	235	38	39	3	216	404	82	20	152	82
Future Volume (veh/h)	363	321	235	38	39	3	216	404	82	20	152	82
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	395	349	255	41	42	3	235	439	89	22	165	89
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	432	369	270	60	240	17	270	669	567	40	814	363
Arrive On Green	0.24	0.37	0.37	0.03	0.14	0.14	0.15	0.36	0.36	0.02	0.23	0.23
Sat Flow, veh/h	1767	996	728	1767	1711	122	1767	1856	1572	1767	3526	1572
Grp Volume(v), veh/h	395	0	604	41	0	45	235	439	89	22	165	89
Grp Sat Flow(s),veh/h/ln	1767	0	1724	1767	0	1834	1767	1856	1572	1767	1763	1572
Q Serve(g_s), s	21.9	0.0	34.1	2.3	0.0	2.2	13.1	19.9	3.9	1.2	3.8	4.6
Cycle Q Clear(g_c), s	21.9	0.0	34.1	2.3	0.0	2.2	13.1	19.9	3.9	1.2	3.8	4.6
Prop In Lane	1.00		0.42	1.00		0.07	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	432	0	639	60	0	257	270	669	567	40	814	363
V/C Ratio(X)	0.91	0.00	0.94	0.68	0.00	0.18	0.87	0.66	0.16	0.55	0.20	0.25
Avail Cap(c_a), veh/h	554	0	678	273	0	392	360	669	567	273	814	363
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.9	0.0	30.6	48.0	0.0	38.1	41.6	26.9	21.8	48.6	31.2	31.5
Incr Delay (d2), s/veh	16.9	0.0	21.5	12.9	0.0	0.3	16.0	5.0	0.6	11.0	0.6	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ft	0.7	0.0	16.4	1.2	0.0	0.9	6.7	9.3	1.4	0.7	1.6	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.8	0.0	52.1	60.9	0.0	38.4	57.7	31.9	22.4	59.6	31.8	33.1
LnGrp LOS	D	A	D	E	A	D	E	C	C	E	C	C
Approach Vol, veh/h		999			86			763			276	
Approach Delay, s/veh		52.8			49.1			38.7			34.4	
Approach LOS		D			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.8	42.1	7.9	43.8	19.8	29.0	31.1	20.6				
Change Period (Y+Rc), s	4.5	* 5.8	4.5	6.5	4.5	5.8	6.5	6.5				
Max Green Setting (Gmax), s	15.5	* 30	15.5	39.5	20.5	23.2	31.5	21.5				
Max Q Clear Time (g_c+1), s	13.2	21.9	4.3	36.1	15.1	6.6	23.9	4.2				
Green Ext Time (p_c), s	0.0	1.7	0.0	1.2	0.3	1.0	0.7	0.1				

### Intersection Summary

HCM 6th Ctrl Delay	45.2
HCM 6th LOS	D

### Notes

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



# HCM 6th Signalized Intersection Summary

## 4: G Street & Cardella Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕		↖	↗		↖	↕	↗
Traffic Volume (veh/h)	123	0	64	2	0	8	32	767	0	4	865	56
Future Volume (veh/h)	123	0	64	2	0	8	32	767	0	4	865	56
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	134	0	70	2	0	9	35	834	0	4	940	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	184	0	299	47	24	109	69	1000	0	118	1051	
Arrive On Green	0.19	0.00	0.19	0.19	0.00	0.19	0.04	0.54	0.00	0.07	0.57	0.00
Sat Flow, veh/h	549	0	1572	0	127	571	1767	1856	0	1767	1856	1572
Grp Volume(v), veh/h	134	0	70	11	0	0	35	834	0	4	940	0
Grp Sat Flow(s),veh/h/ln	549	0	1572	698	0	0	1767	1856	0	1767	1856	1572
Q Serve(g_s), s	0.0	0.0	3.4	0.0	0.0	0.0	1.7	33.9	0.0	0.2	40.0	0.0
Cycle Q Clear(g_c), s	17.1	0.0	3.4	17.1	0.0	0.0	1.7	33.9	0.0	0.2	40.0	0.0
Prop In Lane	1.00		1.00	0.18		0.82	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	184	0	299	180	0	0	69	1000	0	118	1051	
V/C Ratio(X)	0.73	0.00	0.23	0.06	0.00	0.00	0.51	0.83	0.00	0.03	0.89	
Avail Cap(c_a), veh/h	184	0	299	180	0	0	118	1000	0	118	1051	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	38.3	0.0	30.9	30.3	0.0	0.0	42.4	17.4	0.0	39.3	17.1	0.0
Incr Delay (d2), s/veh	13.4	0.0	0.4	0.1	0.0	0.0	5.7	8.2	0.0	0.1	11.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/lr	3.6	0.0	1.3	0.2	0.0	0.0	0.8	13.6	0.0	0.1	16.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.8	0.0	31.3	30.4	0.0	0.0	48.1	25.5	0.0	39.4	28.7	0.0
LnGrp LOS	D	A	C	C	A	A	D	C	A	D	C	
Approach Vol, veh/h		204			11			869			944	A
Approach Delay, s/veh		44.7			30.4			26.4			28.8	
Approach LOS		D			C			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	2.5	55.0		22.5	10.0	57.5		22.5				
Change Period (Y+Rc), s	6.5	6.5		5.4	6.5	6.5		5.4				
Max Green Setting (Gmax), s	6.0	48.5		17.1	6.0	48.5		17.1				
Max Q Clear Time (g_c+1/2), s	12.2	35.9		19.1	3.7	42.0		19.1				
Green Ext Time (p_c), s	0.0	4.2		0.0	0.0	3.2		0.0				

### Intersection Summary

HCM 6th Ctrl Delay	29.4
HCM 6th LOS	C

### Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

# HCM 6th Signalized Intersection Summary

## 5: Lake Road & Cardella Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	10	1	8	10	9	2	14	7	9	20	5
Future Volume (veh/h)	11	10	1	8	10	9	2	14	7	9	20	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	12	11	1	9	11	10	2	15	8	10	22	5
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	457	109	10	261	34	31	9	462	392	24	380	86
Arrive On Green	0.06	0.06	0.06	0.06	0.06	0.06	0.00	0.25	0.25	0.01	0.26	0.26
Sat Flow, veh/h	1380	1676	152	434	530	482	1767	1856	1572	1767	1463	333
Grp Volume(v), veh/h	12	0	12	30	0	0	2	15	8	10	0	27
Grp Sat Flow(s),veh/h/ln	1380	0	1828	1447	0	0	1767	1856	1572	1767	0	1796
Q Serve(g_s), s	0.0	0.0	0.1	0.4	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.2
Cycle Q Clear(g_c), s	0.1	0.0	0.1	0.5	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.2
Prop In Lane	1.00		0.08	0.30		0.33	1.00		1.00	1.00		0.19
Lane Grp Cap(c), veh/h	457	0	118	327	0	0	9	462	392	24	0	467
V/C Ratio(X)	0.03	0.00	0.10	0.09	0.00	0.00	0.23	0.03	0.02	0.42	0.00	0.06
Avail Cap(c_a), veh/h	1606	0	1639	1658	0	0	440	1664	1410	440	0	1610
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.8	0.0	8.8	9.1	0.0	0.0	10.0	5.7	5.7	9.8	0.0	5.6
Incr Delay (d2), s/veh	0.0	0.0	0.4	0.1	0.0	0.0	12.5	0.0	0.0	11.3	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.9	0.0	9.2	9.2	0.0	0.0	22.5	5.7	5.7	21.1	0.0	5.6
LnGrp LOS	A	A	A	A	A	A	C	A	A	C	A	A
Approach Vol, veh/h		24			30			25			37	
Approach Delay, s/veh		9.0			9.2			7.1			9.8	
Approach LOS		A			A			A			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.8	9.5		5.8	4.6	9.7		5.8				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	18.0	18.0		18.0	5.0	18.0		18.0				
Max Q Clear Time (g_c+I), s	2.1	2.1		2.1	2.0	2.2		2.5				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	0.0		0.1				

### Intersection Summary

HCM 6th Ctrl Delay	8.9
HCM 6th LOS	A

# HCM 6th Signalized Intersection Summary

## 6: Snelling Highway (SR 59) & Yosemite Avenue

02/23/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	215	398	347	220	488	412
Future Volume (veh/h)	215	398	347	220	488	412
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	234	433	377	239	530	448
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	353	816	505	428	564	1231
Arrive On Green	0.20	0.20	0.27	0.27	0.32	0.66
Sat Flow, veh/h	1767	1572	1856	1572	1767	1856
Grp Volume(v), veh/h	234	433	377	239	530	448
Grp Sat Flow(s),veh/h/ln	1767	1572	1856	1572	1767	1856
Q Serve(g_s), s	11.0	16.5	16.7	11.7	26.3	9.6
Cycle Q Clear(g_c), s	11.0	16.5	16.7	11.7	26.3	9.6
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	353	816	505	428	564	1231
V/C Ratio(X)	0.66	0.53	0.75	0.56	0.94	0.36
Avail Cap(c_a), veh/h	353	816	505	428	599	1231
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.2	14.4	29.9	28.1	29.8	6.7
Incr Delay (d2), s/veh	4.6	0.7	9.7	5.2	22.5	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	5.2	8.1	4.6	13.4	2.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	37.8	15.0	39.6	33.3	52.3	7.6
LnGrp LOS	D	B	D	C	D	A
Approach Vol, veh/h	667		616		978	
Approach Delay, s/veh	23.0		37.1		31.8	
Approach LOS	C		D		C	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	35.2	31.0			66.2	23.8
Change Period (Y+Rc), s	6.5	6.5			6.5	5.8
Max Green Setting (Gmax), s	30.5	22.7			59.7	18.0
Max Q Clear Time (g_c+Q), s	29.3	18.7			11.6	18.5
Green Ext Time (p_c), s	0.4	1.1			2.5	0.0
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			30.7			
HCM 6th LOS			C			

# HCM 6th Signalized Intersection Summary

## 7: G Street & Yosemite Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑	↗	↔↔	↑↑	↗	↔↔	↑↑	↗	↔↔	↑↑	↗
Traffic Volume (veh/h)	229	772	128	427	606	132	241	672	350	131	601	175
Future Volume (veh/h)	229	772	128	427	606	132	241	672	350	131	601	175
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	249	839	139	464	659	143	262	730	380	142	653	190
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	323	957	427	542	1182	527	343	988	689	211	852	380
Arrive On Green	0.09	0.27	0.27	0.16	0.34	0.34	0.10	0.28	0.28	0.06	0.24	0.24
Sat Flow, veh/h	3428	3526	1572	3428	3526	1572	3428	3526	1572	3428	3526	1572
Grp Volume(v), veh/h	249	839	139	464	659	143	262	730	380	142	653	190
Grp Sat Flow(s),veh/h/ln	1714	1763	1572	1714	1763	1572	1714	1763	1572	1714	1763	1572
Q Serve(g_s), s	7.2	23.1	5.1	13.4	15.5	6.7	7.5	19.0	3.8	4.1	17.5	10.6
Cycle Q Clear(g_c), s	7.2	23.1	5.1	13.4	15.5	6.7	7.5	19.0	3.8	4.1	17.5	10.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	323	957	427	542	1182	527	343	988	689	211	852	380
V/C Ratio(X)	0.77	0.88	0.33	0.86	0.56	0.27	0.76	0.74	0.55	0.67	0.77	0.50
Avail Cap(c_a), veh/h	480	1044	465	649	1218	543	649	988	689	480	852	380
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.8	35.3	14.7	41.6	27.5	24.6	44.4	33.1	8.2	46.6	35.8	33.1
Incr Delay (d2), s/veh	4.4	8.1	0.4	9.6	0.5	0.3	3.6	4.9	3.2	3.7	6.5	4.6
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	3.1	10.4	2.6	6.1	6.2	2.4	3.3	8.4	3.5	1.8	7.9	4.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.3	43.4	15.1	51.1	28.1	24.9	48.0	38.1	11.3	50.3	42.3	37.8
LnGrp LOS	D	D	B	D	C	C	D	D	B	D	D	D
Approach Vol, veh/h		1227			1266			1372			985	
Approach Delay, s/veh		41.4			36.2			32.6			42.6	
Approach LOS		D			D			C			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	2.0	34.2	21.8	33.3	15.9	30.3	15.3	39.8				
Change Period (Y+Rc), s	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8				
Max Green Setting (Gmax), s	1.2	28.4	19.2	30.0	19.2	23.4	14.2	35.0				
Max Q Clear Time (g_c+1/10), s	1.0	21.0	15.4	25.1	9.5	19.5	9.2	17.5				
Green Ext Time (p_c), s	0.2	3.4	0.7	2.5	0.6	1.7	0.4	4.3				

### Intersection Summary

HCM 6th Ctrl Delay		37.8										
HCM 6th LOS			D									

# HCM 6th Signalized Intersection Summary

## 8: Parsons Avenue/Gardner Avenue & Yosemite Avenue

02/23/2022

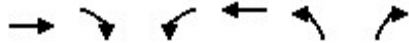


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	852	125	21	835	28	206	47	34	51	133	67
Future Volume (veh/h)	48	852	125	21	835	28	206	47	34	51	133	67
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	52	926	136	23	908	30	224	51	37	55	145	73
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	67	1692	248	41	954	32	299	300	217	409	349	176
Arrive On Green	0.04	0.55	0.55	0.02	0.53	0.53	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	1767	3084	453	1767	1786	59	1154	1000	725	1299	1164	586
Grp Volume(v), veh/h	52	529	533	23	0	938	224	0	88	55	0	218
Grp Sat Flow(s),veh/h/ln	1767	1763	1774	1767	0	1845	1154	0	1725	1299	0	1750
Q Serve(g_s), s	3.1	20.4	20.4	1.4	0.0	50.7	20.3	0.0	4.0	3.4	0.0	10.5
Cycle Q Clear(g_c), s	3.1	20.4	20.4	1.4	0.0	50.7	30.7	0.0	4.0	7.4	0.0	10.5
Prop In Lane	1.00		0.26	1.00		0.03	1.00		0.42	1.00		0.33
Lane Grp Cap(c), veh/h	67	967	974	41	0	985	299	0	517	409	0	524
V/C Ratio(X)	0.77	0.55	0.55	0.56	0.00	0.95	0.75	0.00	0.17	0.13	0.00	0.42
Avail Cap(c_a), veh/h	261	1157	1164	101	0	1044	299	0	517	409	0	524
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	50.1	15.3	15.3	50.8	0.0	23.2	41.8	0.0	27.2	29.9	0.0	29.5
Incr Delay (d2), s/veh	17.0	0.5	0.5	11.4	0.0	17.1	15.7	0.0	0.7	0.7	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	1.6	7.4	7.4	0.7	0.0	23.8	6.8	0.0	1.7	1.1	0.0	4.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.1	15.8	15.8	62.2	0.0	40.3	57.5	0.0	27.9	30.6	0.0	31.9
LnGrp LOS	E	B	B	E	A	D	E	A	C	C	A	C
Approach Vol, veh/h		1114			961			312			273	
Approach Delay, s/veh		18.2			40.8			49.1			31.6	
Approach LOS		B			D			D			C	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		36.0	6.9	62.2		36.0	8.5	60.6				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		31.5	6.0	69.0		31.5	15.5	59.5				
Max Q Clear Time (g_c+I1), s		32.7	3.4	22.4		12.5	5.1	52.7				
Green Ext Time (p_c), s		0.0	0.0	7.8		1.2	0.1	3.5				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				31.4								
HCM 6th LOS				C								

# HCM 6th Signalized Intersection Summary

## 9: McKee Road & Yosemite Avenue

02/23/2022

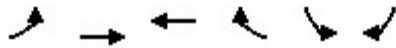


Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑	↵	↵
Traffic Volume (veh/h)	717	149	190	682	232	258
Future Volume (veh/h)	717	149	190	682	232	258
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	779	162	207	741	252	280
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	842	175	248	953	554	493
Arrive On Green	0.29	0.29	0.14	0.51	0.31	0.31
Sat Flow, veh/h	2998	604	1767	1856	1767	1572
Grp Volume(v), veh/h	473	468	207	741	252	280
Grp Sat Flow(s),veh/h/ln	1763	1747	1767	1856	1767	1572
Q Serve(g_s), s	18.1	18.1	7.9	22.5	7.9	10.3
Cycle Q Clear(g_c), s	18.1	18.1	7.9	22.5	7.9	10.3
Prop In Lane		0.35	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	511	506	248	953	554	493
V/C Ratio(X)	0.92	0.92	0.83	0.78	0.45	0.57
Avail Cap(c_a), veh/h	512	508	259	966	554	493
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.9	23.9	29.1	13.7	19.1	19.9
Incr Delay (d2), s/veh	22.8	22.9	19.7	4.0	2.7	4.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/lr	9.8	9.7	4.4	8.2	3.2	3.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	46.7	46.9	48.8	17.7	21.8	24.6
LnGrp LOS	D	D	D	B	C	C
Approach Vol, veh/h	941			948	532	
Approach Delay, s/veh	46.8			24.5	23.3	
Approach LOS	D			C	C	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		28.0	15.6	26.0		41.5
Change Period (Y+Rc), s		6.2	5.8	5.8		5.8
Max Green Setting (Gmax), s		21.8	10.2	20.2		36.2
Max Q Clear Time (g_c+l1), s		12.3	9.9	20.1		24.5
Green Ext Time (p_c), s		1.2	0.0	0.1		3.7
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			32.9			
HCM 6th LOS			C			

# HCM 6th Signalized Intersection Summary

## 10: Yosemite Avenue & Lake Road

02/23/2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	24	871	499	9	13	31
Future Volume (veh/h)	24	871	499	9	13	31
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	26	947	542	10	14	34
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	57	1219	872	16	26	63
Arrive On Green	0.03	0.66	0.48	0.48	0.06	0.06
Sat Flow, veh/h	1767	1856	1816	34	465	1130
Grp Volume(v), veh/h	26	947	0	552	49	0
Grp Sat Flow(s),veh/h/ln	1767	1856	0	1850	1629	0
Q Serve(g_s), s	0.5	11.2	0.0	6.9	0.9	0.0
Cycle Q Clear(g_c), s	0.5	11.2	0.0	6.9	0.9	0.0
Prop In Lane	1.00			0.02	0.29	0.69
Lane Grp Cap(c), veh/h	57	1219	0	889	90	0
V/C Ratio(X)	0.46	0.78	0.00	0.62	0.54	0.00
Avail Cap(c_a), veh/h	283	2404	0	1834	287	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	14.9	3.8	0.0	6.0	14.4	0.0
Incr Delay (d2), s/veh	5.6	1.1	0.0	0.7	5.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.4	0.0	0.7	0.3	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	20.4	4.9	0.0	6.7	19.4	0.0
LnGrp LOS	C	A	A	A	B	A
Approach Vol, veh/h		973	552		49	
Approach Delay, s/veh		5.3	6.7		19.4	
Approach LOS		A	A		B	
Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	5.5	19.5		6.2		25.0
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5
Max Green Setting (Gmax), s	5.0	31.0		5.5		40.5
Max Q Clear Time (g_c+I), s	12.5	8.9		2.9		13.2
Green Ext Time (p_c), s	0.0	3.1		0.0		7.3
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			6.2			
HCM 6th LOS			A			



# HCM 6th Signalized Intersection Summary

## 11: Snelling Highway (SR 59) & Santa Fe Drive/Olive Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘↗	↑↑	↗	↘	↑↑	↗	↘	↑↑	↗
Traffic Volume (veh/h)	160	891	135	210	617	69	81	489	258	83	457	78
Future Volume (veh/h)	160	891	135	210	617	69	81	489	258	83	457	78
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	174	968	147	228	671	75	88	532	280	90	497	85
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	208	1009	550	271	873	489	112	1128	627	112	1128	688
Arrive On Green	0.12	0.29	0.29	0.08	0.25	0.25	0.06	0.32	0.32	0.06	0.32	0.32
Sat Flow, veh/h	1767	3526	1572	3428	3526	1572	1767	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	174	968	147	228	671	75	88	532	280	90	497	85
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1714	1763	1572	1767	1763	1572	1767	1763	1572
Q Serve(g_s), s	9.2	25.7	1.4	6.2	16.8	3.3	4.7	11.5	12.4	4.8	10.6	1.7
Cycle Q Clear(g_c), s	9.2	25.7	1.4	6.2	16.8	3.3	4.7	11.5	12.4	4.8	10.6	1.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	208	1009	550	271	873	489	112	1128	627	112	1128	688
V/C Ratio(X)	0.84	0.96	0.27	0.84	0.77	0.15	0.79	0.47	0.45	0.81	0.44	0.12
Avail Cap(c_a), veh/h	264	1009	550	271	873	489	112	1128	627	112	1128	688
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	0.80	0.80	0.80	0.62	0.62	0.62	0.86	0.86	0.86
Uniform Delay (d), s/veh	41.0	33.4	8.9	43.2	33.2	23.7	43.9	25.9	20.9	43.9	25.6	5.6
Incr Delay (d2), s/veh	16.9	19.1	0.3	17.2	3.4	0.1	20.5	0.9	1.4	29.9	1.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	12.9	1.1	3.2	7.1	1.2	2.6	4.6	4.4	2.9	4.2	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.9	52.5	9.2	60.4	36.6	23.8	64.4	26.7	22.3	73.9	26.6	5.9
LnGrp LOS	E	D	A	E	D	C	E	C	C	E	C	A
Approach Vol, veh/h		1289			974			900			672	
Approach Delay, s/veh		48.3			41.2			29.0			30.3	
Approach LOS		D			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	2.5	36.2	13.3	33.0	11.8	36.9	17.0	29.3				
Change Period (Y+Rc), s	6.5	5.8	5.8	5.8	5.8	6.5	5.8	5.8				
Max Green Setting (Gmax), s	30.4	30.4	7.5	27.2	6.0	30.4	14.2	20.5				
Max Q Clear Time (g_c+1/3), s	14.4	14.4	8.2	27.7	6.7	12.6	11.2	18.8				
Green Ext Time (p_c), s	0.0	3.8	0.0	0.0	0.0	2.9	0.1	0.8				

### Intersection Summary

HCM 6th Ctrl Delay	38.8
HCM 6th LOS	D



# HCM 6th Signalized Intersection Summary

## 12: R Street & Olive Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑	↗	↘	↑↑↑	↗	↘	↑↑		↘	↑↑	↗
Traffic Volume (veh/h)	119	790	134	230	709	148	138	550	129	171	624	67
Future Volume (veh/h)	119	790	134	230	709	148	138	550	129	171	624	67
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	129	859	146	250	771	161	150	598	140	186	678	73
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	155	1009	470	268	1333	621	177	938	219	233	1278	708
Arrive On Green	0.09	0.20	0.20	0.15	0.26	0.26	0.10	0.33	0.33	0.13	0.36	0.36
Sat Flow, veh/h	1767	5066	1572	1767	5066	1572	1767	2837	663	1767	3526	1572
Grp Volume(v), veh/h	129	859	146	250	771	161	150	371	367	186	678	73
Grp Sat Flow(s),veh/h/ln	1767	1689	1572	1767	1689	1572	1767	1763	1736	1767	1763	1572
Q Serve(g_s), s	8.6	19.6	8.6	16.8	15.9	1.9	10.0	21.4	21.5	12.3	18.2	3.2
Cycle Q Clear(g_c), s	8.6	19.6	8.6	16.8	15.9	1.9	10.0	21.4	21.5	12.3	18.2	3.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.38	1.00		1.00
Lane Grp Cap(c), veh/h	155	1009	470	268	1333	621	177	583	574	233	1278	708
V/C Ratio(X)	0.83	0.85	0.31	0.93	0.58	0.26	0.85	0.64	0.64	0.80	0.53	0.10
Avail Cap(c_a), veh/h	174	1098	498	268	1368	632	206	583	574	233	1278	708
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.46	0.46	0.46	0.23	0.23	0.23	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.9	46.3	32.5	50.3	38.4	10.7	53.1	34.0	34.1	50.6	30.2	19.0
Incr Delay (d2), s/veh	13.5	3.0	0.2	13.3	0.1	0.1	24.1	5.2	5.4	17.7	1.6	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	8.3	3.2	8.2	6.4	1.6	5.6	9.8	9.7	6.5	7.8	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.4	49.3	32.7	63.6	38.6	10.7	77.2	39.3	39.4	68.2	31.8	19.3
LnGrp LOS	E	D	C	E	D	B	E	D	D	E	C	B
Approach Vol, veh/h		1134			1182			888			937	
Approach Delay, s/veh		49.2			40.1			45.7			38.0	
Approach LOS		D			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	31.2	45.1	24.0	29.7	17.4	48.9	16.3	37.4				
Change Period (Y+Rc), s	5.4	5.4	5.8	5.8	5.4	5.4	5.8	5.8				
Max Green Setting (Gmax), s	39.7	39.7	18.2	26.0	14.0	39.4	11.8	32.4				
Max Q Clear Time (g_c+1/3), s	11.4	23.5	18.8	21.6	12.0	20.2	10.6	17.9				
Green Ext Time (p_c), s	0.0	4.0	0.0	2.3	0.1	4.5	0.0	4.7				

### Intersection Summary

HCM 6th Ctrl Delay	43.3
HCM 6th LOS	D

# HCM 6th Signalized Intersection Summary

## 13: M Street & Olive Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↑↑↑	↘	↗	↑↑↑		↗	↑↑		↗	↑↑	
Traffic Volume (veh/h)	157	837	144	181	905	135	142	455	140	256	667	102
Future Volume (veh/h)	157	837	144	181	905	135	142	455	140	256	667	102
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	171	910	157	197	984	147	154	495	152	278	725	111
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	194	1108	505	223	1045	156	181	790	241	303	1122	172
Arrive On Green	0.11	0.22	0.22	0.13	0.23	0.23	0.10	0.30	0.30	0.17	0.37	0.37
Sat Flow, veh/h	1767	5066	1572	1767	4450	663	1767	2660	812	1767	3065	469
Grp Volume(v), veh/h	171	910	157	197	746	385	154	327	320	278	417	419
Grp Sat Flow(s),veh/h/ln	1767	1689	1572	1767	1689	1736	1767	1763	1709	1767	1763	1771
Q Serve(g_s), s	11.4	20.5	9.0	13.2	26.0	26.1	10.3	19.2	19.4	18.6	23.6	23.6
Cycle Q Clear(g_c), s	11.4	20.5	9.0	13.2	26.0	26.1	10.3	19.2	19.4	18.6	23.6	23.6
Prop In Lane	1.00		1.00	1.00		0.38	1.00		0.48	1.00		0.26
Lane Grp Cap(c), veh/h	194	1108	505	223	793	408	181	524	508	303	645	648
V/C Ratio(X)	0.88	0.82	0.31	0.88	0.94	0.94	0.85	0.62	0.63	0.92	0.65	0.65
Avail Cap(c_a), veh/h	194	1108	505	224	794	408	211	524	508	303	645	648
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.43	0.43	0.43	0.10	0.10	0.10	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.6	44.6	30.7	51.6	45.1	45.1	53.0	36.4	36.5	48.9	31.6	31.6
Incr Delay (d2), s/veh	17.8	2.2	0.1	4.6	2.9	5.5	24.2	5.5	5.8	31.3	4.9	4.9
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	5.9	8.5	3.3	5.9	10.8	11.5	5.7	8.9	8.7	10.6	10.6	10.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	70.4	46.9	30.9	56.1	48.0	50.7	77.2	41.9	42.3	80.2	36.5	36.5
LnGrp LOS	E	D	C	E	D	D	E	D	D	F	D	D
Approach Vol, veh/h		1238			1328			801			1114	
Approach Delay, s/veh		48.1			50.0			48.9			47.4	
Approach LOS		D			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	36.0	41.1	20.9	32.0	17.7	49.3	19.0	34.0				
Change Period (Y+Rc), s	5.4	5.4	5.8	5.8	5.4	5.4	5.8	5.8				
Max Green Setting (Gmax), s	20.6	35.6	15.2	26.2	14.3	41.9	13.2	28.2				
Max Q Clear Time (g_c+Q), s	20.6	21.4	15.2	22.5	12.3	25.6	13.4	28.1				
Green Ext Time (p_c), s	0.0	3.2	0.0	2.1	0.1	4.6	0.0	0.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			48.6									
HCM 6th LOS			D									

# HCM 6th Signalized Intersection Summary

## 14: Olive Avenue & G Street

02/23/2022

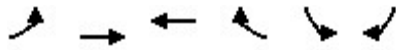


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	350	401	226	231	681	88	277	1083	123	89	1009	464
Future Volume (veh/h)	350	401	226	231	681	88	277	1083	123	89	1009	464
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	380	436	246	251	740	96	301	1177	134	97	1097	504
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	317	838	598	266	656	85	251	1332	831	110	1050	750
Arrive On Green	0.18	0.24	0.24	0.15	0.21	0.21	0.14	0.38	0.38	0.06	0.30	0.30
Sat Flow, veh/h	1767	3526	1572	1767	3138	407	1767	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	380	436	246	251	416	420	301	1177	134	97	1097	504
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1782	1767	1763	1572	1767	1763	1572
Q Serve(g_s), s	24.2	14.5	15.5	19.0	28.2	28.2	19.2	42.1	5.9	7.4	40.2	11.8
Cycle Q Clear(g_c), s	24.2	14.5	15.5	19.0	28.2	28.2	19.2	42.1	5.9	7.4	40.2	11.8
Prop In Lane	1.00		1.00	1.00		0.23	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	317	838	598	266	368	372	251	1332	831	110	1050	750
V/C Ratio(X)	1.20	0.52	0.41	0.94	1.13	1.13	1.20	0.88	0.16	0.88	1.04	0.67
Avail Cap(c_a), veh/h	317	838	598	266	368	372	251	1332	831	110	1050	750
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.4	44.8	30.8	56.8	53.4	53.4	57.9	39.2	16.4	62.8	47.4	9.7
Incr Delay (d2), s/veh	116.2	0.6	0.5	40.3	86.5	86.6	120.9	8.8	0.4	50.9	40.3	4.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.7	6.3	5.8	11.3	21.0	21.2	16.8	19.1	2.2	4.8	22.9	5.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	171.6	45.3	31.2	97.1	139.9	140.0	178.8	48.0	16.8	113.8	87.7	14.5
LnGrp LOS	F	D	C	F	F	F	F	D	B	F	F	B
Approach Vol, veh/h	1062			1087			1612			1698		
Approach Delay, s/veh	87.2			130.1			69.8			67.4		
Approach LOS	F			F			E			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.2	56.8	26.1	37.9	25.0	46.0	30.0	34.0				
Change Period (Y+Rc), s	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8				
Max Green Setting (Gmax), s	51.0	20.3	32.1	19.2	40.2	24.2	28.2					
Max Q Clear Time (g_c+19.4), s	44.1	21.0	17.5	21.2	42.2	26.2	30.2					
Green Ext Time (p_c), s	0.0	4.2	0.0	3.0	0.0	0.0	0.0					
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay	84.5											
HCM 6th LOS	F											

# HCM 6th Signalized Intersection Summary

## 15: 16th Street & Snelling Highway (SR 59)

02/23/2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations	↖	↑	↗	↘	↖	↘	
Traffic Volume (veh/h)	378	768	321	367	389	420	
Future Volume (veh/h)	378	768	321	367	389	420	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	
Adj Flow Rate, veh/h	411	835	349	0	423	0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	3	3	3	3	3	3	
Cap, veh/h	475	955	605		596		
Arrive On Green	0.27	0.51	0.17	0.00	0.34	0.00	
Sat Flow, veh/h	1767	1856	3618	1572	1767	1572	
Grp Volume(v), veh/h	411	835	349	0	423	0	
Grp Sat Flow(s),veh/h/ln	1767	1856	1763	1572	1767	1572	
Q Serve(g_s), s	13.5	24.1	5.5	0.0	12.7	0.0	
Cycle Q Clear(g_c), s	13.5	24.1	5.5	0.0	12.7	0.0	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	475	955	605		596		
V/C Ratio(X)	0.86	0.87	0.58		0.71		
Avail Cap(c_a), veh/h	741	1389	899		596		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(l)	1.00	1.00	1.00	0.00	1.00	0.00	
Uniform Delay (d), s/veh	21.2	13.0	23.1	0.0	17.5	0.0	
Incr Delay (d2), s/veh	6.6	4.5	0.9	0.0	7.0	0.0	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/lr	5.3	7.5	2.1	0.0	5.4	0.0	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	27.8	17.6	24.0	0.0	24.6	0.0	
LnGrp LOS	C	B	C		C		
Approach Vol, veh/h		1246	349	A	423	A	
Approach Delay, s/veh		20.9	24.0		24.6		
Approach LOS		C	C		C		
Timer - Assigned Phs			4		6	7	8
Phs Duration (G+Y+Rc), s			35.8		25.0	20.8	14.9
Change Period (Y+Rc), s			4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s			45.5		20.5	25.5	15.5
Max Q Clear Time (g_c+I1), s			26.1		14.7	15.5	7.5
Green Ext Time (p_c), s			5.1		0.7	0.9	1.2
<b>Intersection Summary</b>							
HCM 6th Ctrl Delay			22.2				
HCM 6th LOS			C				
<b>Notes</b>							
Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.							

# HCM 6th Signalized Intersection Summary

## 16: MLK JR Way & SR 99 NB Ramps

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕		↕	↑↑			↑↑	
Traffic Volume (veh/h)	0	0	0	69	0	107	274	681	0	0	359	310
Future Volume (veh/h)	0	0	0	69	0	107	274	681	0	0	359	310
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No				No
Adj Sat Flow, veh/h/ln				1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h				75	0	116	298	740	0	0	390	337
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				97	0	150	362	2389	0	0	697	596
Arrive On Green				0.15	0.00	0.15	0.20	0.68	0.00	0.00	0.39	0.39
Sat Flow, veh/h				645	0	998	1767	3618	0	0	1893	1541
Grp Volume(v), veh/h				191	0	0	298	740	0	0	382	345
Grp Sat Flow(s),veh/h/ln				1644	0	0	1767	1763	0	0	1763	1578
Q Serve(g_s), s				5.9	0.0	0.0	8.4	4.5	0.0	0.0	8.9	9.0
Cycle Q Clear(g_c), s				5.9	0.0	0.0	8.4	4.5	0.0	0.0	8.9	9.0
Prop In Lane				0.39		0.61	1.00		0.00	0.00		0.98
Lane Grp Cap(c), veh/h				247	0	0	362	2389	0	0	682	611
V/C Ratio(X)				0.77	0.00	0.00	0.82	0.31	0.00	0.00	0.56	0.57
Avail Cap(c_a), veh/h				486	0	0	523	2389	0	0	682	611
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)				1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				21.4	0.0	0.0	19.9	3.4	0.0	0.0	12.6	12.6
Incr Delay (d2), s/veh				5.1	0.0	0.0	7.0	0.3	0.0	0.0	3.3	3.8
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.3	0.0	0.0	3.8	1.0	0.0	0.0	3.6	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				26.5	0.0	0.0	26.9	3.8	0.0	0.0	15.9	16.4
LnGrp LOS				C	A	A	C	A	A	A	B	B
Approach Vol, veh/h					191			1038			727	
Approach Delay, s/veh					26.5			10.4			16.1	
Approach LOS					C			B			B	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		40.0			15.2	24.8		12.4				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		35.5			15.5	15.5		15.5				
Max Q Clear Time (g_c+I1), s		6.5			10.4	11.0		7.9				
Green Ext Time (p_c), s		5.8			0.4	1.9		0.6				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay											14.1	
HCM 6th LOS											B	

HCM 6th Signalized Intersection Summary  
 17: G Street & 14th Street/SR 99 NB Off Ramp

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	0	6	51	7	137	9	516	0	0	545	55
Future Volume (veh/h)	49	0	6	51	7	137	9	516	0	0	545	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	0	1856	1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h	53	0	7	55	8	149	10	561	0	0	592	60
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	0	3	3	3	3	3	3	0	0	3	3
Cap, veh/h	0	0	0	75	11	204	561	1854	0	0	1700	172
Arrive On Green	0.00	0.00	0.00	0.18	0.18	0.18	0.53	0.53	0.00	0.00	0.53	0.53
Sat Flow, veh/h		0		422	61	1144	774	3618	0	0	3325	327
Grp Volume(v), veh/h		0.0		212	0	0	10	561	0	0	322	330
Grp Sat Flow(s),veh/h/ln				1628	0	0	774	1763	0	0	1763	1797
Q Serve(g_s), s				3.7	0.0	0.0	0.2	2.7	0.0	0.0	3.2	3.2
Cycle Q Clear(g_c), s				3.7	0.0	0.0	3.5	2.7	0.0	0.0	3.2	3.2
Prop In Lane				0.26		0.70	1.00		0.00	0.00		0.18
Lane Grp Cap(c), veh/h				290	0	0	561	1854	0	0	927	945
V/C Ratio(X)				0.73	0.00	0.00	0.02	0.30	0.00	0.00	0.35	0.35
Avail Cap(c_a), veh/h				830	0	0	561	1854	0	0	927	945
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				11.8	0.0	0.0	5.2	4.1	0.0	0.0	4.2	4.2
Incr Delay (d2), s/veh				3.5	0.0	0.0	0.1	0.4	0.0	0.0	1.0	1.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.2	0.0	0.0	0.0	0.4	0.0	0.0	0.6	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				15.3	0.0	0.0	5.3	4.5	0.0	0.0	5.2	5.2
LnGrp LOS				B	A	A	A	A	A	A	A	A
Approach Vol, veh/h								571			652	
Approach Delay, s/veh								4.5			5.2	
Approach LOS								A			A	
Timer - Assigned Phs		2						6			8	
Phs Duration (G+Y+Rc), s		20.5						20.5			9.9	
Change Period (Y+Rc), s		4.5						4.5			4.5	
Max Green Setting (Gmax), s		16.0						16.0			15.5	
Max Q Clear Time (g_c+I1), s		5.5						5.2			5.7	
Green Ext Time (p_c), s		2.7						2.9			0.8	
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				6.4								
HCM 6th LOS				A								

HCM 6th Roundabout  
18: Campus Parkway & Yosemite Avenue

02/23/2022

Intersection									
Intersection Delay, s/veh 8.6									
Intersection LOS A									
Approach	EB		WB		NB		SB		
Entry Lanes	2		2		2		2		
Conflicting Circle Lanes	2		2		2		2		
Adj Approach Flow, veh/h	766		214		431		477		
Demand Flow Rate, veh/h	789		220		444		491		
Vehicles Circulating, veh/h	193		1061		791		214		
Vehicles Exiting, veh/h	512		174		191		1067		
Ped Vol Crossing Leg, #/h	0		0		0		0		
Ped Cap Adj	1.000		1.000		1.000		1.000		
Approach Delay, s/veh	9.3		11.9		9.5		5.3		
Approach LOS	A		B		A		A		
Lane	Left	Right	Left	Right	Left	Right	Left	Right	
Designated Moves	LT	TR	LT	R	LT	TR	LT	TR	
Assumed Moves	L	TR	LT	R	LT	TR	LT	R	
RT Channelized									
Lane Util	0.821	0.179	0.814	0.186	0.471	0.529	0.365	0.635	
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.667	2.535	2.667	2.535	
Critical Headway, s	4.645	4.328	4.645	4.328	4.645	4.328	4.645	4.328	
Entry Flow, veh/h	648	141	179	41	209	235	179	312	
Cap Entry Lane, veh/h	1130	1205	509	576	652	725	1109	1184	
Entry HV Adj Factor	0.971	0.970	0.973	0.976	0.969	0.972	0.971	0.971	
Flow Entry, veh/h	629	137	174	40	203	228	174	303	
Cap Entry, veh/h	1097	1169	495	562	632	705	1076	1150	
V/C Ratio	0.573	0.117	0.352	0.071	0.321	0.324	0.161	0.264	
Control Delay, s/veh	10.5	4.1	12.9	7.2	10.0	9.2	4.8	5.6	
LOS	B	A	B	A	A	A	A	A	
95th %tile Queue, veh	4	0	2	0	1	1	1	1	

HCM 6th Roundabout  
19: Campus Parkway & Olive Avenue

02/23/2022

Intersection									
Intersection Delay, s/veh 4.4									
Intersection LOS A									
Approach	EB		WB		NB		SB		
Entry Lanes	2		2		2		2		
Conflicting Circle Lanes	2		2		2		2		
Adj Approach Flow, veh/h	119		137		457		178		
Demand Flow Rate, veh/h	123		141		471		182		
Vehicles Circulating, veh/h	182		443		118		139		
Vehicles Exiting, veh/h	139		146		187		445		
Ped Vol Crossing Leg, #/h	0		0		0		0		
Ped Cap Adj	1.000		1.000		1.000		1.000		
Approach Delay, s/veh	3.6		4.7		4.6		4.2		
Approach LOS	A		A		A		A		
Lane	Left	Right	Left	Right	Left	Right	Left	Right	
Designated Moves	LT	TR	LT	TR	LT	TR	LT	R	
Assumed Moves	LT	TR	LT	TR	LT	TR	LT	R	
RT Channelized									
Lane Util	0.472	0.528	0.468	0.532	0.469	0.531	0.918	0.082	
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.667	2.535	2.667	2.535	
Critical Headway, s	4.645	4.328	4.645	4.328	4.645	4.328	4.645	4.328	
Entry Flow, veh/h	58	65	66	75	221	250	167	15	
Cap Entry Lane, veh/h	1142	1217	898	974	1211	1285	1188	1262	
Entry HV Adj Factor	0.963	0.969	0.975	0.967	0.973	0.970	0.974	1.000	
Flow Entry, veh/h	56	63	64	73	215	242	163	15	
Cap Entry, veh/h	1100	1179	875	942	1178	1246	1157	1262	
V/C Ratio	0.051	0.053	0.073	0.077	0.182	0.195	0.141	0.012	
Control Delay, s/veh	3.7	3.5	4.8	4.5	4.6	4.6	4.3	2.9	
LOS	A	A	A	A	A	A	A	A	
95th %tile Queue, veh	0	0	0	0	1	1	0	0	



# HCM 6th Signalized Intersection Summary

## 20: Campus Parkway & Connector Road

02/23/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔↔	↔	↕↕	↔	↔↔	↕↕
Traffic Volume (veh/h)	38	27	394	42	15	152
Future Volume (veh/h)	38	27	394	42	15	152
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	41	0	428	0	16	165
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	238		1912		82	2450
Arrive On Green	0.07	0.00	0.54	0.00	0.02	0.70
Sat Flow, veh/h	3428	1572	3618	1572	3428	3618
Grp Volume(v), veh/h	41	0	428	0	16	165
Grp Sat Flow(s),veh/h/ln	1714	1572	1763	1572	1714	1763
Q Serve(g_s), s	0.6	0.0	3.2	0.0	0.2	0.8
Cycle Q Clear(g_c), s	0.6	0.0	3.2	0.0	0.2	0.8
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	238		1912		82	2450
V/C Ratio(X)	0.17		0.22		0.20	0.07
Avail Cap(c_a), veh/h	2240		1912		407	2450
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	22.1	0.0	6.0	0.0	24.2	2.5
Incr Delay (d2), s/veh	0.3	0.0	0.3	0.0	1.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.7	0.0	0.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	22.5	0.0	6.3	0.0	25.3	2.5
LnGrp LOS	C		A		C	A
Approach Vol, veh/h	41	A	428	A		181
Approach Delay, s/veh	22.5		6.3			4.5
Approach LOS	C		A			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	7.7	33.9			41.6	8.9
Change Period (Y+Rc), s	6.5	6.5			6.5	5.4
Max Green Setting (Gmax), s	6.0	22.6			35.1	33.0
Max Q Clear Time (g_c+1/2), s	12.2	5.2			2.8	2.6
Green Ext Time (p_c), s	0.0	2.2			0.9	0.1

### Intersection Summary

HCM 6th Ctrl Delay		6.8
HCM 6th LOS		A

### Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

# HCM 6th Signalized Intersection Summary

## 21: SR 140 & Connector Road

02/23/2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↶	↷	↶	↷	↶	↷
Traffic Volume (veh/h)	39	180	118	28	19	38
Future Volume (veh/h)	39	180	118	28	19	38
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.50	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	42	196	128	30	21	41
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	93	701	364	154	684	609
Arrive On Green	0.05	0.38	0.20	0.20	0.39	0.39
Sat Flow, veh/h	1767	1856	1856	786	1767	1572
Grp Volume(v), veh/h	42	196	128	30	21	41
Grp Sat Flow(s),veh/h/ln	1767	1856	1856	786	1767	1572
Q Serve(g_s), s	1.2	3.7	3.0	1.6	0.4	0.8
Cycle Q Clear(g_c), s	1.2	3.7	3.0	1.6	0.4	0.8
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	93	701	364	154	684	609
V/C Ratio(X)	0.45	0.28	0.35	0.19	0.03	0.07
Avail Cap(c_a), veh/h	227	1412	935	396	684	609
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.3	11.0	17.6	17.0	9.6	9.8
Incr Delay (d2), s/veh	3.4	0.2	0.6	0.6	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.1	1.1	0.3	0.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	26.6	11.2	18.1	17.6	9.7	10.0
LnGrp LOS	C	B	B	B	A	A
Approach Vol, veh/h		238	158		62	
Approach Delay, s/veh		13.9	18.0		9.9	
Approach LOS		B	B		A	
Timer - Assigned Phs			4		6	7 8
Phs Duration (G+Y+Rc), s			25.6		25.0	9.2 16.4
Change Period (Y+Rc), s			6.5		5.4	6.5 6.5
Max Green Setting (Gmax), s			38.5		19.6	6.5 25.5
Max Q Clear Time (g_c+I1), s			5.7		2.8	3.2 5.0
Green Ext Time (p_c), s			0.9		0.1	0.0 0.7
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			14.8			
HCM 6th LOS			B			

# HCM 6th Signalized Intersection Summary

## 22: Campus Parkway & Childs Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	113	85	89	115	8	66	410	36	17	157	16
Future Volume (veh/h)	18	113	85	89	115	8	66	410	36	17	157	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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	20	123	92	97	125	9	72	446	39	18	171	17
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	49	421	188	132	624	278	227	1455	649	45	1312	585
Arrive On Green	0.03	0.12	0.12	0.07	0.18	0.18	0.07	0.41	0.41	0.03	0.37	0.37
Sat Flow, veh/h	1767	3526	1572	1767	3526	1572	3428	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	20	123	92	97	125	9	72	446	39	18	171	17
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1572	1714	1763	1572	1767	1763	1572
Q Serve(g_s), s	0.7	2.1	3.7	3.6	2.0	0.3	1.3	5.7	1.0	0.7	2.1	0.5
Cycle Q Clear(g_c), s	0.7	2.1	3.7	3.6	2.0	0.3	1.3	5.7	1.0	0.7	2.1	0.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	49	421	188	132	624	278	227	1455	649	45	1312	585
V/C Ratio(X)	0.41	0.29	0.49	0.73	0.20	0.03	0.32	0.31	0.06	0.40	0.13	0.03
Avail Cap(c_a), veh/h	158	2054	916	296	2328	1038	307	1455	649	158	1312	585
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.0	26.9	27.6	30.3	23.5	22.8	29.8	13.2	11.8	32.1	13.9	13.3
Incr Delay (d2), s/veh	5.3	0.4	2.0	7.6	0.2	0.0	0.8	0.5	0.2	5.6	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.9	1.4	1.7	0.8	0.1	0.5	1.9	0.3	0.3	0.7	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.3	27.3	29.5	37.9	23.7	22.8	30.6	13.8	12.0	37.7	14.1	13.4
LnGrp LOS	D	C	C	D	C	C	C	B	B	D	B	B
Approach Vol, veh/h		235			231			557			206	
Approach Delay, s/veh		29.0			29.6			15.8			16.1	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.2	34.1	10.8	13.8	10.9	31.4	7.0	17.6				
Change Period (Y+Rc), s	6.5	6.5	5.8	* 5.8	6.5	6.5	5.1	5.8				
Max Green Setting (Gmax), s	6.0	24.9	11.2	* 39	6.0	24.9	6.0	44.2				
Max Q Clear Time (g_c+1/2), s	11.2	7.7	5.6	5.7	3.3	4.1	2.7	4.0				
Green Ext Time (p_c), s	0.0	2.4	0.1	1.0	0.0	0.8	0.0	0.7				

### Intersection Summary

HCM 6th Ctrl Delay	21.0
HCM 6th LOS	C

### Notes

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

HCM 6th Signalized Intersection Summary  
 23: Campus Parkway & Gerard Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑↑	↖	↖↗	↑↑	↖	↖↗	↑↑	↖	↖↗	↑↑	↖
Traffic Volume (veh/h)	65	15	85	77	22	5	33	442	9	7	245	79
Future Volume (veh/h)	65	15	85	77	22	5	33	442	9	7	245	79
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	71	16	92	84	24	5	36	480	10	8	266	86
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	209	364	162	224	411	183	144	1692	755	42	1588	708
Arrive On Green	0.06	0.10	0.10	0.07	0.12	0.12	0.04	0.48	0.48	0.01	0.45	0.45
Sat Flow, veh/h	3428	3526	1572	3428	3526	1572	3428	3526	1572	3428	3526	1572
Grp Volume(v), veh/h	71	16	92	84	24	5	36	480	10	8	266	86
Grp Sat Flow(s),veh/h/ln	1714	1763	1572	1714	1763	1572	1714	1763	1572	1714	1763	1572
Q Serve(g_s), s	1.5	0.3	4.3	1.8	0.5	0.2	0.8	6.3	0.3	0.2	3.4	2.4
Cycle Q Clear(g_c), s	1.5	0.3	4.3	1.8	0.5	0.2	0.8	6.3	0.3	0.2	3.4	2.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	209	364	162	224	411	183	144	1692	755	42	1588	708
V/C Ratio(X)	0.34	0.04	0.57	0.38	0.06	0.03	0.25	0.28	0.01	0.19	0.17	0.12
Avail Cap(c_a), veh/h	277	1730	772	295	1749	780	268	1692	755	268	1588	708
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.5	30.9	32.7	34.3	30.1	30.0	35.5	12.0	10.4	37.5	12.5	12.2
Incr Delay (d2), s/veh	1.0	0.0	3.1	1.0	0.1	0.1	0.9	0.4	0.0	2.2	0.2	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.1	1.6	0.7	0.2	0.1	0.3	2.1	0.1	0.1	1.2	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.4	31.0	35.8	35.4	30.2	30.1	36.4	12.4	10.5	39.6	12.7	12.6
LnGrp LOS	D	C	D	D	C	C	D	B	B	D	B	B
Approach Vol, veh/h		179			113			526			360	
Approach Delay, s/veh		35.2			34.0			14.0			13.3	
Approach LOS		D			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.4	43.3	11.5	14.4	9.7	41.0	10.5	15.4				
Change Period (Y+Rc), s	6.5	6.5	6.5	* 6.5	6.5	6.5	5.8	6.5				
Max Green Setting (Gmax), s	6.0	34.5	6.6	* 38	6.0	34.5	6.2	38.0				
Max Q Clear Time (g_c+1/2), s	11.2	8.3	3.8	6.3	2.8	5.4	3.5	2.5				
Green Ext Time (p_c), s	0.0	2.8	0.0	0.3	0.0	1.7	0.0	0.1				

Intersection Summary

HCM 6th Ctrl Delay	18.9
HCM 6th LOS	B

Notes

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

# HCM 6th Signalized Intersection Summary

## 24: Coffee Street & Campus Parkway

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	113	356	52	33	359	15	110	33	14	321	128	103
Future Volume (veh/h)	113	356	52	33	359	15	110	33	14	321	128	103
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	123	387	57	36	390	16	120	36	15	349	139	112
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	154	708	316	61	511	21	153	797	312	385	431	347
Arrive On Green	0.09	0.20	0.20	0.03	0.15	0.15	0.09	0.32	0.32	0.22	0.45	0.45
Sat Flow, veh/h	1767	3526	1572	1767	3452	141	1767	2475	969	1767	951	766
Grp Volume(v), veh/h	123	387	57	36	199	207	120	25	26	349	0	251
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1830	1767	1763	1681	1767	0	1718
Q Serve(g_s), s	5.5	7.9	2.4	1.6	8.7	8.7	5.3	0.8	0.9	15.4	0.0	7.5
Cycle Q Clear(g_c), s	5.5	7.9	2.4	1.6	8.7	8.7	5.3	0.8	0.9	15.4	0.0	7.5
Prop In Lane	1.00		1.00	1.00		0.08	1.00		0.58	1.00		0.45
Lane Grp Cap(c), veh/h	154	708	316	61	261	271	153	568	541	385	0	778
V/C Ratio(X)	0.80	0.55	0.18	0.59	0.76	0.76	0.79	0.04	0.05	0.91	0.00	0.32
Avail Cap(c_a), veh/h	166	864	385	130	397	412	267	568	541	387	0	778
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.93	0.93	0.93	0.99	0.99	0.99	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	35.8	28.7	26.5	38.1	32.7	32.7	35.8	18.6	18.7	30.5	0.0	14.0
Incr Delay (d2), s/veh	20.8	0.6	0.3	8.8	4.5	4.5	8.6	0.1	0.2	24.5	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	3.0	0.8	0.8	3.7	3.8	2.5	0.3	0.3	8.7	0.0	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.6	29.3	26.8	46.8	37.3	37.3	44.4	18.8	18.8	55.0	0.0	15.1
LnGrp LOS	E	C	C	D	D	D	D	B	B	E	A	B
Approach Vol, veh/h		567			442			171			600	
Approach Delay, s/veh		35.0			38.0			36.8			38.3	
Approach LOS		C			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.9	30.3	7.3	20.6	11.4	40.8	11.5	16.4				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	19.0	19.0	5.9	19.6	12.1	24.4	7.5	18.0				
Max Q Clear Time (g_c+1/3), s	2.9	2.9	3.6	9.9	7.3	9.5	7.5	10.7				
Green Ext Time (p_c), s	0.0	0.1	0.0	1.6	0.1	1.2	0.0	1.1				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay											37.0	
HCM 6th LOS											D	

HCM 6th Signalized Intersection Summary  
 25: SR 99 NB Ramps & Campus Parkway

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	208	511	0	0	402	170	26	3	10	0	0	0
Future Volume (veh/h)	208	511	0	0	402	170	26	3	10	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1856	1856	0	0	1856	1856	1856	1856	1856			
Adj Flow Rate, veh/h	226	555	0	0	437	185	28	3	11			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	3	3	0	0	3	3	3	3	3			
Cap, veh/h	259	1272	0	0	564	252	861	92	844			
Arrive On Green	0.15	0.36	0.00	0.00	0.16	0.16	0.54	0.54	0.54			
Sat Flow, veh/h	1767	3618	0	0	3618	1572	1604	172	1572			
Grp Volume(v), veh/h	226	555	0	0	437	185	31	0	11			
Grp Sat Flow(s),veh/h/ln	1767	1763	0	0	1763	1572	1775	0	1572			
Q Serve(g_s), s	15.0	14.3	0.0	0.0	14.3	13.4	1.0	0.0	0.4			
Cycle Q Clear(g_c), s	15.0	14.3	0.0	0.0	14.3	13.4	1.0	0.0	0.4			
Prop In Lane	1.00		0.00	0.00		1.00	0.90		1.00			
Lane Grp Cap(c), veh/h	259	1272	0	0	564	252	953	0	844			
V/C Ratio(X)	0.87	0.44	0.00	0.00	0.77	0.74	0.03	0.00	0.01			
Avail Cap(c_a), veh/h	611	2483	0	0	1072	478	953	0	844			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(l)	1.00	1.00	0.00	0.00	0.74	0.74	1.00	0.00	1.00			
Uniform Delay (d), s/veh	50.1	29.1	0.0	0.0	48.3	48.0	13.1	0.0	13.0			
Incr Delay (d2), s/veh	8.9	0.2	0.0	0.0	1.7	3.1	0.1	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	7.0	5.7	0.0	0.0	6.1	5.2	0.4	0.0	0.1			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.0	29.3	0.0	0.0	50.1	51.1	13.2	0.0	13.0			
LnGrp LOS	E	C	A	A	D	D	B	A	B			
Approach Vol, veh/h		781			622			42				
Approach Delay, s/veh		37.9			50.4			13.1				
Approach LOS		D			D			B				
Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		70.2		49.8			24.1	25.7				
Change Period (Y+Rc), s		5.8		6.5			6.5	6.5				
Max Green Setting (Gmax), s		23.2		84.5			41.5	36.5				
Max Q Clear Time (g_c+I1), s		3.0		16.3			17.0	16.3				
Green Ext Time (p_c), s		0.1		3.5			0.6	2.9				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay												42.6
HCM 6th LOS												D

# HCM 6th Signalized Intersection Summary

## 26: Lake Street & Meyers Gate Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	30	10	49	30	49	20	654	39	39	386	10
Future Volume (veh/h)	20	30	10	49	30	49	20	654	39	39	386	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	22	33	11	53	33	53	22	711	42	42	420	11
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	46	114	38	91	71	114	46	823	49	77	885	23
Arrive On Green	0.03	0.09	0.09	0.05	0.11	0.11	0.03	0.47	0.47	0.04	0.49	0.49
Sat Flow, veh/h	1767	1332	444	1767	641	1029	1767	1735	102	1767	1800	47
Grp Volume(v), veh/h	22	0	44	53	0	86	22	0	753	42	0	431
Grp Sat Flow(s),veh/h/ln	1767	0	1776	1767	0	1670	1767	0	1837	1767	0	1847
Q Serve(g_s), s	0.6	0.0	1.2	1.5	0.0	2.5	0.6	0.0	19.0	1.2	0.0	8.1
Cycle Q Clear(g_c), s	0.6	0.0	1.2	1.5	0.0	2.5	0.6	0.0	19.0	1.2	0.0	8.1
Prop In Lane	1.00		0.25	1.00		0.62	1.00		0.06	1.00		0.03
Lane Grp Cap(c), veh/h	46	0	151	91	0	185	46	0	872	77	0	909
V/C Ratio(X)	0.48	0.00	0.29	0.58	0.00	0.47	0.48	0.00	0.86	0.54	0.00	0.47
Avail Cap(c_a), veh/h	173	0	616	173	0	580	173	0	1187	173	0	1194
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.0	0.0	22.4	24.2	0.0	21.7	25.0	0.0	12.2	24.4	0.0	8.8
Incr Delay (d2), s/veh	7.4	0.0	1.0	5.8	0.0	1.8	7.4	0.0	5.2	5.8	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.5	0.7	0.0	1.0	0.3	0.0	5.9	0.5	0.0	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.4	0.0	23.4	30.0	0.0	23.6	32.4	0.0	17.4	30.3	0.0	9.2
LnGrp LOS	C	A	C	C	A	C	C	A	B	C	A	A
Approach Vol, veh/h		66			139			775				473
Approach Delay, s/veh		26.4			26.0			17.8				11.0
Approach LOS		C			C			B				B
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.8	29.2	7.2	8.9	5.9	30.2	5.9	10.3				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.1	33.7	5.1	18.1	5.1	33.7	5.1	18.1				
Max Q Clear Time (g_c+1/3), s	13.2	21.0	3.5	3.2	2.6	10.1	2.6	4.5				
Green Ext Time (p_c), s	0.0	3.7	0.0	0.1	0.0	2.2	0.0	0.3				

### Intersection Summary

HCM 6th Ctrl Delay	16.8
HCM 6th LOS	B

HCM 6th Roundabout  
76: Campus Parkway & Meyers Gate Road

02/23/2022

Intersection						
Intersection Delay, s/veh	6.2					
Intersection LOS	A					
Approach	EB	WB	NB		SB	
Entry Lanes	1	1	2		2	
Conflicting Circle Lanes	2	2	2		2	
Adj Approach Flow, veh/h	119	112	912		416	
Demand Flow Rate, veh/h	123	115	939		428	
Vehicles Circulating, veh/h	433	951	121		127	
Vehicles Exiting, veh/h	122	109	435		939	
Ped Vol Crossing Leg, #/h	20	20	20		0	
Ped Cap Adj	0.997	1.000	0.979		1.000	
Approach Delay, s/veh	5.0	8.0	6.9		4.5	
Approach LOS	A	A	A		A	
Lane	Left	Left	Left	Right	Left	Right
Designated Moves	LTR	LTR	LT	TR	LT	TR
Assumed Moves	LTR	LTR	LT	TR	LT	TR
RT Channelized						
Lane Util	1.000	1.000	0.470	0.530	0.470	0.530
Follow-Up Headway, s	2.535	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.328	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	123	115	441	498	201	227
Cap Entry Lane, veh/h	983	633	1208	1281	1201	1275
Entry HV Adj Factor	0.966	0.978	0.972	0.970	0.972	0.970
Flow Entry, veh/h	119	112	428	483	195	220
Cap Entry, veh/h	947	619	1149	1217	1167	1237
V/C Ratio	0.125	0.182	0.373	0.397	0.167	0.178
Control Delay, s/veh	5.0	8.0	6.8	6.9	4.5	4.4
LOS	A	A	A	A	A	A
95th %tile Queue, veh	0	1	2	2	1	1



HCM 6th Signalized Intersection Summary  
 77: Lake Road & Virginia Smith Parkway

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	30	10	14	30	98	20	95	17	78	57	10
Future Volume (veh/h)	20	30	10	14	30	98	20	95	17	78	57	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.94		0.94	1.00		0.94	1.00		0.90	1.00		0.92
Parking Bus, Adj	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	22	33	11	15	33	107	22	103	18	85	62	11
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	396	178	59	35	565	448	49	307	234	149	335	59
Arrive On Green	0.14	0.14	0.14	0.02	0.30	0.30	0.03	0.17	0.17	0.08	0.22	0.22
Sat Flow, veh/h	1164	1308	436	1767	1856	1472	1767	1856	1415	1767	1512	268
Grp Volume(v), veh/h	22	0	44	15	33	107	22	103	18	85	0	73
Grp Sat Flow(s),veh/h/ln	1164	0	1744	1767	1856	1472	1767	1856	1415	1767	0	1780
Q Serve(g_s), s	0.5	0.0	0.7	0.3	0.4	1.7	0.4	1.5	0.3	1.4	0.0	1.0
Cycle Q Clear(g_c), s	0.5	0.0	0.7	0.3	0.4	1.7	0.4	1.5	0.3	1.4	0.0	1.0
Prop In Lane	1.00		0.25	1.00		1.00	1.00		1.00	1.00		0.15
Lane Grp Cap(c), veh/h	396	0	237	35	565	448	49	307	234	149	0	395
V/C Ratio(X)	0.06	0.00	0.19	0.43	0.06	0.24	0.45	0.34	0.08	0.57	0.00	0.19
Avail Cap(c_a), veh/h	1026	0	1182	438	1993	1581	555	1686	1286	964	0	2029
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.5	0.0	11.6	14.7	7.5	7.9	14.5	11.2	10.7	13.3	0.0	9.6
Incr Delay (d2), s/veh	0.1	0.0	0.4	8.3	0.0	0.3	6.2	0.6	0.1	3.4	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.2	0.2	0.1	0.3	0.2	0.4	0.1	0.5	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.6	0.0	12.0	23.0	7.5	8.2	20.7	11.8	10.8	16.7	0.0	9.8
LnGrp LOS	B	A	B	C	A	A	C	B	B	B	A	A
Approach Vol, veh/h		66			155			143			158	
Approach Delay, s/veh		11.8			9.5			13.0			13.5	
Approach LOS		B			A			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	8					
Phs Duration (G+Y+Rc), s	7.1	9.5	5.1	8.6	5.3	11.2		13.7				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5		4.5				
Max Green Setting (Gmax)	16.5	27.5	7.5	20.5	9.5	34.5		32.5				
Max Q Clear Time (g_c+1)	13.4	3.5	2.3	2.7	2.4	3.0		3.7				
Green Ext Time (p_c), s	0.1	0.5	0.0	0.2	0.0	0.3		0.5				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay											12.0	
HCM 6th LOS											B	

HCM 6th Roundabout  
78: Campus Parkway & Virginia Smith Parkway

02/23/2022

Intersection							
Intersection Delay, s/veh	4.1						
Intersection LOS	A						
Approach	EB	WB		NB		SB	
Entry Lanes	1	2		2		2	
Conflicting Circle Lanes	2	2		2		2	
Adj Approach Flow, veh/h	188	292		161		100	
Demand Flow Rate, veh/h	193	300		166		103	
Vehicles Circulating, veh/h	170	131		216		299	
Vehicles Exiting, veh/h	232	251		147		132	
Ped Vol Crossing Leg, #/h	20	20		20		20	
Ped Cap Adj	0.997	0.979		0.981		0.983	
Approach Delay, s/veh	4.4	4.1		3.9		4.0	
Approach LOS	A	A		A		A	
Lane	Left	Left	Right	Left	Right	Left	Right
Designated Moves	LTR	LT	TR	LT	TR	LT	TR
Assumed Moves	LTR	LT	TR	LT	TR	LT	TR
RT Channelized							
Lane Util	1.000	0.470	0.530	0.470	0.530	0.466	0.534
Follow-Up Headway, s	2.535	2.667	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.328	4.645	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	193	141	159	78	88	48	55
Cap Entry Lane, veh/h	1229	1197	1270	1107	1182	1025	1101
Entry HV Adj Factor	0.972	0.972	0.972	0.971	0.971	0.983	0.967
Flow Entry, veh/h	188	137	155	76	85	47	53
Cap Entry, veh/h	1192	1140	1210	1055	1126	990	1047
V/C Ratio	0.157	0.120	0.128	0.072	0.076	0.048	0.051
Control Delay, s/veh	4.4	4.2	4.0	4.0	3.8	4.1	3.9
LOS	A	A	A	A	A	A	A
95th %tile Queue, veh	1	0	0	0	0	0	0

HCM 6th TWSC  
79: Virginia Smith Parkway & Golden BObc

02/23/2022

Intersection												
Int Delay, s/veh	4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Vol, veh/h	28	159	37	24	155	15	36	21	24	15	21	21
Future Vol, veh/h	28	159	37	24	155	15	36	21	24	15	21	21
Conflicting Peds, #/hr	20	0	20	20	0	20	20	0	20	20	0	20
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	150	-	-	150	-	-
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	30	173	40	26	168	16	39	23	26	16	23	23

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	204	0	0	233	0	0	544	529	233	546	541	216
Stage 1	-	-	-	-	-	-	273	273	-	248	248	-
Stage 2	-	-	-	-	-	-	271	256	-	298	293	-
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	1362	-	-	1329	-	-	448	454	804	447	447	821
Stage 1	-	-	-	-	-	-	731	682	-	754	699	-
Stage 2	-	-	-	-	-	-	733	694	-	709	668	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1336	-	-	1304	-	-	388	419	774	386	412	790
Mov Cap-2 Maneuver	-	-	-	-	-	-	388	419	-	386	412	-
Stage 1	-	-	-	-	-	-	701	654	-	723	672	-
Stage 2	-	-	-	-	-	-	661	667	-	634	641	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1			1			13.5			12.9		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	388	555	1336	-	-	1304	-	-	386	542
HCM Lane V/C Ratio	0.101	0.088	0.023	-	-	0.02	-	-	0.042	0.084
HCM Control Delay (s)	15.3	12.1	7.8	-	-	7.8	-	-	14.7	12.3
HCM Lane LOS	C	B	A	-	-	A	-	-	B	B
HCM 95th %tile Q(veh)	0.3	0.3	0.1	-	-	0.1	-	-	0.1	0.3

HCM 6th Roundabout  
80: Virginia Smith Parkway & Main Street

02/23/2022

Intersection				
Intersection Delay, s/veh	4.3			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	216	157	77	147
Demand Flow Rate, veh/h	222	161	79	151
Vehicles Circulating, veh/h	86	145	229	154
Vehicles Exiting, veh/h	219	163	79	152
Ped Vol Crossing Leg, #/h	20	20	20	20
Ped Cap Adj	0.997	0.997	0.997	0.997
Approach Delay, s/veh	4.4	4.3	4.0	4.2
Approach LOS	A	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	222	161	79	151
Cap Entry Lane, veh/h	1264	1190	1092	1179
Entry HV Adj Factor	0.972	0.974	0.974	0.973
Flow Entry, veh/h	216	157	77	147
Cap Entry, veh/h	1225	1156	1062	1145
V/C Ratio	0.176	0.136	0.073	0.128
Control Delay, s/veh	4.4	4.3	4.0	4.2
LOS	A	A	A	A
95th %tile Queue, veh	1	0	0	0

HCM 6th TWSC  
81: 4th Street & Virginia Smith Parkway

02/23/2022

Intersection												
Int Delay, s/veh	5.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷		↶	↷		↶	↷	
Traffic Vol, veh/h	33	26	47	15	21	8	50	4	8	9	4	32
Future Vol, veh/h	33	26	47	15	21	8	50	4	8	9	4	32
Conflicting Peds, #/hr	0	0	20	20	0	0	20	0	20	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	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	36	28	51	16	23	9	54	4	9	10	4	35

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	32	0	0	99	0	0	245	210	94	212	231	48
Stage 1	-	-	-	-	-	-	146	146	-	60	60	-
Stage 2	-	-	-	-	-	-	99	64	-	152	171	-
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	1574	-	-	1488	-	-	707	685	960	743	667	1018
Stage 1	-	-	-	-	-	-	854	774	-	949	843	-
Stage 2	-	-	-	-	-	-	905	840	-	848	755	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1574	-	-	1460	-	-	636	649	924	700	632	999
Mov Cap-2 Maneuver	-	-	-	-	-	-	636	649	-	700	632	-
Stage 1	-	-	-	-	-	-	819	741	-	927	834	-
Stage 2	-	-	-	-	-	-	843	831	-	800	723	-
























Approach	EB		WB		NB		SB	
HCM Control Delay, s	2.3		2.6		10.9		9.2	
HCM LOS					B		A	

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	636	810	1574	-	-	1460	-	-	700	938
HCM Lane V/C Ratio	0.085	0.016	0.023	-	-	0.011	-	-	0.014	0.042
HCM Control Delay (s)	11.2	9.5	7.3	-	-	7.5	-	-	10.2	9
HCM Lane LOS	B	A	A	-	-	A	-	-	B	A
HCM 95th %tile Q(veh)	0.3	0	0.1	-	-	0	-	-	0	0.1

**2030 Near Term With Campus  
Parkway- With Recommended  
Improvements  
PM Peak Hour**

HCM 6th Signalized Intersection Summary  
 1: Snelling Highway (SR 59) & Bellevue Road

02/23/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	118	9	325	247	102	7	86	252	106	169	21
Future Volume (veh/h)	14	118	9	325	247	102	7	86	252	106	169	21
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	15	128	10	353	268	111	8	93	274	115	184	23
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	31	173	14	400	576	488	18	702	595	121	706	88
Arrive On Green	0.02	0.10	0.10	0.23	0.31	0.31	0.01	0.38	0.38	0.07	0.44	0.44
Sat Flow, veh/h	1767	1699	133	1767	1856	1572	1767	1856	1572	1767	1617	202
Grp Volume(v), veh/h	15	0	138	353	268	111	8	93	274	115	0	207
Grp Sat Flow(s),veh/h/ln	1767	0	1832	1767	1856	1572	1767	1856	1572	1767	0	1819
Q Serve(g_s), s	0.7	0.0	5.9	15.5	9.3	4.2	0.4	2.6	10.5	5.2	0.0	5.8
Cycle Q Clear(g_c), s	0.7	0.0	5.9	15.5	9.3	4.2	0.4	2.6	10.5	5.2	0.0	5.8
Prop In Lane	1.00		0.07	1.00		1.00	1.00		1.00	1.00		0.11
Lane Grp Cap(c), veh/h	31	0	187	400	576	488	18	702	595	121	0	794
V/C Ratio(X)	0.48	0.00	0.74	0.88	0.47	0.23	0.44	0.13	0.46	0.95	0.00	0.26
Avail Cap(c_a), veh/h	110	0	355	563	835	708	110	702	595	121	0	794
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.63	0.63	0.63	0.69	0.69	0.69	1.00	0.00	1.00
Uniform Delay (d), s/veh	38.9	0.0	34.9	29.9	22.2	20.5	39.4	16.3	18.7	37.1	0.0	14.3
Incr Delay (d2), s/veh	10.9	0.0	5.7	7.7	0.4	0.1	11.4	0.3	1.8	65.0	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	2.7	6.7	3.6	1.4	0.2	1.0	3.5	4.2	0.0	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.8	0.0	40.5	37.7	22.6	20.6	50.8	16.6	20.5	102.1	0.0	15.1
LnGrp LOS	D	A	D	D	C	C	D	B	C	F	A	B
Approach Vol, veh/h		153			732			375				322
Approach Delay, s/veh		41.5			29.6			20.2				46.2
Approach LOS		D			C			C				D
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.0	34.8	22.6	12.6	5.3	39.4	5.9	29.3				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.5	15.5	25.5	15.5	5.0	16.0	5.0	36.0				
Max Q Clear Time (g_c+I1), s	7.2	12.5	17.5	7.9	2.4	7.8	2.7	11.3				
Green Ext Time (p_c), s	0.0	0.4	0.7	0.3	0.0	0.5	0.0	1.6				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			31.9									
HCM 6th LOS			C									

# HCM 6th Signalized Intersection Summary

## 2: G Street & Bellevue Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	274	137	427	456	13	133	231	252	8	190	38
Future Volume (veh/h)	55	274	137	427	456	13	133	231	252	8	190	38
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	60	298	149	464	496	14	145	251	274	9	207	41
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	77	297	148	541	684	579	166	1340	846	23	1055	471
Arrive On Green	0.04	0.25	0.25	0.16	0.37	0.37	0.09	0.38	0.38	0.01	0.30	0.30
Sat Flow, veh/h	1767	1167	584	3428	1856	1572	1767	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	60	0	447	464	496	14	145	251	274	9	207	41
Grp Sat Flow(s),veh/h/ln	1767	0	1751	1714	1856	1572	1767	1763	1572	1767	1763	1572
Q Serve(g_s), s	4.5	0.0	33.9	17.6	30.7	0.8	10.8	6.3	13.0	0.7	5.8	2.5
Cycle Q Clear(g_c), s	4.5	0.0	33.9	17.6	30.7	0.8	10.8	6.3	13.0	0.7	5.8	2.5
Prop In Lane	1.00		0.33	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	77	0	445	541	684	579	166	1340	846	23	1055	471
V/C Ratio(X)	0.78	0.00	1.00	0.86	0.73	0.02	0.88	0.19	0.32	0.40	0.20	0.09
Avail Cap(c_a), veh/h	155	0	445	969	834	706	166	1340	846	80	1055	471
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	63.1	0.0	49.7	54.7	36.3	26.8	59.7	27.6	17.2	65.3	34.8	33.6
Incr Delay (d2), s/veh	15.4	0.0	43.8	4.1	2.5	0.0	37.0	0.3	1.0	11.0	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.0	19.5	7.6	13.6	0.3	6.4	2.6	4.6	0.4	2.5	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	78.5	0.0	93.5	58.8	38.8	26.8	96.6	27.9	18.2	76.3	35.2	34.0
LnGrp LOS	E	A	F	E	D	C	F	C	B	E	D	C
Approach Vol, veh/h		507			974			670			257	
Approach Delay, s/veh		91.7			48.1			38.8			36.4	
Approach LOS		F			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.2	57.2	27.5	40.4	19.0	46.4	12.3	55.6				
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5				
Max Green Setting (Gmax), s	6.0	46.4	37.7	33.9	12.5	39.9	11.7	59.9				
Max Q Clear Time (g_c+1/2), s	12.5	15.0	19.6	35.9	12.8	7.8	6.5	32.7				
Green Ext Time (p_c), s	0.0	2.3	1.5	0.0	0.0	1.2	0.0	2.8				

### Intersection Summary

HCM 6th Ctrl Delay	53.5
HCM 6th LOS	D



# HCM 6th Signalized Intersection Summary

## 3: Lake Street/Lake Road & Bellevue Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↑	↗	↖	↑↑	↗
Traffic Volume (veh/h)	205	107	237	79	221	24	280	255	33	15	405	333
Future Volume (veh/h)	205	107	237	79	221	24	280	255	33	15	405	333
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		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	223	116	258	86	240	26	304	277	36	16	440	362
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	259	142	316	112	280	30	338	727	616	33	772	344
Arrive On Green	0.15	0.28	0.28	0.06	0.17	0.17	0.19	0.39	0.39	0.02	0.22	0.22
Sat Flow, veh/h	1767	512	1139	1767	1645	178	1767	1856	1572	1767	3526	1572
Grp Volume(v), veh/h	223	0	374	86	0	266	304	277	36	16	440	362
Grp Sat Flow(s),veh/h/ln	1767	0	1651	1767	0	1823	1767	1856	1572	1767	1763	1572
Q Serve(g_s), s	10.5	0.0	18.1	4.1	0.0	12.1	14.3	9.1	1.2	0.8	9.5	18.7
Cycle Q Clear(g_c), s	10.5	0.0	18.1	4.1	0.0	12.1	14.3	9.1	1.2	0.8	9.5	18.7
Prop In Lane	1.00		0.69	1.00		0.10	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	259	0	457	112	0	310	338	727	616	33	772	344
V/C Ratio(X)	0.86	0.00	0.82	0.77	0.00	0.86	0.90	0.38	0.06	0.49	0.57	1.05
Avail Cap(c_a), veh/h	279	0	457	321	0	384	341	727	616	321	772	344
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.6	0.0	28.9	39.4	0.0	34.4	33.7	18.6	16.2	41.5	29.8	33.4
Incr Delay (d2), s/veh	21.8	0.0	11.1	10.7	0.0	14.6	25.2	1.5	0.2	10.9	3.0	62.7
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	5.7	0.0	7.8	2.0	0.0	6.1	8.2	3.9	0.4	0.4	4.1	12.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.4	0.0	39.9	50.1	0.0	49.1	58.9	20.1	16.3	52.4	32.8	96.0
LnGrp LOS	E	A	D	D	A	D	E	C	B	D	C	F
Approach Vol, veh/h		597			352			617			818	
Approach Delay, s/veh		46.5			49.3			39.0			61.2	
Approach LOS		D			D			D			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.1	39.3	9.9	30.2	20.9	24.5	19.0	21.0				
Change Period (Y+Rc), s	4.5	* 5.8	4.5	6.5	4.5	5.8	6.5	6.5				
Max Green Setting (Gmax), s	15.5	* 21	15.5	18.0	16.5	18.7	13.5	18.0				
Max Q Clear Time (g_c+I), s	11.8	11.1	6.1	20.1	16.3	20.7	12.5	14.1				
Green Ext Time (p_c), s	0.0	1.1	0.1	0.0	0.0	0.0	0.1	0.4				

### Intersection Summary

HCM 6th Ctrl Delay	50.0
HCM 6th LOS	D

### Notes

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

# HCM 6th Signalized Intersection Summary

## 4: G Street & Cardella Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕		↖	↗		↖	↕	↗
Traffic Volume (veh/h)	75	0	55	0	1	5	61	829	0	9	810	81
Future Volume (veh/h)	75	0	55	0	1	5	61	829	0	9	810	81
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	82	0	60	0	1	5	66	901	0	10	880	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	168	0	125	0	21	107	85	1392	0	25	1329	
Arrive On Green	0.08	0.00	0.08	0.00	0.08	0.08	0.05	0.75	0.00	0.01	0.72	0.00
Sat Flow, veh/h	1338	0	1572	0	269	1345	1767	1856	0	1767	1856	1572
Grp Volume(v), veh/h	82	0	60	0	0	6	66	901	0	10	880	0
Grp Sat Flow(s),veh/h/ln	1338	0	1572	0	0	1614	1767	1856	0	1767	1856	1572
Q Serve(g_s), s	6.8	0.0	4.3	0.0	0.0	0.4	4.4	27.8	0.0	0.7	30.2	0.0
Cycle Q Clear(g_c), s	7.2	0.0	4.3	0.0	0.0	0.4	4.4	27.8	0.0	0.7	30.2	0.0
Prop In Lane	1.00		1.00	0.00		0.83	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	168	0	125	0	0	129	85	1392	0	25	1329	
V/C Ratio(X)	0.49	0.00	0.48	0.00	0.00	0.05	0.78	0.65	0.00	0.40	0.66	
Avail Cap(c_a), veh/h	259	0	228	0	0	234	157	1392	0	90	1329	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	53.5	0.0	51.9	0.0	0.0	50.1	55.5	7.2	0.0	57.7	9.0	0.0
Incr Delay (d2), s/veh	2.2	0.0	2.8	0.0	0.0	0.1	14.2	2.3	0.0	9.9	2.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	0.0	1.8	0.0	0.0	0.2	2.2	8.2	0.0	0.4	9.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.7	0.0	54.8	0.0	0.0	50.3	69.7	9.5	0.0	67.5	11.6	0.0
LnGrp LOS	E	A	D	A	A	D	E	A	A	E	B	
Approach Vol, veh/h		142			6			967			890	A
Approach Delay, s/veh		55.3			50.3			13.6			12.3	
Approach LOS		E			D			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.2	95.0		14.8	12.2	91.0		14.8				
Change Period (Y+Rc), s	6.5	6.5		5.4	6.5	6.5		5.4				
Max Green Setting (Gmax), s	6.0	88.5		17.1	10.5	84.0		17.1				
Max Q Clear Time (g_c+1/2), s	12.5	29.8		9.2	6.4	32.2		2.4				
Green Ext Time (p_c), s	0.0	7.2		0.3	0.0	6.8		0.0				

### Intersection Summary

HCM 6th Ctrl Delay	16.1
HCM 6th LOS	B

### Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

# HCM 6th Signalized Intersection Summary

## 5: Lake Road & Cardella Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	10	1	8	10	9	2	22	9	11	15	12
Future Volume (veh/h)	6	10	1	8	10	9	2	22	9	11	15	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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	7	11	1	9	11	10	2	24	10	12	16	13
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	577	103	9	340	32	30	926	622	527	928	317	258
Arrive On Green	0.06	0.06	0.06	0.06	0.06	0.06	0.34	0.34	0.34	0.34	0.34	0.34
Sat Flow, veh/h	1380	1676	152	432	527	479	1370	1856	1572	1364	947	770
Grp Volume(v), veh/h	7	0	12	30	0	0	2	24	10	12	0	29
Grp Sat Flow(s),veh/h/ln	1380	0	1828	1438	0	0	1370	1856	1572	1364	0	1717
Q Serve(g_s), s	0.0	0.0	0.1	0.3	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.2
Cycle Q Clear(g_c), s	0.1	0.0	0.1	0.4	0.0	0.0	0.2	0.1	0.1	0.2	0.0	0.2
Prop In Lane	1.00		0.08	0.30		0.33	1.00		1.00	1.00		0.45
Lane Grp Cap(c), veh/h	577	0	113	402	0	0	926	622	527	928	0	575
V/C Ratio(X)	0.01	0.00	0.11	0.07	0.00	0.00	0.00	0.04	0.02	0.01	0.00	0.05
Avail Cap(c_a), veh/h	2157	0	2206	2234	0	0	2120	2239	1897	2116	0	2072
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.6	0.0	6.6	6.8	0.0	0.0	3.4	3.3	3.3	3.4	0.0	3.4
Incr Delay (d2), s/veh	0.0	0.0	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/lr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.6	0.0	7.0	6.9	0.0	0.0	3.4	3.4	3.3	3.4	0.0	3.4
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		19			30			36			41	
Approach Delay, s/veh		6.9			6.9			3.4			3.4	
Approach LOS		A			A			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		9.5		5.4		9.5		5.4				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		18.0		18.0		18.0		18.0				
Max Q Clear Time (g_c+I1), s		2.2		2.1		2.2		2.4				
Green Ext Time (p_c), s		0.1		0.0		0.1		0.1				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				4.7								
HCM 6th LOS				A								

# HCM 6th Signalized Intersection Summary

## 6: Snelling Highway (SR 59) & Yosemite Avenue

02/23/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	240	422	450	263	407	515
Future Volume (veh/h)	240	422	450	263	407	515
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	261	459	489	286	442	560
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	353	737	598	507	475	1231
Arrive On Green	0.20	0.20	0.32	0.32	0.27	0.66
Sat Flow, veh/h	1767	1572	1856	1572	1767	1856
Grp Volume(v), veh/h	261	459	489	286	442	560
Grp Sat Flow(s),veh/h/ln	1767	1572	1856	1572	1767	1856
Q Serve(g_s), s	12.5	18.0	21.8	13.6	21.9	13.1
Cycle Q Clear(g_c), s	12.5	18.0	21.8	13.6	21.9	13.1
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	353	737	598	507	475	1231
V/C Ratio(X)	0.74	0.62	0.82	0.56	0.93	0.45
Avail Cap(c_a), veh/h	353	737	598	507	501	1231
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	0.78	0.78	0.77	0.77
Uniform Delay (d), s/veh	33.8	17.9	28.1	25.3	32.1	7.3
Incr Delay (d2), s/veh	7.9	1.6	9.5	3.5	19.6	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/lr	5.8	6.6	10.1	5.0	11.0	3.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	41.7	19.6	37.5	28.8	51.6	8.2
LnGrp LOS	D	B	D	C	D	A
Approach Vol, veh/h	720		775			1002
Approach Delay, s/veh	27.6		34.3			27.4
Approach LOS	C		C			C
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	30.7	35.5			66.2	23.8
Change Period (Y+Rc), s	6.5	6.5			6.5	5.8
Max Green Setting (Gmax), s	25.5	27.7			59.7	18.0
Max Q Clear Time (g_c+Q), s	23.9	23.8			15.1	20.0
Green Ext Time (p_c), s	0.3	1.4			3.3	0.0
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			29.6			
HCM 6th LOS			C			

# HCM 6th Signalized Intersection Summary

## 7: G Street & Yosemite Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑	↗	↔↔	↑↑	↗	↔↔	↑↑	↗	↔↔	↑↑	↗
Traffic Volume (veh/h)	219	906	153	427	778	91	273	749	513	152	624	311
Future Volume (veh/h)	219	906	153	427	778	91	273	749	513	152	624	311
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	238	985	166	464	846	99	297	814	558	165	678	338
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	302	926	413	525	1156	515	367	1114	738	228	971	433
Arrive On Green	0.09	0.26	0.26	0.15	0.33	0.33	0.11	0.32	0.32	0.07	0.28	0.28
Sat Flow, veh/h	3428	3526	1572	3428	3526	1572	3428	3526	1572	3428	3526	1572
Grp Volume(v), veh/h	238	985	166	464	846	99	297	814	558	165	678	338
Grp Sat Flow(s),veh/h/ln	1714	1763	1572	1714	1763	1572	1714	1763	1572	1714	1763	1572
Q Serve(g_s), s	7.8	30.2	7.2	15.2	24.4	5.2	9.7	23.6	9.6	5.4	19.8	22.8
Cycle Q Clear(g_c), s	7.8	30.2	7.2	15.2	24.4	5.2	9.7	23.6	9.6	5.4	19.8	22.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	302	926	413	525	1156	515	367	1114	738	228	971	433
V/C Ratio(X)	0.79	1.06	0.40	0.88	0.73	0.19	0.81	0.73	0.76	0.72	0.70	0.78
Avail Cap(c_a), veh/h	423	926	413	572	1156	515	572	1114	738	423	971	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	0.09	0.09	0.09	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.4	42.4	18.0	47.7	34.2	27.7	50.2	35.0	10.7	52.6	37.4	38.5
Incr Delay (d2), s/veh	6.5	48.1	0.6	14.4	2.4	0.2	0.5	0.4	0.7	4.3	4.2	13.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	18.7	3.7	7.3	10.4	1.9	4.1	9.7	5.7	2.4	8.8	10.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.9	90.5	18.6	62.0	36.6	27.9	50.6	35.4	11.3	57.0	41.6	51.5
LnGrp LOS	E	F	B	E	D	C	D	D	B	E	D	D
Approach Vol, veh/h		1389			1409			1669			1181	
Approach Delay, s/veh		76.3			44.4			30.1			46.6	
Approach LOS		E			D			C			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	3.4	42.1	23.4	36.0	18.1	37.5	15.9	43.5				
Change Period (Y+Rc), s	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8				
Max Green Setting (Gmax), s	1.2	28.2	19.2	30.2	19.2	23.2	14.2	35.2				
Max Q Clear Time (g_c+1), s	17.4	25.6	17.2	32.2	11.7	24.8	9.8	26.4				
Green Ext Time (p_c), s	0.3	1.7	0.4	0.0	0.6	0.0	0.3	3.7				

### Intersection Summary

HCM 6th Ctrl Delay	48.5
HCM 6th LOS	D

# HCM 6th Signalized Intersection Summary

## 8: Parsons Avenue/Gardner Avenue & Yosemite Avenue

02/23/2022

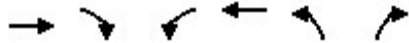


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖		↖	↖		↖	↖	
Traffic Volume (veh/h)	95	975	168	48	1005	41	103	119	20	53	96	68
Future Volume (veh/h)	95	975	168	48	1005	41	103	119	20	53	96	68
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		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	103	1060	183	52	1092	45	112	129	22	58	104	74
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	128	1921	331	67	1069	44	204	326	56	230	213	151
Arrive On Green	0.07	0.64	0.64	0.04	0.60	0.60	0.21	0.21	0.21	0.21	0.21	0.21
Sat Flow, veh/h	1767	3007	518	1767	1769	73	1197	1545	263	1227	1009	718
Grp Volume(v), veh/h	103	620	623	52	0	1137	112	0	151	58	0	178
Grp Sat Flow(s),veh/h/ln	1767	1763	1762	1767	0	1842	1197	0	1808	1227	0	1726
Q Serve(g_s), s	6.9	23.5	23.7	3.5	0.0	72.5	10.9	0.0	8.6	5.1	0.0	10.9
Cycle Q Clear(g_c), s	6.9	23.5	23.7	3.5	0.0	72.5	21.8	0.0	8.6	13.8	0.0	10.9
Prop In Lane	1.00		0.29	1.00		0.04	1.00		0.15	1.00		0.42
Lane Grp Cap(c), veh/h	128	1126	1126	67	0	1113	204	0	381	230	0	364
V/C Ratio(X)	0.80	0.55	0.55	0.78	0.00	1.02	0.55	0.00	0.40	0.25	0.00	0.49
Avail Cap(c_a), veh/h	228	1156	1156	137	0	1113	204	0	381	230	0	364
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	0.45	0.00	0.45	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	54.8	12.1	12.1	57.2	0.0	23.8	51.3	0.0	40.8	46.7	0.0	41.7
Incr Delay (d2), s/veh	11.0	0.5	0.5	8.4	0.0	23.7	10.3	0.0	3.1	2.6	0.0	4.6
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	3.4	8.3	8.4	1.7	0.0	34.4	3.8	0.0	4.1	1.7	0.0	5.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.8	12.6	12.7	65.6	0.0	47.5	61.5	0.0	43.8	49.3	0.0	46.3
LnGrp LOS	E	B	B	E	A	F	E	A	D	D	A	D
Approach Vol, veh/h		1346			1189			263			236	
Approach Delay, s/veh		16.7			48.3			51.4			47.0	
Approach LOS		B			D			D			D	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		29.8	9.0	81.2		29.8	13.2	77.0				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		18.5	9.3	78.7		18.5	15.5	72.5				
Max Q Clear Time (g_c+I1), s		23.8	5.5	25.7		15.8	8.9	74.5				
Green Ext Time (p_c), s		0.0	0.0	10.2		0.3	0.1	0.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				34.4								
HCM 6th LOS				C								

# HCM 6th Signalized Intersection Summary

## 9: McKee Road & Yosemite Avenue

02/23/2022



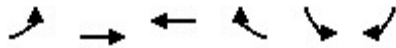
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑	↵	↵
Traffic Volume (veh/h)	774	235	276	931	160	214
Future Volume (veh/h)	774	235	276	931	160	214
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	841	255	300	1012	174	233
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	908	275	338	1111	465	413
Arrive On Green	0.34	0.34	0.19	0.60	0.26	0.26
Sat Flow, veh/h	2758	808	1767	1856	1767	1572
Grp Volume(v), veh/h	556	540	300	1012	174	233
Grp Sat Flow(s),veh/h/ln	1763	1710	1767	1856	1767	1572
Q Serve(g_s), s	26.3	26.4	14.3	41.7	7.0	11.1
Cycle Q Clear(g_c), s	26.3	26.4	14.3	41.7	7.0	11.1
Prop In Lane		0.47	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	600	582	338	1111	465	413
V/C Ratio(X)	0.93	0.93	0.89	0.91	0.37	0.56
Avail Cap(c_a), veh/h	614	596	391	1181	465	413
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.5	27.6	34.2	15.4	26.1	27.7
Incr Delay (d2), s/veh	20.0	20.6	19.3	10.2	2.3	5.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ft	3.3	13.0	7.6	16.7	3.0	4.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	47.5	48.2	53.5	25.6	28.4	33.1
LnGrp LOS	D	D	D	C	C	C
Approach Vol, veh/h	1096			1312	407	
Approach Delay, s/veh	47.9			32.0	31.1	
Approach LOS	D			C	C	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		29.0	22.4	35.3		57.7
Change Period (Y+Rc), s		6.2	5.8	5.8		5.8
Max Green Setting (Gmax), s		22.8	19.2	30.2		55.2
Max Q Clear Time (g_c+I1), s		13.1	16.3	28.4		43.7
Green Ext Time (p_c), s		0.9	0.3	1.1		5.5
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			38.0			
HCM 6th LOS			D			



# HCM 6th Signalized Intersection Summary

## 10: Yosemite Avenue & Lake Road

02/23/2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	34	550	963	15	10	26
Future Volume (veh/h)	34	550	963	15	10	26
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	37	598	1047	16	11	28
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	66	1525	1304	20	18	45
Arrive On Green	0.04	0.82	0.72	0.72	0.04	0.04
Sat Flow, veh/h	1767	1856	1823	28	448	1140
Grp Volume(v), veh/h	37	598	0	1063	40	0
Grp Sat Flow(s),veh/h/ln	1767	1856	0	1851	1628	0
Q Serve(g_s), s	1.3	5.5	0.0	25.0	1.6	0.0
Cycle Q Clear(g_c), s	1.3	5.5	0.0	25.0	1.6	0.0
Prop In Lane	1.00			0.02	0.27	0.70
Lane Grp Cap(c), veh/h	66	1525	0	1324	64	0
V/C Ratio(X)	0.56	0.39	0.00	0.80	0.62	0.00
Avail Cap(c_a), veh/h	139	1525	0	1324	128	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.41	0.41	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	30.8	1.5	0.0	6.2	30.7	0.0
Incr Delay (d2), s/veh	3.0	0.3	0.0	5.2	9.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.1	0.0	5.4	0.7	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	33.8	1.8	0.0	11.4	40.1	0.0
LnGrp LOS	C	A	A	B	D	A
Approach Vol, veh/h		635	1063		40	
Approach Delay, s/veh		3.7	11.4		40.1	
Approach LOS		A	B		D	
Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	6.9	51.0		7.1		57.9
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5
Max Green Setting (Gmax), s	5.1	41.3		5.1		50.9
Max Q Clear Time (g_c+1/3), s	13.3	27.0		3.6		7.5
Green Ext Time (p_c), s	0.0	6.6		0.0		3.8
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			9.3			
HCM 6th LOS			A			



# HCM 6th Signalized Intersection Summary

## 11: Snelling Highway (SR 59) & Santa Fe Drive/Olive Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	153	908	159	324	918	144	106	576	373	153	545	122
Future Volume (veh/h)	153	908	159	324	918	144	106	576	373	153	545	122
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	166	987	173	352	998	157	115	626	405	166	592	133
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	197	1031	610	372	1021	605	168	974	605	168	974	609
Arrive On Green	0.11	0.29	0.29	0.11	0.29	0.29	0.10	0.28	0.28	0.10	0.28	0.28
Sat Flow, veh/h	1767	3526	1572	3428	3526	1572	1767	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	166	987	173	352	998	157	115	626	405	166	592	133
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1714	1763	1572	1767	1763	1572	1767	1763	1572
Q Serve(g_s), s	9.7	28.9	2.1	10.7	29.4	7.2	6.6	16.4	22.4	9.8	15.3	3.3
Cycle Q Clear(g_c), s	9.7	28.9	2.1	10.7	29.4	7.2	6.6	16.4	22.4	9.8	15.3	3.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	197	1031	610	372	1021	605	168	974	605	168	974	609
V/C Ratio(X)	0.84	0.96	0.28	0.95	0.98	0.26	0.68	0.64	0.67	0.99	0.61	0.22
Avail Cap(c_a), veh/h	239	1031	610	372	1021	605	168	974	605	168	974	609
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	0.42	0.42	0.42	0.50	0.50	0.50	0.81	0.81	0.81
Uniform Delay (d), s/veh	45.8	36.5	8.3	46.5	36.9	22.1	46.0	33.4	26.8	47.4	33.1	8.1
Incr Delay (d2), s/veh	20.1	18.6	0.3	18.4	13.3	0.1	5.6	1.6	3.0	58.3	2.3	0.7
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/lr	5.2	14.4	1.3	5.3	13.8	2.5	3.1	6.9	8.3	6.8	6.4	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.9	55.1	8.6	64.9	50.2	22.2	51.6	35.1	29.7	105.8	35.3	8.8
LnGrp LOS	E	E	A	E	D	C	D	D	C	F	D	A
Approach Vol, veh/h		1326			1507			1146			891	
Approach Delay, s/veh		50.4			50.7			34.8			44.5	
Approach LOS		D			D			C			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.5	34.8	17.2	36.5	15.8	35.5	17.5	36.2				
Change Period (Y+Rc), s	6.5	5.8	5.8	5.8	5.8	6.5	5.8	5.8				
Max Green Setting (Gmax), s	10.0	29.0	11.4	30.7	10.0	29.0	14.2	27.9				
Max Q Clear Time (g_c+fl), s	11.8	24.4	12.7	30.9	8.6	17.3	11.7	31.4				
Green Ext Time (p_c), s	0.0	2.2	0.0	0.0	0.0	3.0	0.1	0.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay					45.8							
HCM 6th LOS					D							

# HCM 6th Signalized Intersection Summary

## 12: R Street & Olive Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	223	1095	211	282	1065	213	303	814	132	196	768	146
Future Volume (veh/h)	223	1095	211	282	1065	213	303	814	132	196	768	146
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	242	1190	229	307	1158	232	329	885	143	213	835	159
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	256	1174	656	307	1321	614	328	943	152	229	897	628
Arrive On Green	0.14	0.23	0.23	0.17	0.26	0.26	0.19	0.31	0.31	0.13	0.25	0.25
Sat Flow, veh/h	1767	5066	1572	1767	5066	1572	1767	3039	491	1767	3526	1572
Grp Volume(v), veh/h	242	1190	229	307	1158	232	329	513	515	213	835	159
Grp Sat Flow(s),veh/h/ln	1767	1689	1572	1767	1689	1572	1767	1763	1767	1767	1763	1572
Q Serve(g_s), s	19.7	33.6	14.4	25.2	31.8	4.6	26.9	41.1	41.1	17.3	33.5	9.8
Cycle Q Clear(g_c), s	19.7	33.6	14.4	25.2	31.8	4.6	26.9	41.1	41.1	17.3	33.5	9.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.28	1.00		1.00
Lane Grp Cap(c), veh/h	256	1174	656	307	1321	614	328	547	548	229	897	628
V/C Ratio(X)	0.95	1.01	0.35	1.00	0.88	0.38	1.00	0.94	0.94	0.93	0.93	0.25
Avail Cap(c_a), veh/h	256	1174	656	307	1321	614	328	547	548	229	897	628
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.40	0.40	0.40	0.09	0.09	0.09	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.4	55.7	28.8	59.9	51.4	13.2	59.1	48.6	48.7	62.4	52.8	29.1
Incr Delay (d2), s/veh	23.0	20.1	0.1	15.3	0.7	0.0	50.6	25.9	25.9	40.5	17.3	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ft	0.3	16.1	5.4	12.3	13.2	2.8	16.5	21.6	21.7	10.3	16.8	3.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	84.5	75.8	28.9	75.2	52.1	13.2	109.6	74.5	74.5	103.0	70.1	30.1
LnGrp LOS	F	F	C	E	D	B	F	E	E	F	E	C
Approach Vol, veh/h		1661			1697			1357			1207	
Approach Delay, s/veh		70.6			50.9			83.0			70.6	
Approach LOS		E			D			F			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	34.2	50.4	31.0	39.4	32.3	42.3	26.8	43.6				
Change Period (Y+Rc), s	5.4	5.4	5.8	5.8	5.4	5.4	5.8	5.8				
Max Green Setting (Gmax), s	45.0	45.0	25.2	33.6	26.9	36.9	21.0	37.8				
Max Q Clear Time (g_c+119), s	43.1	43.1	27.2	35.6	28.9	35.5	21.7	33.8				
Green Ext Time (p_c), s	0.0	1.1	0.0	0.0	0.0	0.8	0.0	2.7				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			67.8									
HCM 6th LOS			E									

# HCM 6th Signalized Intersection Summary

## 13: M Street & Olive Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑	↗	↘	↑↑↑		↘	↑↑		↘	↑↑	
Traffic Volume (veh/h)	203	1175	178	233	1086	121	278	798	167	344	673	182
Future Volume (veh/h)	203	1175	178	233	1086	121	278	798	167	344	673	182
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	221	1277	193	253	1180	132	302	867	182	374	732	198
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	204	1165	640	230	1129	126	313	841	177	336	831	225
Arrive On Green	0.12	0.23	0.23	0.13	0.24	0.24	0.18	0.29	0.29	0.19	0.30	0.30
Sat Flow, veh/h	1767	5066	1572	1767	4623	517	1767	2900	609	1767	2743	742
Grp Volume(v), veh/h	221	1277	193	253	862	450	302	527	522	374	470	460
Grp Sat Flow(s),veh/h/ln	1767	1689	1572	1767	1689	1762	1767	1763	1746	1767	1763	1722
Q Serve(g_s), s	16.2	32.2	11.6	18.2	34.2	34.2	23.7	40.6	40.6	26.6	35.5	35.5
Cycle Q Clear(g_c), s	16.2	32.2	11.6	18.2	34.2	34.2	23.7	40.6	40.6	26.6	35.5	35.5
Prop In Lane	1.00		1.00	1.00		0.29	1.00		0.35	1.00		0.43
Lane Grp Cap(c), veh/h	204	1165	640	230	825	431	313	511	506	336	534	522
V/C Ratio(X)	1.08	1.10	0.30	1.10	1.04	1.05	0.96	1.03	1.03	1.11	0.88	0.88
Avail Cap(c_a), veh/h	204	1165	640	230	825	431	313	511	506	336	534	522
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	0.22	0.22	0.22	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.9	53.9	28.0	60.9	52.9	52.9	57.2	49.7	49.7	56.7	46.4	46.4
Incr Delay (d2), s/veh	44.9	44.8	0.0	59.8	28.2	33.4	41.3	47.9	48.2	83.4	18.6	18.9
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	9.7	18.1	4.3	11.8	17.3	18.7	14.0	24.3	24.1	19.5	18.0	17.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	106.8	98.7	28.1	120.7	81.1	86.3	98.4	97.6	97.9	140.1	65.0	65.3
LnGrp LOS	F	F	C	F	F	F	F	F	F	F	E	E
Approach Vol, veh/h		1691			1565			1351			1304	
Approach Delay, s/veh		91.7			89.0			97.9			86.7	
Approach LOS		F			F			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	32.0	46.0	24.0	38.0	30.2	47.8	22.0	40.0				
Change Period (Y+Rc), s	5.4	5.4	5.8	5.8	5.4	5.4	5.8	5.8				
Max Green Setting (Gmax), s	26.6	40.6	18.2	32.2	24.8	42.4	16.2	34.2				
Max Q Clear Time (g_c+20.6), s	20.6	42.6	20.2	34.2	25.7	37.5	18.2	36.2				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	2.4	0.0	0.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			91.3									
HCM 6th LOS			F									

# HCM 6th Signalized Intersection Summary

## 14: Olive Avenue & G Street

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	523	790	302	199	562	98	239	1170	237	130	1135	472
Future Volume (veh/h)	523	790	302	199	562	98	239	1170	237	130	1135	472
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	568	859	328	216	611	107	260	1272	258	141	1234	513
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	417	1053	645	230	579	101	197	1225	752	112	1055	842
Arrive On Green	0.24	0.30	0.30	0.13	0.19	0.19	0.11	0.35	0.35	0.06	0.30	0.30
Sat Flow, veh/h	1767	3526	1572	1767	3000	524	1767	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	568	859	328	216	359	359	260	1272	258	141	1234	513
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1761	1767	1763	1572	1767	1763	1572
Q Serve(g_s), s	34.2	32.8	22.5	17.6	28.0	28.0	16.2	50.4	14.9	9.2	43.4	10.7
Cycle Q Clear(g_c), s	34.2	32.8	22.5	17.6	28.0	28.0	16.2	50.4	14.9	9.2	43.4	10.7
Prop In Lane	1.00		1.00	1.00		0.30	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	417	1053	645	230	340	340	197	1225	752	112	1055	842
V/C Ratio(X)	1.36	0.82	0.51	0.94	1.05	1.06	1.32	1.04	0.34	1.26	1.17	0.61
Avail Cap(c_a), veh/h	417	1053	645	230	340	340	197	1225	752	112	1055	842
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.09	0.09	0.09	1.00	1.00	1.00	1.00	1.00	1.00	0.57	0.57	0.57
Uniform Delay (d), s/veh	55.4	47.2	31.9	62.5	58.5	58.5	64.4	47.3	23.6	67.9	50.8	8.3
Incr Delay (d2), s/veh	164.7	0.5	0.1	42.3	63.5	64.6	173.7	36.1	1.2	150.3	82.4	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	33.9	14.1	8.4	10.4	18.2	18.3	16.7	27.5	5.6	8.8	30.7	4.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	220.1	47.6	31.9	104.8	122.0	123.1	238.1	83.4	24.9	218.2	133.2	10.2
LnGrp LOS	F	D	C	F	F	F	F	F	C	F	F	B
Approach Vol, veh/h	1755			934			1790			1888		
Approach Delay, s/veh	100.5			118.4			97.4			106.2		
Approach LOS	F			F			F			F		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.0	56.2	24.7	49.1	22.0	49.2	40.0	33.8				
Change Period (Y+Rc), s	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8				
Max Green Setting (Gmax), s	50.4	50.4	18.9	43.3	16.2	43.4	34.2	28.0				
Max Q Clear Time (g_c+fl), s	52.4	52.4	19.6	34.8	18.2	45.4	36.2	30.0				
Green Ext Time (p_c), s	0.0	0.0	0.0	4.2	0.0	0.0	0.0	0.0				

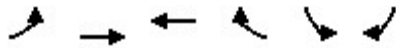
### Intersection Summary

HCM 6th Ctrl Delay	104.0											
HCM 6th LOS	F											

# HCM 6th Signalized Intersection Summary

## 15: 16th Street & Snelling Highway (SR 59)

02/23/2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations	↖	↑	↗	↘	↙	↘	
Traffic Volume (veh/h)	417	531	578	567	413	438	
Future Volume (veh/h)	417	531	578	567	413	438	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	
Adj Flow Rate, veh/h	453	577	628	0	449	0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	3	3	3	3	3	3	
Cap, veh/h	500	1012	714		591		
Arrive On Green	0.28	0.55	0.20	0.00	0.33	0.00	
Sat Flow, veh/h	1767	1856	3618	1572	1767	1572	
Grp Volume(v), veh/h	453	577	628	0	449	0	
Grp Sat Flow(s),veh/h/ln	1767	1856	1763	1572	1767	1572	
Q Serve(g_s), s	18.5	15.4	13.0	0.0	17.0	0.0	
Cycle Q Clear(g_c), s	18.5	15.4	13.0	0.0	17.0	0.0	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	500	1012	714		591		
V/C Ratio(X)	0.91	0.57	0.88		0.76		
Avail Cap(c_a), veh/h	601	1126	729		591		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(l)	1.00	1.00	1.00	0.00	0.70	0.00	
Uniform Delay (d), s/veh	25.9	11.2	29.0	0.0	22.3	0.0	
Incr Delay (d2), s/veh	15.6	0.6	11.8	0.0	6.3	0.0	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/lr	8.8	4.7	6.2	0.0	7.2	0.0	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	41.6	11.8	40.8	0.0	28.6	0.0	
LnGrp LOS	D	B	D		C		
Approach Vol, veh/h		1030	628	A	449	A	
Approach Delay, s/veh		24.9	40.8		28.6		
Approach LOS		C	D		C		
Timer - Assigned Phs			4		6	7	8
Phs Duration (G+Y+Rc), s			45.4		29.6	25.7	19.7
Change Period (Y+Rc), s			4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s			45.5		20.5	25.5	15.5
Max Q Clear Time (g_c+I1), s			17.4		19.0	20.5	15.0
Green Ext Time (p_c), s			3.3		0.3	0.7	0.2
<b>Intersection Summary</b>							
HCM 6th Ctrl Delay			30.4				
HCM 6th LOS			C				
<b>Notes</b>							
Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.							

HCM 6th Signalized Intersection Summary  
 16: MLK JR Way & SR 99 NB Ramps

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕		↕	↑↑			↑↑	
Traffic Volume (veh/h)	0	0	0	37	0	82	290	708	0	0	644	446
Future Volume (veh/h)	0	0	0	37	0	82	290	708	0	0	644	446
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No			No	
Adj Sat Flow, veh/h/ln				1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h				40	0	89	315	770	0	0	700	485
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				52	0	115	359	2677	0	0	971	669
Arrive On Green				0.10	0.00	0.10	0.20	0.76	0.00	0.00	0.49	0.49
Sat Flow, veh/h				505	0	1123	1767	3618	0	0	2089	1375
Grp Volume(v), veh/h				129	0	0	315	770	0	0	618	567
Grp Sat Flow(s),veh/h/ln				1628	0	0	1767	1763	0	0	1763	1608
Q Serve(g_s), s				5.0	0.0	0.0	11.2	4.4	0.0	0.0	18.0	18.2
Cycle Q Clear(g_c), s				5.0	0.0	0.0	11.2	4.4	0.0	0.0	18.0	18.2
Prop In Lane				0.31		0.69	1.00		0.00	0.00		0.86
Lane Grp Cap(c), veh/h				167	0	0	359	2677	0	0	858	782
V/C Ratio(X)				0.77	0.00	0.00	0.88	0.29	0.00	0.00	0.72	0.72
Avail Cap(c_a), veh/h				388	0	0	367	2677	0	0	858	782
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)				1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				28.4	0.0	0.0	25.1	2.4	0.0	0.0	13.2	13.2
Incr Delay (d2), s/veh				7.5	0.0	0.0	20.3	0.3	0.0	0.0	5.2	5.8
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.1	0.0	0.0	6.4	0.8	0.0	0.0	7.3	6.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				35.9	0.0	0.0	45.4	2.7	0.0	0.0	18.4	19.0
LnGrp LOS				D	A	A	D	A	A	A	B	B
Approach Vol, veh/h				129			1085				1185	
Approach Delay, s/veh				35.9			15.1				18.7	
Approach LOS				D			B				B	
Timer - Assigned Phs		2		5	6		8					
Phs Duration (G+Y+Rc), s		53.8		17.7	36.1		11.2					
Change Period (Y+Rc), s		4.5		4.5	4.5		4.5					
Max Green Setting (Gmax), s		40.5		13.5	22.5		15.5					
Max Q Clear Time (g_c+I1), s		6.4		13.2	20.2		7.0					
Green Ext Time (p_c), s		6.3		0.0	1.6		0.4					
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				18.0								
HCM 6th LOS				B								

HCM 6th Signalized Intersection Summary  
 17: G Street & 14th Street/SR 99 NB Off Ramp

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	0	8	16	9	125	11	593	0	0	608	75
Future Volume (veh/h)	60	0	8	16	9	125	11	593	0	0	608	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	0	1856	1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h	65	0	9	17	10	136	12	645	0	0	661	82
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	0	3	3	3	3	3	3	0	0	3	3
Cap, veh/h	0	0	0	21	13	171	584	2623	0	0	2349	291
Arrive On Green	0.00	0.00	0.00	0.13	0.13	0.13	0.74	0.74	0.00	0.00	0.74	0.74
Sat Flow, veh/h		0		167	99	1340	711	3618	0	0	3250	391
Grp Volume(v), veh/h		0.0		163	0	0	12	645	0	0	369	374
Grp Sat Flow(s),veh/h/ln				1606	0	0	711	1763	0	0	1763	1785
Q Serve(g_s), s				6.9	0.0	0.0	0.4	4.0	0.0	0.0	4.7	4.8
Cycle Q Clear(g_c), s				6.9	0.0	0.0	5.1	4.0	0.0	0.0	4.7	4.8
Prop In Lane				0.10		0.83	1.00		0.00	0.00		0.22
Lane Grp Cap(c), veh/h				205	0	0	584	2623	0	0	1312	1328
V/C Ratio(X)				0.80	0.00	0.00	0.02	0.25	0.00	0.00	0.28	0.28
Avail Cap(c_a), veh/h				356	0	0	584	2623	0	0	1312	1328
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				29.7	0.0	0.0	3.7	2.8	0.0	0.0	2.9	2.9
Incr Delay (d2), s/veh				6.9	0.0	0.0	0.1	0.2	0.0	0.0	0.5	0.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.9	0.0	0.0	0.0	0.8	0.0	0.0	1.1	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				36.6	0.0	0.0	3.8	3.0	0.0	0.0	3.4	3.4
LnGrp LOS				D	A	A	A	A	A	A	A	A
Approach Vol, veh/h					163			657			743	
Approach Delay, s/veh					36.6			3.0			3.4	
Approach LOS					D			A			A	
Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		56.6				56.6		13.4				
Change Period (Y+Rc), s		4.5				4.5		4.5				
Max Green Setting (Gmax), s		16.0				16.0		15.5				
Max Q Clear Time (g_c+I1), s		7.1				6.8		8.9				
Green Ext Time (p_c), s		2.8				3.1		0.4				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay											6.7	
HCM 6th LOS											A	



HCM 6th Roundabout  
18: Campus Parkway & Yosemite Avenue

02/23/2022

Intersection									
Intersection Delay, s/veh 7.6									
Intersection LOS A									
Approach	EB		WB		NB		SB		
Entry Lanes	2		2		2		2		
Conflicting Circle Lanes	2		2		2		2		
Adj Approach Flow, veh/h	608		186		357		1001		
Demand Flow Rate, veh/h	626		191		368		1030		
Vehicles Circulating, veh/h	506		611		495		190		
Vehicles Exiting, veh/h	714		252		637		612		
Ped Vol Crossing Leg, #/h	0		0		0		0		
Ped Cap Adj	1.000		1.000		1.000		1.000		
Approach Delay, s/veh	8.2		6.5		6.2		7.8		
Approach LOS	A		A		A		A		
Lane	Left	Right	Left	Right	Left	Right	Left	Right	
Designated Moves	LT	TR	LT	R	LT	TR	LT	TR	
Assumed Moves	LT	TR	LT	R	LT	TR	LT	R	
RT Channelized									
Lane Util	0.470	0.530	0.791	0.209	0.470	0.530	0.455	0.545	
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.667	2.535	2.667	2.535	
Critical Headway, s	4.645	4.328	4.645	4.328	4.645	4.328	4.645	4.328	
Entry Flow, veh/h	294	332	151	40	173	195	469	561	
Cap Entry Lane, veh/h	847	924	769	845	856	932	1133	1208	
Entry HV Adj Factor	0.971	0.970	0.971	0.975	0.970	0.970	0.972	0.971	
Flow Entry, veh/h	286	322	147	39	168	189	456	545	
Cap Entry, veh/h	823	896	747	824	830	904	1101	1174	
V/C Ratio	0.347	0.359	0.196	0.047	0.202	0.209	0.414	0.464	
Control Delay, s/veh	8.4	8.1	7.0	4.8	6.4	6.1	7.6	8.0	
LOS	A	A	A	A	A	A	A	A	
95th %tile Queue, veh	2	2	1	0	1	1	2	3	



HCM 6th Roundabout  
19: Campus Parkway & Olive Avenue

02/23/2022

Intersection									
Intersection Delay, s/veh 5.1									
Intersection LOS A									
Approach	EB		WB		NB		SB		
Entry Lanes	2		2		2		2		
Conflicting Circle Lanes	2		2		2		2		
Adj Approach Flow, veh/h	161		121		362		403		
Demand Flow Rate, veh/h	167		125		373		416		
Vehicles Circulating, veh/h	408		370		169		146		
Vehicles Exiting, veh/h	154		172		406		349		
Ped Vol Crossing Leg, #/h	0		0		0		0		
Ped Cap Adj	1.000		1.000		1.000		1.000		
Approach Delay, s/veh	4.7		4.3		4.5		6.1		
Approach LOS	A		A		A		A		
Lane	Left	Right	Left	Right	Left	Right	Left	Right	
Designated Moves	LT	TR	LT	TR	LT	TR	LT	R	
Assumed Moves	LT	TR	LT	TR	LT	TR	LT	R	
RT Channelized									
Lane Util	0.467	0.533	0.472	0.528	0.469	0.531	0.928	0.072	
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.667	2.535	2.667	2.535	
Critical Headway, s	4.645	4.328	4.645	4.328	4.645	4.328	4.645	4.328	
Entry Flow, veh/h	78	89	59	66	175	198	386	30	
Cap Entry Lane, veh/h	927	1004	960	1037	1155	1230	1180	1254	
Entry HV Adj Factor	0.971	0.960	0.960	0.968	0.972	0.969	0.970	0.967	
Flow Entry, veh/h	76	85	57	64	170	192	374	29	
Cap Entry, veh/h	901	964	922	1004	1123	1192	1145	1213	
V/C Ratio	0.084	0.089	0.061	0.064	0.151	0.161	0.327	0.024	
Control Delay, s/veh	4.8	4.5	4.5	4.1	4.5	4.4	6.3	3.2	
LOS	A	A	A	A	A	A	A	A	
95th %tile Queue, veh	0	0	0	0	1	1	1	0	

# HCM 6th Signalized Intersection Summary

## 20: Campus Parkway & Connector Road

02/23/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙↘	↗	↕↕	↗	↙↘	↕↕
Traffic Volume (veh/h)	49	38	295	43	30	332
Future Volume (veh/h)	49	38	295	43	30	332
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	53	0	321	0	33	361
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	284		1813		150	2415
Arrive On Green	0.08	0.00	0.51	0.00	0.04	0.69
Sat Flow, veh/h	3428	1572	3618	1572	3428	3618
Grp Volume(v), veh/h	53	0	321	0	33	361
Grp Sat Flow(s),veh/h/ln	1714	1572	1763	1572	1714	1763
Q Serve(g_s), s	0.7	0.0	2.5	0.0	0.5	1.8
Cycle Q Clear(g_c), s	0.7	0.0	2.5	0.0	0.5	1.8
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	284		1813		150	2415
V/C Ratio(X)	0.19		0.18		0.22	0.15
Avail Cap(c_a), veh/h	2208		1813		435	2415
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	21.9	0.0	6.6	0.0	23.6	2.8
Incr Delay (d2), s/veh	0.3	0.0	0.2	0.0	0.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.6	0.0	0.2	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	22.2	0.0	6.9	0.0	24.4	3.0
LnGrp LOS	C		A		C	A
Approach Vol, veh/h	53	A	321	A		394
Approach Delay, s/veh	22.2		6.9			4.8
Approach LOS	C		A			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	8.7	32.9			41.6	9.6
Change Period (Y+Rc), s	6.5	6.5			6.5	5.4
Max Green Setting (Gmax), s	6.5	22.1			35.1	33.0
Max Q Clear Time (g_c+1/2), s	12.5	4.5			3.8	2.7
Green Ext Time (p_c), s	0.0	1.6			2.1	0.1

### Intersection Summary

HCM 6th Ctrl Delay	6.8
HCM 6th LOS	A

### Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

# HCM 6th Signalized Intersection Summary

## 21: SR 140 & Connector Road

02/23/2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations	↗	↑	↑	↗	↗	↗	
Traffic Volume (veh/h)	54	248	118	33	29	44	
Future Volume (veh/h)	54	248	118	33	29	44	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			0.50	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	
Adj Flow Rate, veh/h	59	270	128	36	32	48	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	3	3	3	3	3	3	
Cap, veh/h	118	720	361	153	672	598	
Arrive On Green	0.07	0.39	0.19	0.19	0.38	0.38	
Sat Flow, veh/h	1767	1856	1856	784	1767	1572	
Grp Volume(v), veh/h	59	270	128	36	32	48	
Grp Sat Flow(s),veh/h/ln	1767	1856	1856	784	1767	1572	
Q Serve(g_s), s	1.7	5.3	3.1	2.0	0.6	1.0	
Cycle Q Clear(g_c), s	1.7	5.3	3.1	2.0	0.6	1.0	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	118	720	361	153	672	598	
V/C Ratio(X)	0.50	0.38	0.35	0.24	0.05	0.08	
Avail Cap(c_a), veh/h	227	1396	923	390	672	598	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	23.1	11.2	17.9	17.4	10.0	10.2	
Incr Delay (d2), s/veh	3.3	0.3	0.6	0.8	0.1	0.3	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.7	1.6	1.1	0.3	0.2	1.2	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	26.4	11.6	18.5	18.2	10.2	10.4	
LnGrp LOS	C	B	B	B	B	B	
Approach Vol, veh/h		329	164		80		
Approach Delay, s/veh		14.2	18.4		10.3		
Approach LOS		B	B		B		
Timer - Assigned Phs			4		6	7	8
Phs Duration (G+Y+Rc), s			26.4		24.9	9.9	16.5
Change Period (Y+Rc), s			6.5		5.4	6.5	6.5
Max Green Setting (Gmax), s			38.6		19.5	6.6	25.5
Max Q Clear Time (g_c+I1), s			7.3		3.0	3.7	5.1
Green Ext Time (p_c), s			1.3		0.2	0.0	0.7
<b>Intersection Summary</b>							
HCM 6th Ctrl Delay			14.9				
HCM 6th LOS			B				

HCM 6th Signalized Intersection Summary  
 22: Campus Parkway & Childs Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	129	41	65	101	9	62	318	37	8	351	22
Future Volume (veh/h)	11	129	41	65	101	9	62	318	37	8	351	22
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	12	140	45	71	110	10	67	346	40	9	382	24
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	32	419	187	116	624	278	219	1536	685	24	1360	606
Arrive On Green	0.02	0.12	0.12	0.07	0.18	0.18	0.06	0.44	0.44	0.01	0.39	0.39
Sat Flow, veh/h	1767	3526	1572	1767	3526	1572	3428	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	12	140	45	71	110	10	67	346	40	9	382	24
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1572	1714	1763	1572	1767	1763	1572
Q Serve(g_s), s	0.5	2.4	1.7	2.6	1.8	0.4	1.3	4.1	1.0	0.3	5.0	0.6
Cycle Q Clear(g_c), s	0.5	2.4	1.7	2.6	1.8	0.4	1.3	4.1	1.0	0.3	5.0	0.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	32	419	187	116	624	278	219	1536	685	24	1360	606
V/C Ratio(X)	0.38	0.33	0.24	0.61	0.18	0.04	0.31	0.23	0.06	0.37	0.28	0.04
Avail Cap(c_a), veh/h	158	2047	913	268	2268	1011	306	1536	685	158	1360	606
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.6	27.2	26.8	30.5	23.5	22.9	30.0	11.9	11.0	32.8	14.2	12.9
Incr Delay (d2), s/veh	7.3	0.5	0.7	5.2	0.1	0.1	0.8	0.3	0.2	9.0	0.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.0	0.6	1.2	0.7	0.1	0.5	1.3	0.3	0.2	1.7	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.9	27.6	27.5	35.7	23.6	23.0	30.8	12.2	11.1	41.9	14.7	13.0
LnGrp LOS	D	C	C	D	C	C	C	B	B	D	B	B
Approach Vol, veh/h		197			191			453			415	
Approach Delay, s/veh		28.3			28.1			14.9			15.2	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.4	35.8	10.2	13.8	10.8	32.4	6.3	17.7				
Change Period (Y+Rc), s	6.5	6.5	5.8	* 5.8	6.5	6.5	5.1	5.8				
Max Green Setting (Gmax), s	6.0	25.9	10.2	* 39	6.0	25.9	6.0	43.2				
Max Q Clear Time (g_c+1/3), s	12.3	6.1	4.6	4.4	3.3	7.0	2.5	3.8				
Green Ext Time (p_c), s	0.0	1.9	0.1	1.0	0.0	2.0	0.0	0.6				

Intersection Summary

HCM 6th Ctrl Delay	19.1
HCM 6th LOS	B

Notes

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

# HCM 6th Signalized Intersection Summary

## 23: Campus Parkway & Gerard Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑↑	↖	↖↗	↑↑	↖	↖↗	↑↑	↖	↖↗	↑↑	↖
Traffic Volume (veh/h)	87	27	36	233	16	8	73	322	25	6	380	71
Future Volume (veh/h)	87	27	36	233	16	8	73	322	25	6	380	71
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	95	29	39	253	17	9	79	350	27	7	413	77
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	226	348	155	334	490	218	213	1647	735	37	1466	654
Arrive On Green	0.07	0.10	0.10	0.10	0.14	0.14	0.06	0.47	0.47	0.01	0.42	0.42
Sat Flow, veh/h	3428	3526	1572	3428	3526	1572	3428	3526	1572	3428	3526	1572
Grp Volume(v), veh/h	95	29	39	253	17	9	79	350	27	7	413	77
Grp Sat Flow(s),veh/h/ln	1714	1763	1572	1714	1763	1572	1714	1763	1572	1714	1763	1572
Q Serve(g_s), s	2.1	0.6	1.8	5.7	0.3	0.4	1.8	4.7	0.7	0.2	6.2	2.4
Cycle Q Clear(g_c), s	2.1	0.6	1.8	5.7	0.3	0.4	1.8	4.7	0.7	0.2	6.2	2.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	226	348	155	334	490	218	213	1647	735	37	1466	654
V/C Ratio(X)	0.42	0.08	0.25	0.76	0.03	0.04	0.37	0.21	0.04	0.19	0.28	0.12
Avail Cap(c_a), veh/h	301	1634	729	365	1701	759	258	1647	735	258	1466	654
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.8	32.7	33.2	35.1	29.7	29.8	35.9	12.6	11.5	39.1	15.4	14.3
Incr Delay (d2), s/veh	1.2	0.1	0.8	8.1	0.0	0.1	1.1	0.3	0.1	2.4	0.5	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.2	0.7	2.6	0.1	0.1	0.7	1.6	0.2	0.1	2.2	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.0	32.8	34.1	43.2	29.8	29.8	37.0	12.9	11.6	41.6	15.9	14.7
LnGrp LOS	D	C	C	D	C	C	D	B	B	D	B	B
Approach Vol, veh/h		163			279			456			497	
Approach Delay, s/veh		35.6			42.0			17.0			16.1	
Approach LOS		D			D			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.4	43.8	14.3	14.4	11.5	39.7	11.1	17.6				
Change Period (Y+Rc), s	6.5	6.5	6.5	* 6.5	6.5	6.5	5.8	6.5				
Max Green Setting (Gmax), s	6.0	33.2	8.5	* 37	6.0	33.2	7.0	38.5				
Max Q Clear Time (g_c+1/2), s	12.2	6.7	7.7	3.8	3.8	8.2	4.1	2.4				
Green Ext Time (p_c), s	0.0	2.0	0.1	0.2	0.0	2.5	0.1	0.1				

### Intersection Summary

HCM 6th Ctrl Delay	23.8
HCM 6th LOS	C

### Notes

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

# HCM 6th Signalized Intersection Summary

## 24: Coffee Street & Campus Parkway

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	84	376	85	15	625	9	110	33	14	7	246	122
Future Volume (veh/h)	84	376	85	15	625	9	110	33	14	7	246	122
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	91	409	92	16	679	10	120	36	15	8	267	133
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	116	988	440	34	831	12	234	1023	401	18	416	207
Arrive On Green	0.07	0.28	0.28	0.02	0.23	0.23	0.07	0.41	0.41	0.01	0.36	0.36
Sat Flow, veh/h	1767	3526	1572	1767	3557	52	3428	2475	969	1767	1169	582
Grp Volume(v), veh/h	91	409	92	16	336	353	120	25	26	8	0	400
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1846	1714	1763	1681	1767	0	1751
Q Serve(g_s), s	3.3	6.1	2.9	0.6	11.8	11.8	2.2	0.5	0.6	0.3	0.0	12.4
Cycle Q Clear(g_c), s	3.3	6.1	2.9	0.6	11.8	11.8	2.2	0.5	0.6	0.3	0.0	12.4
Prop In Lane	1.00		1.00	1.00		0.03	1.00		0.58	1.00		0.33
Lane Grp Cap(c), veh/h	116	988	440	34	412	431	234	729	695	18	0	622
V/C Ratio(X)	0.78	0.41	0.21	0.47	0.82	0.82	0.51	0.03	0.04	0.44	0.00	0.64
Avail Cap(c_a), veh/h	150	1003	448	136	488	511	264	729	695	136	0	622
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.96	0.96	0.96	0.93	0.93	0.93	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.9	19.1	17.9	31.5	23.6	23.6	29.2	11.3	11.4	32.0	0.0	17.5
Incr Delay (d2), s/veh	17.6	0.3	0.2	9.0	8.4	8.1	1.7	0.1	0.1	15.6	0.0	5.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	2.1	0.9	0.3	5.1	5.3	0.9	0.2	0.2	0.2	0.0	5.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.5	19.3	18.1	40.6	32.0	31.7	31.0	11.4	11.5	47.6	0.0	22.5
LnGrp LOS	D	B	B	D	C	C	C	B	B	D	A	C
Approach Vol, veh/h		592			705			171			408	
Approach Delay, s/veh		23.5			32.1			25.2			23.0	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.2	31.4	5.8	22.7	8.9	27.6	8.8	19.7				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.0	18.5	5.0	18.5	5.0	18.5	5.5	18.0				
Max Q Clear Time (g_c+I), s	12.3	2.6	2.6	8.1	4.2	14.4	5.3	13.8				
Green Ext Time (p_c), s	0.0	0.1	0.0	1.9	0.0	0.9	0.0	1.4				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay											26.8	
HCM 6th LOS											C	

# HCM 6th Signalized Intersection Summary

## 25: SR 99 NB Ramps & Campus Parkway

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	111	424	0	0	484	322	28	18	121	0	0	0
Future Volume (veh/h)	111	424	0	0	484	322	28	18	121	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1856	1856	0	0	1856	1856	1856	1856	1856			
Adj Flow Rate, veh/h	121	461	0	0	526	350	30	20	132			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	3	3	0	0	3	3	3	3	3			
Cap, veh/h	149	1413	0	0	924	412	537	358	781			
Arrive On Green	0.08	0.40	0.00	0.00	0.26	0.26	0.50	0.50	0.50			
Sat Flow, veh/h	1767	3618	0	0	3618	1572	1081	721	1572			
Grp Volume(v), veh/h	121	461	0	0	526	350	50	0	132			
Grp Sat Flow(s),veh/h/ln	1767	1763	0	0	1763	1572	1801	0	1572			
Q Serve(g_s), s	8.1	10.8	0.0	0.0	15.5	25.3	1.7	0.0	5.5			
Cycle Q Clear(g_c), s	8.1	10.8	0.0	0.0	15.5	25.3	1.7	0.0	5.5			
Prop In Lane	1.00		0.00	0.00		1.00	0.60		1.00			
Lane Grp Cap(c), veh/h	149	1413	0	0	924	412	895	0	781			
V/C Ratio(X)	0.81	0.33	0.00	0.00	0.57	0.85	0.06	0.00	0.17			
Avail Cap(c_a), veh/h	376	2336	0	0	1396	622	895	0	781			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(l)	1.00	1.00	0.00	0.00	0.63	0.63	1.00	0.00	1.00			
Uniform Delay (d), s/veh	54.0	24.8	0.0	0.0	38.4	42.0	15.6	0.0	16.6			
Incr Delay (d2), s/veh	10.1	0.1	0.0	0.0	0.3	4.5	0.1	0.0	0.5			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/lr	3.9	4.3	0.0	0.0	6.4	9.8	0.7	0.0	2.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.1	24.9	0.0	0.0	38.7	46.6	15.7	0.0	17.1			
LnGrp LOS	E	C	A	A	D	D	B	A	B			
Approach Vol, veh/h		582			876			182				
Approach Delay, s/veh		33.1			41.9			16.7				
Approach LOS		C			D			B				
Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		65.4		54.6			16.6	38.0				
Change Period (Y+Rc), s		5.8		6.5			6.5	6.5				
Max Green Setting (Gmax), s		28.2		79.5			25.5	47.5				
Max Q Clear Time (g_c+I1), s		7.5		12.8			10.1	27.3				
Green Ext Time (p_c), s		0.6		2.8			0.2	4.1				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay												35.9
HCM 6th LOS												D



HCM 6th Signalized Intersection Summary  
 26: Lake Street & Meyers Gate Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	30	10	57	30	57	20	511	59	59	663	10
Future Volume (veh/h)	20	30	10	57	30	57	20	511	59	59	663	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	22	33	11	62	33	62	22	555	64	64	721	11
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	47	119	40	102	70	131	47	707	81	104	848	13
Arrive On Green	0.03	0.09	0.09	0.06	0.12	0.12	0.03	0.43	0.43	0.06	0.47	0.47
Sat Flow, veh/h	1767	1332	444	1767	577	1084	1767	1633	188	1767	1823	28
Grp Volume(v), veh/h	22	0	44	62	0	95	22	0	619	64	0	732
Grp Sat Flow(s),veh/h/ln	1767	0	1776	1767	0	1660	1767	0	1822	1767	0	1851
Q Serve(g_s), s	0.6	0.0	1.2	1.7	0.0	2.7	0.6	0.0	14.6	1.8	0.0	17.4
Cycle Q Clear(g_c), s	0.6	0.0	1.2	1.7	0.0	2.7	0.6	0.0	14.6	1.8	0.0	17.4
Prop In Lane	1.00		0.25	1.00		0.65	1.00		0.10	1.00		0.02
Lane Grp Cap(c), veh/h	47	0	159	102	0	201	47	0	788	104	0	861
V/C Ratio(X)	0.47	0.00	0.28	0.61	0.00	0.47	0.47	0.00	0.79	0.61	0.00	0.85
Avail Cap(c_a), veh/h	181	0	641	184	0	603	181	0	1224	188	0	1251
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.9	0.0	21.2	22.9	0.0	20.4	23.9	0.0	12.2	22.9	0.0	11.8
Incr Delay (d2), s/veh	7.3	0.0	0.9	5.7	0.0	1.7	7.3	0.0	1.8	5.8	0.0	3.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.5	0.8	0.0	1.0	0.3	0.0	4.0	0.8	0.0	5.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.2	0.0	22.1	28.6	0.0	22.2	31.2	0.0	14.0	28.7	0.0	15.7
LnGrp LOS	C	A	C	C	A	C	C	A	B	C	A	B
Approach Vol, veh/h		66			157			641			796	
Approach Delay, s/veh		25.1			24.7			14.6			16.7	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.4	26.1	7.4	9.0	5.8	27.7	5.8	10.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.3	33.5	5.2	18.0	5.1	33.7	5.1	18.1				
Max Q Clear Time (g_c+1/3), s	13.8	16.6	3.7	3.2	2.6	19.4	2.6	4.7				
Green Ext Time (p_c), s	0.0	3.3	0.0	0.1	0.0	3.8	0.0	0.3				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay											17.0	
HCM 6th LOS											B	



HCM 6th Roundabout  
76: Campus Parkway & Meyers Gate Road

02/23/2022

Intersection						
Intersection Delay, s/veh	7.9					
Intersection LOS	A					
Approach	EB	WB	NB		SB	
Entry Lanes	1	1	2		2	
Conflicting Circle Lanes	2	2	2		2	
Adj Approach Flow, veh/h	150	269	562		1015	
Demand Flow Rate, veh/h	155	277	579		1046	
Vehicles Circulating, veh/h	1174	591	143		265	
Vehicles Exiting, veh/h	137	131	1186		603	
Ped Vol Crossing Leg, #/h	20	20	20		0	
Ped Cap Adj	1.000	0.997	0.980		1.000	
Approach Delay, s/veh	11.5	8.0	5.3		8.8	
Approach LOS	B	A	A		A	
Lane	Left	Left	Left	Right	Left	Right
Designated Moves	LTR	LTR	LT	TR	LT	TR
Assumed Moves	LTR	LTR	LT	TR	LT	TR
RT Channelized						
Lane Util	1.000	1.000	0.470	0.530	0.470	0.530
Follow-Up Headway, s	2.535	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.328	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	155	277	272	307	492	554
Cap Entry Lane, veh/h	523	859	1183	1258	1058	1134
Entry HV Adj Factor	0.968	0.972	0.972	0.971	0.970	0.971
Flow Entry, veh/h	150	269	264	298	477	538
Cap Entry, veh/h	507	833	1127	1196	1026	1101
V/C Ratio	0.296	0.323	0.235	0.249	0.465	0.489
Control Delay, s/veh	11.5	8.0	5.3	5.3	8.8	8.8
LOS	B	A	A	A	A	A
95th %tile Queue, veh	1	1	1	1	3	3

HCM 6th Signalized Intersection Summary  
 77: Lake Road & Virginia Smith Parkway

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	30	10	170	30	113	20	457	176	118	602	10
Future Volume (veh/h)	20	30	10	170	30	113	20	457	176	118	602	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.91		0.90	1.00		0.94	1.00		0.94	1.00		0.95
Parking Bus, Adj	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	22	33	11	185	33	123	22	497	191	128	654	11
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	229	114	38	234	562	445	46	664	530	165	773	13
Arrive On Green	0.09	0.09	0.09	0.13	0.30	0.30	0.03	0.36	0.36	0.09	0.43	0.43
Sat Flow, veh/h	1109	1292	431	1767	1856	1472	1767	1856	1482	1767	1818	31
Grp Volume(v), veh/h	22	0	44	185	33	123	22	497	191	128	0	665
Grp Sat Flow(s),veh/h/ln	1109	0	1723	1767	1856	1472	1767	1856	1482	1767	0	1848
Q Serve(g_s), s	1.0	0.0	1.3	5.6	0.7	3.5	0.7	12.9	5.2	3.9	0.0	17.7
Cycle Q Clear(g_c), s	1.0	0.0	1.3	5.6	0.7	3.5	0.7	12.9	5.2	3.9	0.0	17.7
Prop In Lane	1.00		0.25	1.00		1.00	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	229	0	152	234	562	445	46	664	530	165	0	786
V/C Ratio(X)	0.10	0.00	0.29	0.79	0.06	0.28	0.48	0.75	0.36	0.78	0.00	0.85
Avail Cap(c_a), veh/h	495	0	565	371	1150	912	164	1110	886	313	0	1260
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.3	0.0	23.4	23.0	13.6	14.6	26.3	15.4	13.0	24.3	0.0	14.2
Incr Delay (d2), s/veh	0.2	0.0	1.0	5.9	0.0	0.3	7.6	1.7	0.4	7.6	0.0	3.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.5	2.4	0.3	1.0	0.3	4.2	1.5	1.7	0.0	5.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.4	0.0	24.4	28.9	13.6	14.9	33.9	17.2	13.4	31.9	0.0	17.3
LnGrp LOS	C	A	C	C	B	B	C	B	B	C	A	B
Approach Vol, veh/h		66			341			710			793	
Approach Delay, s/veh		24.1			22.4			16.7			19.6	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	9.6	24.1	11.8	9.3	5.9	27.8		21.1				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	32.8	32.8	11.5	18.0	5.1	37.4		34.0				
Max Q Clear Time (g_c+1/3), s	14.9	14.9	7.6	3.3	2.7	19.7		5.5				
Green Ext Time (p_c), s	0.1	3.1	0.2	0.2	0.0	3.6		0.6				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay											19.2	
HCM 6th LOS											B	

HCM 6th Roundabout  
78: Campus Parkway & Virginia Smith Parkway

02/23/2022

Intersection							
Intersection Delay, s/veh 10.7							
Intersection LOS B							
Approach	EB	WB		NB		SB	
Entry Lanes	1	2		2		2	
Conflicting Circle Lanes	2	2		2		2	
Adj Approach Flow, veh/h	269	347		612		1150	
Demand Flow Rate, veh/h	277	357		630		1184	
Vehicles Circulating, veh/h	1266	570		306		349	
Vehicles Exiting, veh/h	267	366		1237		578	
Ped Vol Crossing Leg, #/h	20	20		20		20	
Ped Cap Adj	1.000	0.989		0.983		0.984	
Approach Delay, s/veh	20.3	6.8		6.6		11.9	
Approach LOS	C	A		A		B	
Lane	Left	Left	Right	Left	Right	Left	Right
Designated Moves	LTR	LT	TR	LT	TR	LT	TR
Assumed Moves	LTR	LT	TR	LT	TR	LT	TR
RT Channelized							
Lane Util	1.000	0.471	0.529	0.470	0.530	0.470	0.530
Follow-Up Headway, s	2.535	2.667	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.328	4.645	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	277	168	189	296	334	556	628
Cap Entry Lane, veh/h	484	799	875	1019	1095	979	1056
Entry HV Adj Factor	0.970	0.970	0.972	0.971	0.971	0.972	0.971
Flow Entry, veh/h	269	163	184	287	324	541	610
Cap Entry, veh/h	469	767	841	972	1044	937	1008
V/C Ratio	0.572	0.213	0.218	0.296	0.310	0.577	0.605
Control Delay, s/veh	20.3	7.0	6.6	6.7	6.5	11.8	11.9
LOS	C	A	A	A	A	B	B
95th %tile Queue, veh	4	1	1	1	1	4	4

Intersection												
Int Delay, s/veh	4.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Vol, veh/h	37	208	48	32	203	19	47	27	32	19	27	28
Future Vol, veh/h	37	208	48	32	203	19	47	27	32	19	27	28
Conflicting Peds, #/hr	20	0	20	20	0	20	20	0	20	20	0	20
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	150	-	-	150	-	-
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	40	226	52	35	221	21	51	29	35	21	29	30

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	262	0	0	298	0	0	703	684	292	706	700	272
Stage 1	-	-	-	-	-	-	352	352	-	322	322	-
Stage 2	-	-	-	-	-	-	351	332	-	384	378	-
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	1296	-	-	1258	-	-	351	370	745	349	362	764
Stage 1	-	-	-	-	-	-	663	630	-	688	649	-
Stage 2	-	-	-	-	-	-	664	643	-	637	613	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1271	-	-	1234	-	-	288	335	717	285	328	735
Mov Cap-2 Maneuver	-	-	-	-	-	-	288	335	-	285	328	-
Stage 1	-	-	-	-	-	-	630	599	-	654	619	-
Stage 2	-	-	-	-	-	-	578	613	-	548	583	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	1		1		16.6		15.3	
HCM LOS					C		C	

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	288	471	1271	-	-	1234	-	-	285	457
HCM Lane V/C Ratio	0.177	0.136	0.032	-	-	0.028	-	-	0.072	0.131
HCM Control Delay (s)	20.2	13.8	7.9	-	-	8	-	-	18.6	14.1
HCM Lane LOS	C	B	A	-	-	A	-	-	C	B
HCM 95th %tile Q(veh)	0.6	0.5	0.1	-	-	0.1	-	-	0.2	0.4

HCM 6th Roundabout  
80: Virginia Smith Parkway & Main Street

02/23/2022

Intersection				
Intersection Delay, s/veh	4.9			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	283	204	93	192
Demand Flow Rate, veh/h	291	210	96	197
Vehicles Circulating, veh/h	112	182	300	195
Vehicles Exiting, veh/h	280	214	103	197
Ped Vol Crossing Leg, #/h	20	20	20	20
Ped Cap Adj	0.997	0.997	0.997	0.997
Approach Delay, s/veh	5.1	4.9	4.5	4.8
Approach LOS	A	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	291	210	96	197
Cap Entry Lane, veh/h	1231	1146	1016	1131
Entry HV Adj Factor	0.972	0.971	0.966	0.973
Flow Entry, veh/h	283	204	93	192
Cap Entry, veh/h	1193	1109	979	1098
V/C Ratio	0.237	0.184	0.095	0.175
Control Delay, s/veh	5.1	4.9	4.5	4.8
LOS	A	A	A	A
95th %tile Queue, veh	1	1	0	1

HCM 6th TWSC  
81: 4th Street & Virginia Smith Parkway

02/23/2022

Intersection												
Int Delay, s/veh	4.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷		↶	↷		↶	↷	
Traffic Vol, veh/h	0	34	61	20	28	0	66	0	10	0	0	0
Future Vol, veh/h	0	34	61	20	28	0	66	0	10	0	0	0
Conflicting Peds, #/hr	0	0	20	20	0	0	20	0	20	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	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	0	37	66	22	30	0	72	0	11	0	0	0

Major/Minor	Major1		Major2		Minor1			Minor2				
Conflicting Flow All	30	0	0	123	0	0	184	164	110	170	197	50
Stage 1	-	-	-	-	-	-	90	90	-	74	74	-
Stage 2	-	-	-	-	-	-	94	74	-	96	123	-
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	1576	-	-	1458	-	-	775	727	941	791	697	1015
Stage 1	-	-	-	-	-	-	915	818	-	933	831	-
Stage 2	-	-	-	-	-	-	910	831	-	908	792	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1576	-	-	1430	-	-	737	702	905	758	673	996
Mov Cap-2 Maneuver	-	-	-	-	-	-	737	702	-	758	673	-
Stage 1	-	-	-	-	-	-	898	802	-	933	819	-
Stage 2	-	-	-	-	-	-	879	819	-	880	777	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	3.1	10.2	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	737	905	1576	-	-	1430	-	-	-	-
HCM Lane V/C Ratio	0.097	0.012	-	-	-	0.015	-	-	-	-
HCM Control Delay (s)	10.4	9	0	-	-	7.6	-	-	0	0
HCM Lane LOS	B	A	A	-	-	A	-	-	A	A
HCM 95th %tile Q(veh)	0.3	0	0	-	-	0	-	-	-	-

**Horizon Year (2042) With Project and  
Recommended Improvements  
AM Peak Hour**

# HCM 6th Signalized Intersection Summary

## 1: Snelling Highway (SR 59) & Bellevue Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	304	9	739	199	89	9	89	708	121	92	31
Future Volume (veh/h)	19	304	9	739	199	89	9	89	708	121	92	31
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	21	330	10	803	216	97	10	97	770	132	100	34
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	41	368	11	888	535	240	22	431	1360	164	414	141
Arrive On Green	0.02	0.21	0.21	0.26	0.44	0.44	0.01	0.23	0.23	0.09	0.31	0.31
Sat Flow, veh/h	1767	1791	54	3428	1213	545	1767	1856	2768	1767	1324	450
Grp Volume(v), veh/h	21	0	340	803	0	313	10	97	770	132	0	134
Grp Sat Flow(s),veh/h/ln	1767	0	1846	1714	0	1758	1767	1856	1384	1767	0	1774
Q Serve(g_s), s	1.0	0.0	15.3	19.4	0.0	10.3	0.5	3.6	16.7	6.3	0.0	4.8
Cycle Q Clear(g_c), s	1.0	0.0	15.3	19.4	0.0	10.3	0.5	3.6	16.7	6.3	0.0	4.8
Prop In Lane	1.00		0.03	1.00		0.31	1.00		1.00	1.00		0.25
Lane Grp Cap(c), veh/h	41	0	379	888	0	776	22	431	1360	164	0	555
V/C Ratio(X)	0.52	0.00	0.90	0.90	0.00	0.40	0.46	0.22	0.57	0.81	0.00	0.24
Avail Cap(c_a), veh/h	112	0	400	944	0	776	103	467	1414	176	0	555
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	41.2	0.0	33.0	30.6	0.0	16.2	41.9	26.5	15.3	38.0	0.0	21.8
Incr Delay (d2), s/veh	9.8	0.0	21.6	11.6	0.0	0.3	14.2	0.3	0.5	22.3	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	8.5	8.5	0.0	3.6	0.3	1.5	4.4	3.5	0.0	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.1	0.0	54.7	42.2	0.0	16.6	56.1	26.8	15.8	60.3	0.0	22.0
LnGrp LOS	D	A	D	D	A	B	E	C	B	E	A	C
Approach Vol, veh/h		361			1116			877			266	
Approach Delay, s/veh		54.5			35.0			17.5			41.0	
Approach LOS		D			D			B			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.4	24.3	26.6	22.0	5.6	31.2	6.5	42.2				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	8.5	21.5	23.5	18.5	5.0	25.0	5.4	36.6				
Max Q Clear Time (g_c+I1), s	8.3	18.7	21.4	17.3	2.5	6.8	3.0	12.3				
Green Ext Time (p_c), s	0.0	1.1	0.8	0.2	0.0	0.5	0.0	1.6				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			32.4									
HCM 6th LOS			C									



# HCM 6th Signalized Intersection Summary

## 2: G Street & Bellevue Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	74	720	187	545	712	24	164	382	606	18	391	69
Future Volume (veh/h)	74	720	187	545	712	24	164	382	606	18	391	69
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	80	783	203	592	774	26	178	415	659	20	425	75
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	103	805	359	658	1277	570	207	929	716	46	609	272
Arrive On Green	0.06	0.23	0.23	0.19	0.36	0.36	0.12	0.26	0.26	0.03	0.17	0.17
Sat Flow, veh/h	1767	3526	1572	3428	3526	1572	1767	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	80	783	203	592	774	26	178	415	659	20	425	75
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1714	1763	1572	1767	1763	1572	1767	1763	1572
Q Serve(g_s), s	4.0	19.8	10.3	15.1	16.1	1.0	8.9	8.8	23.6	1.0	10.2	3.7
Cycle Q Clear(g_c), s	4.0	19.8	10.3	15.1	16.1	1.0	8.9	8.8	23.6	1.0	10.2	3.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	103	805	359	658	1277	570	207	929	716	46	609	272
V/C Ratio(X)	0.78	0.97	0.57	0.90	0.61	0.05	0.86	0.45	0.92	0.43	0.70	0.28
Avail Cap(c_a), veh/h	177	805	359	669	1277	570	207	929	716	118	609	272
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.7	34.3	30.7	35.4	23.4	18.5	38.9	27.6	22.9	43.0	34.9	32.2
Incr Delay (d2), s/veh	11.9	25.0	2.0	15.0	0.8	0.0	28.8	1.6	18.9	6.2	6.5	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	10.4	3.8	7.1	6.0	0.3	5.2	3.6	14.6	0.5	4.6	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.6	59.3	32.7	50.4	24.2	18.6	67.7	29.1	41.8	49.2	41.4	34.8
LnGrp LOS	D	E	C	D	C	B	E	C	D	D	D	C
Approach Vol, veh/h		1066			1392			1252			520	
Approach Delay, s/veh		53.8			35.2			41.3			40.8	
Approach LOS		D			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.9	30.1	23.7	27.0	17.0	22.0	11.7	39.0				
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5				
Max Green Setting (Gmax), s	6.0	20.0	17.5	20.5	10.5	15.5	9.0	29.0				
Max Q Clear Time (g_c+1/3), s	13.0	25.6	17.1	21.8	10.9	12.2	6.0	18.1				
Green Ext Time (p_c), s	0.0	0.0	0.1	0.0	0.0	0.8	0.0	3.5				

### Intersection Summary

HCM 6th Ctrl Delay	42.4
HCM 6th LOS	D

### Notes

User approved changes to right turn type.

# HCM 6th Signalized Intersection Summary

## 3: Lake Street/Lake Road & Bellevue Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	370	329	337	41	42	13	256	731	90	20	386	82
Future Volume (veh/h)	370	329	337	41	42	13	256	731	90	20	386	82
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	402	358	366	45	46	14	278	795	98	22	420	89
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	406	563	477	66	121	37	324	1260	155	42	1156	515
Arrive On Green	0.23	0.30	0.30	0.04	0.09	0.09	0.09	0.40	0.40	0.02	0.33	0.33
Sat Flow, veh/h	1767	1856	1572	1767	1365	416	3428	3159	389	1767	3526	1572
Grp Volume(v), veh/h	402	358	366	45	0	60	278	444	449	22	420	89
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	0	1781	1714	1763	1785	1767	1763	1572
Q Serve(g_s), s	20.4	15.0	19.0	2.3	0.0	2.9	7.2	18.2	18.2	1.1	8.2	3.6
Cycle Q Clear(g_c), s	20.4	15.0	19.0	2.3	0.0	2.9	7.2	18.2	18.2	1.1	8.2	3.6
Prop In Lane	1.00		1.00	1.00		0.23	1.00		0.22	1.00		1.00
Lane Grp Cap(c), veh/h	406	563	477	66	0	158	324	703	712	42	1156	515
V/C Ratio(X)	0.99	0.64	0.77	0.68	0.00	0.38	0.86	0.63	0.63	0.53	0.36	0.17
Avail Cap(c_a), veh/h	406	703	596	130	0	356	324	703	712	100	1156	515
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.44	0.44	0.44	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.5	27.0	28.4	42.8	0.0	38.7	40.2	21.7	21.7	43.5	23.1	21.6
Incr Delay (d2), s/veh	26.8	0.6	2.1	11.5	0.0	1.5	20.0	4.3	4.2	10.1	0.9	0.7
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/ft	0.9	6.0	6.7	1.1	0.0	1.2	3.8	7.8	7.9	0.6	3.3	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.4	27.6	30.6	54.3	0.0	40.2	60.1	26.0	26.0	53.5	24.0	22.3
LnGrp LOS	E	C	C	D	A	D	E	C	C	D	C	C
Approach Vol, veh/h		1126			105			1171			531	
Approach Delay, s/veh		40.6			46.2			34.1			24.9	
Approach LOS		D			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.6	41.7	7.9	33.8	13.0	35.3	27.2	14.5				
Change Period (Y+Rc), s	4.5	* 5.8	4.5	6.5	4.5	5.8	6.5	6.5				
Max Green Setting (Gmax), s	5.0	* 24	6.6	34.1	8.5	19.5	20.7	18.0				
Max Q Clear Time (g_c+1/3), s	13.0	20.2	4.3	21.0	9.2	10.2	22.4	4.9				
Green Ext Time (p_c), s	0.0	1.9	0.0	2.6	0.0	1.9	0.0	0.1				

### Intersection Summary

HCM 6th Ctrl Delay	35.4
HCM 6th LOS	D

### Notes

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

# HCM 6th Signalized Intersection Summary

## 4: G Street & Cardella Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	135	12	70	2	10	9	35	969	1	5	1247	105
Future Volume (veh/h)	135	12	70	2	10	9	35	969	1	5	1247	105
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	147	13	76	2	11	10	38	1053	1	5	1355	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	182	474	402	56	85	70	77	1673	2	77	1632	
Arrive On Green	0.10	0.26	0.26	0.09	0.09	0.09	0.04	0.46	0.46	0.04	0.46	0.00
Sat Flow, veh/h	1767	1856	1572	56	904	738	1767	3614	3	1767	3526	1572
Grp Volume(v), veh/h	147	13	76	23	0	0	38	514	540	5	1355	0
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1699	0	0	1767	1763	1855	1767	1763	1572
Q Serve(g_s), s	6.3	0.4	2.9	0.0	0.0	0.0	1.6	17.0	17.0	0.2	25.9	0.0
Cycle Q Clear(g_c), s	6.3	0.4	2.9	0.9	0.0	0.0	1.6	17.0	17.0	0.2	25.9	0.0
Prop In Lane	1.00		1.00	0.09		0.43	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	182	474	402	211	0	0	77	816	858	77	1632	
V/C Ratio(X)	0.81	0.03	0.19	0.11	0.00	0.00	0.50	0.63	0.63	0.07	0.83	
Avail Cap(c_a), veh/h	190	719	609	423	0	0	137	816	858	137	1632	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	33.9	21.5	22.5	32.1	0.0	0.0	36.1	15.7	15.7	35.4	18.1	0.0
Incr Delay (d2), s/veh	21.7	0.0	0.2	0.2	0.0	0.0	4.9	3.7	3.5	0.4	5.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/lr	3.6	0.2	1.0	0.4	0.0	0.0	0.7	6.3	6.6	0.1	9.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.5	21.6	22.7	32.3	0.0	0.0	41.0	19.4	19.2	35.8	23.1	0.0
LnGrp LOS	E	C	C	C	A	A	D	B	B	D	C	
Approach Vol, veh/h		236			23			1092			1360	A
Approach Delay, s/veh		43.1			32.3			20.0			23.2	
Approach LOS		D			C			C			C	
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.8	42.2		25.1	9.8	42.2	12.4	12.7				
Change Period (Y+Rc), s	6.5	6.5		5.4	6.5	6.5	4.5	5.4				
Max Green Setting (Gmax), s	6.0	35.7		29.9	6.0	35.7	8.3	17.1				
Max Q Clear Time (g_c+1/2), s	12.2	19.0		4.9	3.6	27.9	8.3	2.9				
Green Ext Time (p_c), s	0.0	5.4		0.2	0.0	4.8	0.0	0.0				

### Intersection Summary

HCM 6th Ctrl Delay	23.7
HCM 6th LOS	C

### Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

# HCM 6th Signalized Intersection Summary

## 5: Lake Road & Cardella Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	38	9	69	48	71	13	103	79	51	87	16
Future Volume (veh/h)	17	38	9	69	48	71	13	103	79	51	87	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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	18	41	10	75	52	77	14	112	86	55	95	17
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	41	509	124	243	97	111	32	294	249	107	307	55
Arrive On Green	0.02	0.35	0.35	0.19	0.19	0.19	0.02	0.16	0.16	0.06	0.20	0.20
Sat Flow, veh/h	1767	1441	351	463	515	593	1767	1856	1572	1767	1532	274
Grp Volume(v), veh/h	18	0	51	204	0	0	14	112	86	55	0	112
Grp Sat Flow(s),veh/h/ln	1767	0	1792	1572	0	0	1767	1856	1572	1767	0	1806
Q Serve(g_s), s	0.3	0.0	0.6	2.7	0.0	0.0	0.2	1.7	1.5	1.0	0.0	1.7
Cycle Q Clear(g_c), s	0.3	0.0	0.6	3.8	0.0	0.0	0.2	1.7	1.5	1.0	0.0	1.7
Prop In Lane	1.00		0.20	0.37		0.38	1.00		1.00	1.00		0.15
Lane Grp Cap(c), veh/h	41	0	634	451	0	0	32	294	249	107	0	362
V/C Ratio(X)	0.44	0.00	0.08	0.45	0.00	0.00	0.43	0.38	0.35	0.51	0.00	0.31
Avail Cap(c_a), veh/h	280	0	1561	1038	0	0	280	1087	921	308	0	1087
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.2	0.0	6.8	11.9	0.0	0.0	15.3	11.9	11.8	14.4	0.0	10.8
Incr Delay (d2), s/veh	7.3	0.0	0.1	0.7	0.0	0.0	8.9	0.8	0.8	3.8	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/lr	0.2	0.0	0.2	1.1	0.0	0.0	0.1	0.5	0.4	0.4	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.5	0.0	6.8	12.6	0.0	0.0	24.2	12.7	12.7	18.2	0.0	11.2
LnGrp LOS	C	A	A	B	A	A	C	B	B	B	A	B
Approach Vol, veh/h		69		204			212		167			
Approach Delay, s/veh		10.9		12.6			13.4		13.5			
Approach LOS		B		B			B		B			
Timer - Assigned Phs	1	2	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	6.4	9.5	15.7	5.1	10.8	5.2	10.4					
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5					
Max Green Setting (Gmax), s	5.5	18.5	27.5	5.0	19.0	5.0	18.0					
Max Q Clear Time (g_c+1/3), s	13.5	3.7	2.6	2.2	3.7	2.3	5.8					
Green Ext Time (p_c), s	0.0	0.6	0.2	0.0	0.4	0.0	0.9					
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				12.9								
HCM 6th LOS				B								

HCM 6th Signalized Intersection Summary  
6: Snelling Highway (SR 59) & Yosemite Avenue

02/23/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙↘	↗	↑↑	↗	↙↘	↑↑
Traffic Volume (veh/h)	237	438	716	242	537	942
Future Volume (veh/h)	237	438	716	242	537	942
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	258	476	778	263	584	1024
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	882	714	977	436	676	1999
Arrive On Green	0.26	0.26	0.28	0.28	0.20	0.57
Sat Flow, veh/h	3428	1572	3618	1572	3428	3618
Grp Volume(v), veh/h	258	476	778	263	584	1024
Grp Sat Flow(s),veh/h/ln	1714	1572	1763	1572	1714	1763
Q Serve(g_s), s	4.2	16.6	14.3	10.2	11.5	12.4
Cycle Q Clear(g_c), s	4.2	16.6	14.3	10.2	11.5	12.4
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	882	714	977	436	676	1999
V/C Ratio(X)	0.29	0.67	0.80	0.60	0.86	0.51
Avail Cap(c_a), veh/h	882	714	977	436	710	1999
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	0.72	0.72	0.62	0.62
Uniform Delay (d), s/veh	20.9	15.0	23.5	22.0	27.2	9.2
Incr Delay (d2), s/veh	0.2	2.4	4.9	4.4	6.8	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	5.3	5.7	3.7	4.7	3.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	21.1	17.3	28.4	26.4	34.0	9.8
LnGrp LOS	C	B	C	C	C	A
Approach Vol, veh/h	734		1041			1608
Approach Delay, s/veh	18.6		27.9			18.6
Approach LOS	B		C			B
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	30.3	25.9			46.2	23.8
Change Period (Y+Rc), s	6.5	6.5			6.5	5.8
Max Green Setting (Gmax), s	14.5	18.7			39.7	18.0
Max Q Clear Time (g_c+113), s	11.5	16.3			14.4	18.6
Green Ext Time (p_c), s	0.3	1.3			6.8	0.0
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			21.5			
HCM 6th LOS			C			

# HCM 6th Signalized Intersection Summary

## 7: G Street & Yosemite Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑	↗	↔↔	↑↑	↗	↔↔	↑↑	↗	↔↔	↑↑	↗
Traffic Volume (veh/h)	287	929	160	712	806	176	265	809	546	187	748	238
Future Volume (veh/h)	287	929	160	712	806	176	265	809	546	187	748	238
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	312	1010	174	774	876	191	288	879	593	203	813	259
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	374	965	430	746	1347	601	288	922	754	211	843	376
Arrive On Green	0.11	0.27	0.27	0.22	0.38	0.38	0.08	0.26	0.26	0.06	0.24	0.24
Sat Flow, veh/h	3428	3526	1572	3428	3526	1572	3428	3526	1572	3428	3526	1572
Grp Volume(v), veh/h	312	1010	174	774	876	191	288	879	593	203	813	259
Grp Sat Flow(s),veh/h/ln	1714	1763	1572	1714	1763	1572	1714	1763	1572	1714	1763	1572
Q Serve(g_s), s	11.2	34.2	8.5	27.2	25.5	10.7	10.5	30.7	8.2	7.4	28.5	18.8
Cycle Q Clear(g_c), s	11.2	34.2	8.5	27.2	25.5	10.7	10.5	30.7	8.2	7.4	28.5	18.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	374	965	430	746	1347	601	288	922	754	211	843	376
V/C Ratio(X)	0.83	1.05	0.40	1.04	0.65	0.32	1.00	0.95	0.79	0.96	0.96	0.69
Avail Cap(c_a), veh/h	496	965	430	746	1347	601	288	922	754	211	843	376
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.6	45.4	21.2	48.9	31.7	27.2	57.2	45.4	11.4	58.5	47.0	43.3
Incr Delay (d2), s/veh	9.1	42.1	0.6	43.1	1.1	0.3	53.1	20.2	8.1	50.8	23.4	9.9
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/lr	5.2	20.0	3.1	15.7	10.6	3.9	6.6	15.5	8.9	4.6	14.8	8.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.7	87.5	21.8	92.0	32.9	27.5	110.3	65.6	19.6	109.3	70.4	53.2
LnGrp LOS	E	F	C	F	C	C	F	E	B	F	E	D
Approach Vol, veh/h		1496			1841			1760			1275	
Approach Delay, s/veh		74.9			57.1			57.4			73.1	
Approach LOS		E			E			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	38.5	38.5	33.0	40.0	16.3	35.7	19.4	53.6				
Change Period (Y+Rc), s	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8				
Max Green Setting (Gmax), s	32.7	32.7	27.2	34.2	10.5	29.9	18.1	43.3				
Max Q Clear Time (g_c+19.4), s	32.7	32.7	29.2	36.2	12.5	30.5	13.2	27.5				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.5	5.6				

### Intersection Summary

HCM 6th Ctrl Delay	64.6
HCM 6th LOS	E

HCM 6th Signalized Intersection Summary  
 8: Parsons Avenue/Gardner Avenue & Yosemite Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	53	1243	138	23	1321	31	227	52	37	56	146	74
Future Volume (veh/h)	53	1243	138	23	1321	31	227	52	37	56	146	74
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		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	58	1351	150	25	1436	34	247	57	40	61	159	80
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	188	1612	178	179	1773	42	406	338	237	195	457	523
Arrive On Green	0.50	0.50	0.50	0.50	0.50	0.50	0.33	0.33	0.33	0.33	0.33	0.33
Sat Flow, veh/h	357	3201	353	347	3520	83	1132	1015	712	335	1374	1572
Grp Volume(v), veh/h	58	741	760	25	718	752	247	0	97	220	0	80
Grp Sat Flow(s),veh/h/ln	357	1763	1792	347	1763	1841	1132	0	1727	1708	0	1572
Q Serve(g_s), s	8.9	19.8	20.1	3.7	18.8	18.8	11.6	0.0	2.2	0.0	0.0	2.0
Cycle Q Clear(g_c), s	27.7	19.8	20.1	23.8	18.8	18.8	16.6	0.0	2.2	4.9	0.0	2.0
Prop In Lane	1.00		0.20	1.00		0.05	1.00		0.41	0.28		1.00
Lane Grp Cap(c), veh/h	188	888	902	179	888	927	406	0	575	652	0	523
V/C Ratio(X)	0.31	0.83	0.84	0.14	0.81	0.81	0.61	0.00	0.17	0.34	0.00	0.15
Avail Cap(c_a), veh/h	188	888	902	179	888	927	406	0	575	652	0	523
HCM Platoon Ratio	1.00	1.00	1.00	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	23.1	11.7	11.8	22.0	11.4	11.5	20.2	0.0	13.0	13.9	0.0	12.9
Incr Delay (d2), s/veh	0.9	6.9	7.3	0.4	5.7	5.5	2.6	0.0	0.1	0.3	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/lr	0.7	6.8	7.1	0.3	6.3	6.5	2.8	0.0	0.7	1.7	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.0	18.6	19.1	22.4	17.1	17.0	22.8	0.0	13.1	14.2	0.0	13.0
LnGrp LOS	C	B	B	C	B	B	C	A	B	B	A	B
Approach Vol, veh/h		1559			1495			344			300	
Approach Delay, s/veh		19.0			17.1			20.1			13.9	
Approach LOS		B			B			C			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		22.8		32.2		22.8		32.2				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		18.3		27.7		18.3		27.7				
Max Q Clear Time (g_c+I1), s		18.6		29.7		6.9		25.8				
Green Ext Time (p_c), s		0.0		0.0		1.0		1.5				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay											17.9	
HCM 6th LOS											B	



# HCM 6th Signalized Intersection Summary

## 9: McKee Road & Yosemite Avenue

02/23/2022



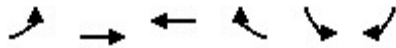
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑↑	↑↑	↑	↑
Traffic Volume (veh/h)	1146	121	330	1121	286	398
Future Volume (veh/h)	1146	121	330	1121	286	398
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	1246	132	359	1218	311	433
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	1393	621	436	2076	483	430
Arrive On Green	0.40	0.40	0.13	0.59	0.27	0.27
Sat Flow, veh/h	3618	1572	3428	3618	1767	1572
Grp Volume(v), veh/h	1246	132	359	1218	311	433
Grp Sat Flow(s),veh/h/ln	1763	1572	1714	1763	1767	1572
Q Serve(g_s), s	28.8	4.8	8.9	18.9	13.5	23.8
Cycle Q Clear(g_c), s	28.8	4.8	8.9	18.9	13.5	23.8
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1393	621	436	2076	483	430
V/C Ratio(X)	0.89	0.21	0.82	0.59	0.64	1.01
Avail Cap(c_a), veh/h	1466	654	480	2195	483	430
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.6	17.4	37.0	11.2	27.9	31.6
Incr Delay (d2), s/veh	7.3	0.2	10.3	0.4	6.5	45.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ft	2.1	1.6	4.1	6.0	6.1	13.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	31.9	17.6	47.3	11.6	34.4	76.9
LnGrp LOS	C	B	D	B	C	F
Approach Vol, veh/h	1378			1577	744	
Approach Delay, s/veh	30.5			19.7	59.1	
Approach LOS	C			B	E	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		30.0	16.9	40.2		57.1
Change Period (Y+Rc), s		6.2	5.8	5.8		5.8
Max Green Setting (Gmax), s		23.8	12.2	36.2		54.2
Max Q Clear Time (g_c+I1), s		25.8	10.9	30.8		20.9
Green Ext Time (p_c), s		0.0	0.2	3.6		10.1
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			31.7			
HCM 6th LOS			C			



# HCM 6th Signalized Intersection Summary

## 10: Yosemite Avenue & Lake Road

02/23/2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	29	951	814	12	15	34
Future Volume (veh/h)	29	951	814	12	15	34
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	32	1034	885	13	16	37
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	455	1669	1683	25	91	210
Arrive On Green	0.47	0.47	0.47	0.47	0.19	0.19
Sat Flow, veh/h	615	3618	3649	52	483	1117
Grp Volume(v), veh/h	32	1034	439	459	54	0
Grp Sat Flow(s),veh/h/ln	615	1763	1763	1846	1630	0
Q Serve(g_s), s	1.0	5.8	4.6	4.6	0.7	0.0
Cycle Q Clear(g_c), s	5.7	5.8	4.6	4.6	0.7	0.0
Prop In Lane	1.00			0.03	0.30	0.69
Lane Grp Cap(c), veh/h	455	1669	834	874	307	0
V/C Ratio(X)	0.07	0.62	0.53	0.53	0.18	0.00
Avail Cap(c_a), veh/h	580	2387	1194	1250	1104	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	6.9	5.2	4.9	4.9	9.1	0.0
Incr Delay (d2), s/veh	0.1	0.4	0.5	0.5	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/lr0.1		0.2	0.2	0.2	0.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	7.0	5.6	5.4	5.4	9.3	0.0
LnGrp LOS	A	A	A	A	A	A
Approach Vol, veh/h		1066	898		54	
Approach Delay, s/veh		5.6	5.4		9.3	
Approach LOS		A	A		A	
Timer - Assigned Phs				4	6	8
Phs Duration (G+Y+Rc), s				17.1	9.5	17.1
Change Period (Y+Rc), s				4.5	4.5	4.5
Max Green Setting (Gmax), s				18.0	18.0	18.0
Max Q Clear Time (g_c+I1), s				7.8	2.7	6.6
Green Ext Time (p_c), s				4.8	0.1	3.8
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			5.6			
HCM 6th LOS			A			

### Notes

User approved volume balancing among the lanes for turning movement.

# HCM 6th Signalized Intersection Summary

## 11: Snelling Highway (SR 59) & Santa Fe Drive/Olive Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑	↗	↔↔	↑↑	↗	↔↔	↑↑	↗	↔↔	↑↑	↗
Traffic Volume (veh/h)	176	980	149	231	679	187	89	760	284	254	830	86
Future Volume (veh/h)	176	980	149	231	679	187	89	760	284	254	830	86
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	191	1065	162	251	738	203	97	826	309	276	902	93
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	259	972	533	224	936	542	217	1158	619	271	1214	660
Arrive On Green	0.08	0.28	0.28	0.07	0.27	0.27	0.06	0.33	0.33	0.08	0.34	0.34
Sat Flow, veh/h	3428	3526	1572	3428	3526	1572	3428	3526	1572	3428	3526	1572
Grp Volume(v), veh/h	191	1065	162	251	738	203	97	826	309	276	902	93
Grp Sat Flow(s),veh/h/ln	1714	1763	1572	1714	1763	1572	1714	1763	1572	1714	1763	1572
Q Serve(g_s), s	5.2	26.2	1.4	6.2	18.5	9.2	2.6	19.5	14.1	7.5	21.4	2.0
Cycle Q Clear(g_c), s	5.2	26.2	1.4	6.2	18.5	9.2	2.6	19.5	14.1	7.5	21.4	2.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	259	972	533	224	936	542	217	1158	619	271	1214	660
V/C Ratio(X)	0.74	1.10	0.30	1.12	0.79	0.37	0.45	0.71	0.50	1.02	0.74	0.14
Avail Cap(c_a), veh/h	278	972	533	224	936	542	217	1158	619	271	1214	660
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.0	34.4	9.9	44.4	32.4	23.4	42.9	28.0	21.7	43.8	27.5	6.2
Incr Delay (d2), s/veh	9.3	58.5	0.3	96.8	4.6	0.4	1.4	3.8	2.9	59.9	4.1	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	18.3	1.4	5.5	8.0	3.3	1.1	8.2	5.3	5.2	8.7	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.3	92.9	10.2	141.2	37.0	23.9	44.4	31.7	24.6	103.6	31.6	6.6
LnGrp LOS	D	F	B	F	D	C	D	C	C	F	C	A
Approach Vol, veh/h		1418			1192			1232			1271	
Approach Delay, s/veh		78.0			56.7			30.9			45.4	
Approach LOS		E			E			C			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.0	37.0	12.0	32.0	11.8	39.2	13.0	31.0				
Change Period (Y+Rc), s	6.5	5.8	5.8	5.8	5.8	6.5	5.8	5.8				
Max Green Setting (Gmax), s	7.5	31.2	6.2	26.2	6.0	32.7	7.7	24.7				
Max Q Clear Time (g_c+19), s	19.5	21.5	8.2	28.2	4.6	23.4	7.2	20.5				
Green Ext Time (p_c), s	0.0	4.4	0.0	0.0	0.0	3.9	0.0	2.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay					53.6							
HCM 6th LOS					D							

# HCM 6th Signalized Intersection Summary

## 12: R Street & Olive Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑	↗	↘	↑↑↑	↗	↘	↑↑		↘	↑↑	↗
Traffic Volume (veh/h)	131	869	261	253	780	163	310	605	142	188	686	74
Future Volume (veh/h)	131	869	261	253	780	163	310	605	142	188	686	74
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	142	945	284	275	848	177	337	658	154	204	746	80
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	121	1064	561	224	1359	612	259	1009	236	214	1163	626
Arrive On Green	0.07	0.21	0.21	0.13	0.27	0.27	0.15	0.36	0.36	0.12	0.33	0.33
Sat Flow, veh/h	1767	5066	1572	1767	5066	1572	1767	2836	663	1767	3526	1572
Grp Volume(v), veh/h	142	945	284	275	848	177	337	409	403	204	746	80
Grp Sat Flow(s),veh/h/ln	1767	1689	1572	1767	1689	1572	1767	1763	1736	1767	1763	1572
Q Serve(g_s), s	8.2	21.7	17.0	15.2	17.7	1.8	17.6	23.3	23.4	13.8	21.6	3.9
Cycle Q Clear(g_c), s	8.2	21.7	17.0	15.2	17.7	1.8	17.6	23.3	23.4	13.8	21.6	3.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.38	1.00		1.00
Lane Grp Cap(c), veh/h	121	1064	561	224	1359	612	259	627	618	214	1163	626
V/C Ratio(X)	1.18	0.89	0.51	1.23	0.62	0.29	1.30	0.65	0.65	0.96	0.64	0.13
Avail Cap(c_a), veh/h	121	1098	571	224	1393	622	259	627	618	214	1163	626
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.19	0.19	0.19	0.09	0.09	0.09	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.9	46.0	30.3	52.4	38.6	11.8	51.2	32.4	32.4	52.4	34.2	22.9
Incr Delay (d2), s/veh	94.9	1.9	0.1	106.6	0.1	0.0	160.4	5.2	5.3	48.9	2.7	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.7	9.0	6.2	13.2	7.1	2.0	19.2	10.6	10.4	8.9	9.4	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	150.8	48.0	30.4	159.0	38.7	11.8	211.6	37.6	37.7	101.3	36.9	23.3
LnGrp LOS	F	D	C	F	D	B	F	D	D	F	D	C
Approach Vol, veh/h		1371			1300			1149			1030	
Approach Delay, s/veh		55.0			60.5			88.7			48.6	
Approach LOS		D			E			F			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	49.9	48.1	21.0	31.0	23.0	45.0	14.0	38.0				
Change Period (Y+Rc), s	5.4	5.4	5.8	5.8	5.4	5.4	5.8	5.8				
Max Green Setting (Gmax), s	42.7	42.7	15.2	26.0	17.6	38.8	8.2	33.0				
Max Q Clear Time (g_c+1/5), s	25.4	25.4	17.2	23.7	19.6	23.6	10.2	19.7				
Green Ext Time (p_c), s	0.0	4.6	0.0	1.5	0.0	4.5	0.0	5.0				

### Intersection Summary

HCM 6th Ctrl Delay	63.1
HCM 6th LOS	E

# HCM 6th Signalized Intersection Summary

## 13: M Street & Olive Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘ ↑↑↑	↑↑↑	↗	↘ ↑↑↑	↑↑↑		↘ ↑↑	↑↑		↘ ↑↑	↑↑	
Traffic Volume (veh/h)	173	921	158	199	996	149	156	612	154	282	897	112
Future Volume (veh/h)	173	921	158	199	996	149	156	612	154	282	897	112
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		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	188	1001	172	216	1083	162	170	665	167	307	975	122
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	197	1131	519	233	1082	162	188	789	198	311	1109	139
Arrive On Green	0.11	0.22	0.22	0.13	0.24	0.24	0.11	0.28	0.28	0.18	0.35	0.35
Sat Flow, veh/h	1767	5066	1572	1767	4448	665	1767	2792	700	1767	3153	394
Grp Volume(v), veh/h	188	1001	172	216	822	423	170	420	412	307	545	552
Grp Sat Flow(s),veh/h/ln	1767	1689	1572	1767	1689	1736	1767	1763	1729	1767	1763	1785
Q Serve(g_s), s	12.7	23.0	9.9	14.5	29.2	29.2	11.4	26.9	27.0	20.8	34.8	34.8
Cycle Q Clear(g_c), s	12.7	23.0	9.9	14.5	29.2	29.2	11.4	26.9	27.0	20.8	34.8	34.8
Prop In Lane	1.00		1.00	1.00		0.38	1.00		0.41	1.00		0.22
Lane Grp Cap(c), veh/h	197	1131	519	233	822	422	188	498	489	311	620	628
V/C Ratio(X)	0.95	0.88	0.33	0.93	1.00	1.00	0.90	0.84	0.84	0.99	0.88	0.88
Avail Cap(c_a), veh/h	197	1131	519	233	822	422	188	498	489	311	620	628
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.30	0.30	0.30	0.09	0.09	0.09	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.0	45.1	30.2	51.5	45.4	45.4	53.0	40.5	40.6	49.3	36.5	36.5
Incr Delay (d2), s/veh	24.0	2.8	0.1	6.6	9.5	13.5	39.3	15.8	16.2	47.6	16.3	16.1
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/lr	6.8	9.6	3.6	6.7	12.8	13.7	7.0	13.5	13.3	13.1	17.2	17.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	77.0	48.0	30.4	58.2	54.9	58.9	92.3	56.4	56.7	97.0	52.8	52.7
LnGrp LOS	E	D	C	E	F	F	F	E	E	F	D	D
Approach Vol, veh/h		1361			1461			1002			1404	
Approach Delay, s/veh		49.7			56.5			62.6			62.4	
Approach LOS		D			E			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	36.5	39.3	21.6	32.6	18.2	47.6	19.2	35.0				
Change Period (Y+Rc), s	5.4	5.4	5.8	5.8	5.4	5.4	5.8	5.8				
Max Green Setting (Gmax), s	21.5	33.9	15.8	26.8	12.8	42.2	13.4	29.2				
Max Q Clear Time (g_c+Q), s	22.8	29.0	16.5	25.0	13.4	36.8	14.7	31.2				
Green Ext Time (p_c), s	0.0	2.2	0.0	1.2	0.0	3.0	0.0	0.0				

### Intersection Summary

HCM 6th Ctrl Delay	57.5
HCM 6th LOS	E

# HCM 6th Signalized Intersection Summary

## 14: Olive Avenue & G Street

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑		↘	↑↑	↗	↘	↑↑	↗
Traffic Volume (veh/h)	385	441	249	254	749	97	250	1413	135	98	1437	570
Future Volume (veh/h)	385	441	249	254	749	97	250	1413	135	98	1437	570
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	418	479	271	276	814	105	272	1536	147	107	1562	620
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	283	776	522	286	697	90	197	1439	897	88	1221	796
Arrive On Green	0.16	0.22	0.22	0.16	0.22	0.22	0.11	0.41	0.41	0.05	0.35	0.35
Sat Flow, veh/h	1767	3526	1572	1767	3140	405	1767	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	418	479	271	276	457	462	272	1536	147	107	1562	620
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1783	1767	1763	1572	1767	1763	1572
Q Serve(g_s), s	23.2	17.8	20.2	22.5	32.2	32.2	16.2	59.2	6.4	7.2	50.2	15.9
Cycle Q Clear(g_c), s	23.2	17.8	20.2	22.5	32.2	32.2	16.2	59.2	6.4	7.2	50.2	15.9
Prop In Lane	1.00		1.00	1.00		0.23	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	283	776	522	286	391	396	197	1439	897	88	1221	796
V/C Ratio(X)	1.48	0.62	0.52	0.96	1.17	1.17	1.38	1.07	0.16	1.22	1.28	0.78
Avail Cap(c_a), veh/h	283	776	522	286	391	396	197	1439	897	88	1221	796
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	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	60.9	51.0	39.1	60.3	56.4	56.4	64.4	42.9	14.8	68.9	47.4	11.6
Incr Delay (d2), s/veh	233.4	1.5	0.9	43.2	99.5	99.3	198.4	43.9	0.4	166.4	132.3	7.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	28.5	7.9	7.8	13.3	24.8	25.0	18.0	33.4	2.3	7.3	43.7	8.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	294.3	52.5	40.0	103.5	155.9	155.7	262.8	86.8	15.2	235.3	179.7	19.0
LnGrp LOS	F	D	D	F	F	F	F	F	B	F	F	B
Approach Vol, veh/h		1168			1195			1955			2289	
Approach Delay, s/veh		136.2			143.7			105.9			138.8	
Approach LOS		F			F			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	30.0	65.0	29.3	37.7	22.0	56.0	29.0	38.0				
Change Period (Y+Rc), s	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8				
Max Green Setting (Gmax), s	7.8	59.2	23.5	31.9	16.2	50.2	23.2	32.2				
Max Q Clear Time (g_c+19), s	19.8	61.2	24.5	22.2	18.2	52.2	25.2	34.2				
Green Ext Time (p_c), s	0.0	0.0	0.0	2.7	0.0	0.0	0.0	0.0				

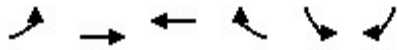
### Intersection Summary

HCM 6th Ctrl Delay	129.5
HCM 6th LOS	F

# HCM 6th Signalized Intersection Summary

## 15: 16th Street & Snelling Highway (SR 59)

02/23/2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖↗	↑↑	↑↑	↖	↖↗	↖
Traffic Volume (veh/h)	645	845	353	404	428	789
Future Volume (veh/h)	645	845	353	404	428	789
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	701	918	384	0	465	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	1334	1969	1969		734	
Arrive On Green	0.56	0.56	0.56	0.00	0.21	0.00
Sat Flow, veh/h	1923	3618	3618	1572	3428	1572
Grp Volume(v), veh/h	701	918	384	0	465	0
Grp Sat Flow(s),veh/h/ln	962	1763	1763	1572	1714	1572
Q Serve(g_s), s	11.2	6.1	2.1	0.0	4.9	0.0
Cycle Q Clear(g_c), s	13.4	6.1	2.1	0.0	4.9	0.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	1334	1969	1969		734	
V/C Ratio(X)	0.53	0.47	0.20		0.63	
Avail Cap(c_a), veh/h	1529	2326	2326		2591	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	7.6	5.2	4.3	0.0	14.1	0.0
Incr Delay (d2), s/veh	0.3	0.2	0.0	0.0	0.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/lr0.9		0.6	0.3	0.0	1.4	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	8.0	5.4	4.4	0.0	15.1	0.0
LnGrp LOS	A	A	A		B	
Approach Vol, veh/h		1619	384	A	465	A
Approach Delay, s/veh		6.5	4.4		15.1	
Approach LOS		A	A		B	
Timer - Assigned Phs				4	6	8
Phs Duration (G+Y+Rc), s				26.6	13.0	26.6
Change Period (Y+Rc), s				4.5	4.5	4.5
Max Green Setting (Gmax), s				26.1	29.9	26.1
Max Q Clear Time (g_c+I1), s				15.4	6.9	4.1
Green Ext Time (p_c), s				6.7	1.6	2.3
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			7.8			
HCM 6th LOS			A			
<b>Notes</b>						
Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.						

HCM 6th Signalized Intersection Summary  
 16: MLK JR Way & SR 99 NB Ramps

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕		↕	↕			↕	↕
Traffic Volume (veh/h)	0	0	0	76	0	118	301	860	0	0	558	341
Future Volume (veh/h)	0	0	0	76	0	118	301	860	0	0	558	341
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No			No	
Adj Sat Flow, veh/h/ln				1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h				83	0	128	327	935	0	0	607	371
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				106	0	164	385	2351	0	0	766	468
Arrive On Green				0.16	0.00	0.16	0.22	0.67	0.00	0.00	0.36	0.36
Sat Flow, veh/h				647	0	997	1767	3618	0	0	2195	1285
Grp Volume(v), veh/h				211	0	0	327	935	0	0	509	469
Grp Sat Flow(s),veh/h/ln				1644	0	0	1767	1763	0	0	1763	1624
Q Serve(g_s), s				6.6	0.0	0.0	9.5	6.4	0.0	0.0	13.7	13.7
Cycle Q Clear(g_c), s				6.6	0.0	0.0	9.5	6.4	0.0	0.0	13.7	13.7
Prop In Lane				0.39		0.61	1.00		0.00	0.00		0.79
Lane Grp Cap(c), veh/h				270	0	0	385	2351	0	0	643	592
V/C Ratio(X)				0.78	0.00	0.00	0.85	0.40	0.00	0.00	0.79	0.79
Avail Cap(c_a), veh/h				479	0	0	448	2351	0	0	643	592
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)				1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				21.3	0.0	0.0	20.0	4.0	0.0	0.0	15.1	15.1
Incr Delay (d2), s/veh				4.9	0.0	0.0	12.8	0.5	0.0	0.0	9.7	10.4
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.5	0.0	0.0	4.9	1.5	0.0	0.0	6.4	6.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				26.3	0.0	0.0	32.8	4.5	0.0	0.0	24.8	25.5
LnGrp LOS				C	A	A	C	A	A	A	C	C
Approach Vol, veh/h					211			1262			978	
Approach Delay, s/veh					26.3			11.9			25.1	
Approach LOS					C			B			C	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		40.0			16.1	23.9		13.2				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		35.5			13.5	17.5		15.5				
Max Q Clear Time (g_c+I1), s		8.4			11.5	15.7		8.6				
Green Ext Time (p_c), s		7.6			0.2	1.1		0.6				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay											18.4	
HCM 6th LOS											B	



HCM 6th Signalized Intersection Summary  
 17: G Street & 14th Street/SR 99 NB Off Ramp

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	161	0	9	56	8	151	10	679	0	0	763	61
Future Volume (veh/h)	161	0	9	56	8	151	10	679	0	0	763	61
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	0	1856	1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h	175	0	10	61	9	164	11	738	0	0	829	66
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	0	3	3	3	3	3	3	0	0	3	3
Cap, veh/h	0	0	0	79	12	213	25	2161	0	0	1649	131
Arrive On Green	0.00	0.00	0.00	0.19	0.19	0.19	0.01	0.61	0.00	0.00	0.50	0.50
Sat Flow, veh/h		0		425	63	1142	1767	3618	0	0	3400	263
Grp Volume(v), veh/h		0.0		234	0	0	11	738	0	0	442	453
Grp Sat Flow(s),veh/h/ln				1629	0	0	1767	1763	0	0	1763	1808
Q Serve(g_s), s				6.1	0.0	0.0	0.3	4.6	0.0	0.0	7.5	7.5
Cycle Q Clear(g_c), s				6.1	0.0	0.0	0.3	4.6	0.0	0.0	7.5	7.5
Prop In Lane				0.26		0.70	1.00		0.00	0.00		0.15
Lane Grp Cap(c), veh/h				304	0	0	25	2161	0	0	879	901
V/C Ratio(X)				0.77	0.00	0.00	0.44	0.34	0.00	0.00	0.50	0.50
Avail Cap(c_a), veh/h				563	0	0	197	2161	0	0	879	901
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)				1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				17.3	0.0	0.0	21.9	4.2	0.0	0.0	7.5	7.5
Incr Delay (d2), s/veh				4.1	0.0	0.0	11.4	0.4	0.0	0.0	2.1	2.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.2	0.0	0.0	0.2	0.9	0.0	0.0	2.4	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				21.5	0.0	0.0	33.3	4.7	0.0	0.0	9.6	9.5
LnGrp LOS				C	A	A	C	A	A	A	A	A
Approach Vol, veh/h					234			749			895	
Approach Delay, s/veh					21.5			5.1			9.6	
Approach LOS					C			A			A	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		32.0			5.1	26.9		12.9				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		27.5			5.0	18.0		15.5				
Max Q Clear Time (g_c+I1), s		6.6			2.3	9.5		8.1				
Green Ext Time (p_c), s		5.0			0.0	3.5		0.7				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay					9.3							
HCM 6th LOS					A							



HCM 6th Roundabout  
18: Campus Parkway & Yosemite Avenue

02/23/2022

Intersection									
Intersection Delay, s/veh 56.3									
Intersection LOS F									
Approach	EB		WB		NB		SB		
Entry Lanes	2		2		2		2		
Conflicting Circle Lanes	2		2		2		2		
Adj Approach Flow, veh/h	1050		643		1073		1387		
Demand Flow Rate, veh/h	1081		663		1105		1429		
Vehicles Circulating, veh/h	1178		1262		697		757		
Vehicles Exiting, veh/h	1008		540		1562		1168		
Ped Vol Crossing Leg, #/h	0		0		0		0		
Ped Cap Adj	1.000		1.000		1.000		1.000		
Approach Delay, s/veh	101.9		31.0		21.3		60.5		
Approach LOS	F		D		C		F		
Lane	Left	Right	Left	Right	Left	Right	Left	Right	
Designated Moves	LT	TR	LT	TR	LT	TR	LT	TR	
Assumed Moves	LT	TR	LT	TR	LT	TR	LT	TR	
RT Channelized									
Lane Util	0.470	0.530	0.471	0.529	0.470	0.530	0.470	0.530	
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.667	2.535	2.667	2.535	
Critical Headway, s	4.645	4.328	4.645	4.328	4.645	4.328	4.645	4.328	
Entry Flow, veh/h	508	573	312	351	519	586	672	757	
Cap Entry Lane, veh/h	457	522	423	486	711	785	673	746	
Entry HV Adj Factor	0.971	0.971	0.969	0.971	0.972	0.970	0.970	0.971	
Flow Entry, veh/h	493	556	302	341	504	569	652	735	
Cap Entry, veh/h	444	507	410	472	691	762	653	725	
V/C Ratio	1.112	1.098	0.738	0.723	0.730	0.746	0.999	1.015	
Control Delay, s/veh	106.9	97.5	33.5	28.7	21.6	21.0	60.0	61.0	
LOS	F	F	D	D	C	C	F	F	
95th %tile Queue, veh	17	18	6	6	6	7	16	17	

HCM 6th Roundabout  
19: Campus Parkway & Olive Avenue

02/23/2022

Intersection									
Intersection Delay, s/veh64.4									
Intersection LOS F									
Approach	EB		WB		NB		SB		
Entry Lanes	2		2		2		2		
Conflicting Circle Lanes	2		2		2		2		
Adj Approach Flow, veh/h	187		208		981		1517		
Demand Flow Rate, veh/h	193		215		1011		1562		
Vehicles Circulating, veh/h	1452		1057		309		165		
Vehicles Exiting, veh/h	275		263		1336		1107		
Ped Vol Crossing Leg, #/h	0		0		0		0		
Ped Cap Adj	1.000		1.000		1.000		1.000		
Approach Delay, s/veh	14.4		9.5		9.1		113.8		
Approach LOS	B		A		A		F		
Lane	Left	Right	Left	Right	Left	Right	Left	Right	
Designated Moves	LT	TR	LT	TR	LT	TR	LT	R	
Assumed Moves	L	TR	LT	TR	LT	TR	LT	R	
RT Channelized									
Lane Util	0.518	0.482	0.470	0.530	0.470	0.530	0.910	0.090	
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.667	2.535	2.667	2.535	
Critical Headway, s	4.645	4.328	4.645	4.328	4.645	4.328	4.645	4.328	
Entry Flow, veh/h	100	93	101	114	475	536	1421	141	
Cap Entry Lane, veh/h	355	413	511	578	1016	1092	1160	1234	
Entry HV Adj Factor	0.970	0.967	0.969	0.968	0.971	0.970	0.971	0.972	
Flow Entry, veh/h	97	90	98	110	461	520	1380	137	
Cap Entry, veh/h	344	400	495	560	986	1060	1126	1199	
V/C Ratio	0.282	0.225	0.198	0.197	0.468	0.491	1.225	0.114	
Control Delay, s/veh	15.9	12.7	10.0	9.0	9.2	9.1	124.7	4.0	
LOS	C	B	B	A	A	A	F	A	
95th %tile Queue, veh	1	1	1	1	3	3	44	0	

# HCM 6th Signalized Intersection Summary

## 20: Campus Parkway & Connector Road

02/23/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔↔	↔	↑↑	↔	↔↔	↑↑
Traffic Volume (veh/h)	83	166	737	68	207	986
Future Volume (veh/h)	83	166	737	68	207	986
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	90	0	801	0	225	1072
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	380		1522		375	2341
Arrive On Green	0.11	0.00	0.43	0.00	0.11	0.66
Sat Flow, veh/h	3428	1572	3618	1572	3428	3618
Grp Volume(v), veh/h	90	0	801	0	225	1072
Grp Sat Flow(s),veh/h/ln	1714	1572	1763	1572	1714	1763
Q Serve(g_s), s	1.3	0.0	8.8	0.0	3.3	7.8
Cycle Q Clear(g_c), s	1.3	0.0	8.8	0.0	3.3	7.8
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	380		1522		375	2341
V/C Ratio(X)	0.24		0.53		0.60	0.46
Avail Cap(c_a), veh/h	2140		1522		422	2341
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	21.5	0.0	11.0	0.0	22.4	4.3
Incr Delay (d2), s/veh	0.3	0.0	1.3	0.0	1.9	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/lr	0.5	0.0	2.5	0.0	1.2	0.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	21.8	0.0	12.4	0.0	24.4	4.9
LnGrp LOS	C		B		C	A
Approach Vol, veh/h	90	A	801	A		1297
Approach Delay, s/veh	21.8		12.4			8.3
Approach LOS	C		B			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	2.3	29.3			41.6	11.3
Change Period (Y+Rc), s	6.5	6.5			6.5	5.4
Max Green Setting (Gmax), s	6.5	22.1			35.1	33.0
Max Q Clear Time (g_c+1), s	15.3	10.8			9.8	3.3
Green Ext Time (p_c), s	0.1	3.6			7.3	0.3

### Intersection Summary

HCM 6th Ctrl Delay		10.3	
HCM 6th LOS		B	

### Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

# HCM 6th Signalized Intersection Summary

## 21: SR 140 & Connector Road

02/23/2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	51	198	262	198	222	26	
Future Volume (veh/h)	51	198	262	198	222	26	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	
Adj Flow Rate, veh/h	55	215	285	215	241	28	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	3	3	3	3	3	3	
Cap, veh/h	111	746	400	339	657	585	
Arrive On Green	0.06	0.40	0.22	0.22	0.37	0.37	
Sat Flow, veh/h	1767	1856	1856	1572	1767	1572	
Grp Volume(v), veh/h	55	215	285	215	241	28	
Grp Sat Flow(s),veh/h/ln	1767	1856	1856	1572	1767	1572	
Q Serve(g_s), s	1.6	4.1	7.5	6.5	5.2	0.6	
Cycle Q Clear(g_c), s	1.6	4.1	7.5	6.5	5.2	0.6	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	111	746	400	339	657	585	
V/C Ratio(X)	0.49	0.29	0.71	0.63	0.37	0.05	
Avail Cap(c_a), veh/h	218	1356	898	761	657	585	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	23.9	10.7	19.1	18.8	12.0	10.6	
Incr Delay (d2), s/veh	3.4	0.2	2.4	2.0	1.6	0.2	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.7	1.2	2.8	2.0	1.9	0.7	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	27.2	10.9	21.5	20.7	13.6	10.7	
LnGrp LOS	C	B	C	C	B	B	
Approach Vol, veh/h		270	500		269		
Approach Delay, s/veh		14.2	21.2		13.3		
Approach LOS		B	C		B		
Timer - Assigned Phs			4		6	7	8
Phs Duration (G+Y+Rc), s			27.7		25.0	9.8	17.9
Change Period (Y+Rc), s			6.5		5.4	6.5	6.5
Max Green Setting (Gmax), s			38.5		19.6	6.5	25.5
Max Q Clear Time (g_c+I1), s			6.1		7.2	3.6	9.5
Green Ext Time (p_c), s			1.0		0.6	0.0	1.9
<b>Intersection Summary</b>							
HCM 6th Ctrl Delay			17.3				
HCM 6th LOS			B				

# HCM 6th Signalized Intersection Summary

## 22: Campus Parkway & Childs Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	76	66	96	123	6	166	786	101	61	951	57
Future Volume (veh/h)	13	76	66	96	123	6	166	786	101	61	951	57
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	14	83	72	104	134	7	180	854	110	66	1034	62
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	36	391	175	133	619	276	278	1448	646	108	1377	614
Arrive On Green	0.02	0.11	0.11	0.08	0.18	0.18	0.08	0.41	0.41	0.06	0.39	0.39
Sat Flow, veh/h	1767	3526	1572	1767	3526	1572	3428	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	14	83	72	104	134	7	180	854	110	66	1034	62
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1572	1714	1763	1572	1767	1763	1572
Q Serve(g_s), s	0.6	1.5	3.1	4.2	2.3	0.3	3.7	13.5	3.2	2.6	18.2	1.8
Cycle Q Clear(g_c), s	0.6	1.5	3.1	4.2	2.3	0.3	3.7	13.5	3.2	2.6	18.2	1.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	36	391	175	133	619	276	278	1448	646	108	1377	614
V/C Ratio(X)	0.39	0.21	0.41	0.78	0.22	0.03	0.65	0.59	0.17	0.61	0.75	0.10
Avail Cap(c_a), veh/h	147	1951	870	177	2010	896	286	1448	646	147	1377	614
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.8	29.1	29.8	32.7	25.4	24.6	32.0	16.5	13.4	32.9	18.9	13.9
Incr Delay (d2), s/veh	6.7	0.3	1.6	15.0	0.2	0.0	4.8	1.8	0.6	5.5	3.8	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.6	1.1	2.2	0.9	0.1	1.5	4.7	1.1	1.2	6.7	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.5	29.4	31.3	47.7	25.6	24.6	36.9	18.3	14.0	38.4	22.7	14.2
LnGrp LOS	D	C	C	D	C	C	D	B	B	D	C	B
Approach Vol, veh/h		169			245			1144			1162	
Approach Delay, s/veh		31.2			34.9			20.8			23.1	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	0.9	36.0	11.2	13.8	12.3	34.6	6.6	18.4				
Change Period (Y+Rc), s	6.5	6.5	5.8	* 5.8	6.5	6.5	5.1	5.8				
Max Green Setting (Gmax), s	6.0	28.1	7.2	* 40	6.0	28.1	6.0	41.0				
Max Q Clear Time (g_c+14), s	14.6	15.5	6.2	5.1	5.7	20.2	2.6	4.3				
Green Ext Time (p_c), s	0.0	4.4	0.0	0.7	0.0	3.9	0.0	0.8				

### Intersection Summary

HCM 6th Ctrl Delay	23.7
HCM 6th LOS	C

### Notes

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

# HCM 6th Signalized Intersection Summary

## 23: Campus Parkway & Gerard Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑↑	↖	↖↗	↑↑	↖	↖↗	↑↑	↖	↖↗	↑↑	↖
Traffic Volume (veh/h)	119	577	54	32	979	13	111	426	14	308	229	110
Future Volume (veh/h)	119	577	54	32	979	13	111	426	14	308	229	110
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	129	627	59	35	1064	14	121	463	15	335	249	120
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	179	1176	524	120	1137	507	177	1076	480	343	1247	556
Arrive On Green	0.05	0.33	0.33	0.04	0.32	0.32	0.05	0.31	0.31	0.10	0.35	0.35
Sat Flow, veh/h	3428	3526	1572	3428	3526	1572	3428	3526	1572	3428	3526	1572
Grp Volume(v), veh/h	129	627	59	35	1064	14	121	463	15	335	249	120
Grp Sat Flow(s),veh/h/ln	1714	1763	1572	1714	1763	1572	1714	1763	1572	1714	1763	1572
Q Serve(g_s), s	4.3	16.6	3.0	1.1	33.7	0.7	4.0	12.1	0.8	11.2	5.6	6.1
Cycle Q Clear(g_c), s	4.3	16.6	3.0	1.1	33.7	0.7	4.0	12.1	0.8	11.2	5.6	6.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	179	1176	524	120	1137	507	177	1076	480	343	1247	556
V/C Ratio(X)	0.72	0.53	0.11	0.29	0.94	0.03	0.68	0.43	0.03	0.98	0.20	0.22
Avail Cap(c_a), veh/h	179	1176	524	179	1165	520	253	1076	480	343	1247	556
HCM Platoon Ratio	1.00	1.00	1.00	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	0.76	0.76	0.76	0.66	0.66	0.66
Uniform Delay (d), s/veh	53.7	31.1	26.5	54.1	37.8	26.6	53.6	31.9	28.0	51.6	25.8	26.0
Incr Delay (d2), s/veh	13.3	0.5	0.1	1.3	13.6	0.0	3.5	1.0	0.1	33.5	0.2	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	6.8	1.1	0.5	15.6	0.3	1.7	5.0	0.3	6.2	2.3	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.9	31.5	26.6	55.4	51.4	26.6	57.2	32.9	28.1	85.2	26.1	26.6
LnGrp LOS	E	C	C	E	D	C	E	C	C	F	C	C
Approach Vol, veh/h		815			1113			599			704	
Approach Delay, s/veh		36.8			51.2			37.7			54.3	
Approach LOS		D			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.0	41.6	10.5	44.9	12.4	47.2	11.8	43.6				
Change Period (Y+Rc), s	6.5	6.5	6.5	* 6.5	6.5	6.5	5.8	6.5				
Max Green Setting (Gmax), s	1.5	34.2	6.0	* 38	8.5	37.2	6.0	38.0				
Max Q Clear Time (g_c+1/3, s)	11.3	14.1	3.1	18.6	6.0	8.1	6.3	35.7				
Green Ext Time (p_c), s	0.0	2.5	0.0	3.9	0.1	1.7	0.0	1.4				

### Intersection Summary

HCM 6th Ctrl Delay	45.7
HCM 6th LOS	D

### Notes

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

# HCM 6th Signalized Intersection Summary

## 24: Coffee Street & Campus Parkway

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	119	577	54	32	979	13	111	426	14	308	229	110
Future Volume (veh/h)	119	577	54	32	979	13	111	426	14	308	229	110
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	129	627	59	35	1064	14	121	463	15	335	249	120
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	161	1325	726	56	1126	15	152	626	20	367	357	172
Arrive On Green	0.09	0.38	0.38	0.03	0.32	0.32	0.09	0.18	0.18	0.21	0.30	0.30
Sat Flow, veh/h	1767	3526	1572	1767	3563	47	1767	3485	113	1767	1183	570
Grp Volume(v), veh/h	129	627	59	35	526	552	121	234	244	335	0	369
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1847	1767	1763	1835	1767	0	1753
Q Serve(g_s), s	7.0	13.1	2.0	1.9	28.4	28.4	6.5	12.2	12.3	18.0	0.0	18.1
Cycle Q Clear(g_c), s	7.0	13.1	2.0	1.9	28.4	28.4	6.5	12.2	12.3	18.0	0.0	18.1
Prop In Lane	1.00		1.00	1.00		0.03	1.00		0.06	1.00		0.33
Lane Grp Cap(c), veh/h	161	1325	726	56	557	584	152	317	330	367	0	529
V/C Ratio(X)	0.80	0.47	0.08	0.63	0.95	0.95	0.80	0.74	0.74	0.91	0.00	0.70
Avail Cap(c_a), veh/h	372	1611	854	118	561	588	281	317	330	390	0	529
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.4	23.1	14.7	46.6	32.5	32.5	43.7	37.8	37.8	37.7	0.0	30.1
Incr Delay (d2), s/veh	8.7	0.3	0.0	11.2	25.0	24.2	9.2	14.3	13.9	24.6	0.0	7.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	5.0	0.7	1.0	14.7	15.3	3.2	6.3	6.6	10.0	0.0	8.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.1	23.3	14.7	57.8	57.5	56.7	52.9	52.0	51.7	62.3	0.0	37.6
LnGrp LOS	D	C	B	E	E	E	D	D	D	E	A	D
Approach Vol, veh/h		815			1113			599			704	
Approach Delay, s/veh		27.3			57.1			52.1			49.4	
Approach LOS		C			E			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	24.7	22.0	7.6	43.1	12.9	33.9	13.4	37.3				
Change Period (Y+Rc), s	4.5	4.5	4.5	6.5	4.5	4.5	4.5	*6.5				
Max Green Setting (Gmax), s	21.5	17.5	6.5	44.5	15.5	23.5	20.5	*31				
Max Q Clear Time (g_c+Q), s	20.6	14.3	3.9	15.1	8.5	20.1	9.0	30.4				
Green Ext Time (p_c), s	0.2	0.8	0.0	4.0	0.1	0.7	0.2	0.4				

### Intersection Summary

HCM 6th Ctrl Delay	47.0
HCM 6th LOS	D

### Notes

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

HCM 6th Signalized Intersection Summary  
 25: SR 99 NB Ramps & Campus Parkway

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	236	523	0	0	722	478	27	3	227	0	0	0
Future Volume (veh/h)	236	523	0	0	722	478	27	3	227	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1856	1856	0	0	1856	1856	1856	1856	1856			
Adj Flow Rate, veh/h	257	568	0	0	785	520	29	3	247			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	3	3	0	0	3	3	3	3	3			
Cap, veh/h	289	2010	0	0	1243	554	526	54	515			
Arrive On Green	0.16	0.57	0.00	0.00	0.35	0.35	0.33	0.33	0.33			
Sat Flow, veh/h	1767	3618	0	0	3618	1572	1609	166	1572			
Grp Volume(v), veh/h	257	568	0	0	785	520	32	0	247			
Grp Sat Flow(s),veh/h/ln	1767	1763	0	0	1763	1572	1775	0	1572			
Q Serve(g_s), s	17.1	9.9	0.0	0.0	22.3	38.4	1.5	0.0	15.0			
Cycle Q Clear(g_c), s	17.1	9.9	0.0	0.0	22.3	38.4	1.5	0.0	15.0			
Prop In Lane	1.00		0.00	0.00		1.00	0.91		1.00			
Lane Grp Cap(c), veh/h	289	2010	0	0	1243	554	581	0	515			
V/C Ratio(X)	0.89	0.28	0.00	0.00	0.63	0.94	0.06	0.00	0.48			
Avail Cap(c_a), veh/h	479	2424	0	0	1278	570	581	0	515			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.15	0.15	1.00	0.00	1.00			
Uniform Delay (d), s/veh	49.1	13.2	0.0	0.0	32.4	37.6	27.7	0.0	32.2			
Incr Delay (d2), s/veh	11.1	0.1	0.0	0.0	0.1	5.3	0.2	0.0	3.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/lr	8.1	3.5	0.0	0.0	8.9	14.5	0.6	0.0	6.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.3	13.3	0.0	0.0	32.5	42.9	27.8	0.0	35.4			
LnGrp LOS	E	B	A	A	C	D	C	A	D			
Approach Vol, veh/h	825				1305		279					
Approach Delay, s/veh	27.9				36.7		34.5					
Approach LOS	C				D		C					
Timer - Assigned Phs	2		4		7		8					
Phs Duration (G+Y+Rc), s	45.1		74.9		26.1		48.8					
Change Period (Y+Rc), s	5.8		6.5		6.5		6.5					
Max Green Setting (Gmax), s	25.2		82.5		32.5		43.5					
Max Q Clear Time (g_c+I1), s	17.0		11.9		19.1		40.4					
Green Ext Time (p_c), s	0.6		3.6		0.6		1.9					
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			33.4									
HCM 6th LOS			C									



HCM 6th Signalized Intersection Summary  
 26: Lake Street & Meyers Gate Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	3	44	16	69	45	2	31	6	59	3	8	4
Future Volume (veh/h)	3	44	16	69	45	2	31	6	59	3	8	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		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	3	48	17	75	49	2	34	7	64	3	9	4
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	7	138	49	137	317	13	73	32	296	7	205	91
Arrive On Green	0.00	0.11	0.11	0.08	0.18	0.18	0.04	0.21	0.21	0.00	0.17	0.17
Sat Flow, veh/h	1767	1309	463	1767	1770	72	1767	157	1439	1767	1217	541
Grp Volume(v), veh/h	3	0	65	75	0	51	34	0	71	3	0	13
Grp Sat Flow(s),veh/h/ln	1767	0	1772	1767	0	1843	1767	0	1597	1767	0	1758
Q Serve(g_s), s	0.1	0.0	1.0	1.2	0.0	0.7	0.6	0.0	1.1	0.1	0.0	0.2
Cycle Q Clear(g_c), s	0.1	0.0	1.0	1.2	0.0	0.7	0.6	0.0	1.1	0.1	0.0	0.2
Prop In Lane	1.00		0.26	1.00		0.04	1.00		0.90	1.00		0.31
Lane Grp Cap(c), veh/h	7	0	187	137	0	330	73	0	328	7	0	296
V/C Ratio(X)	0.41	0.00	0.35	0.55	0.00	0.15	0.47	0.00	0.22	0.41	0.00	0.04
Avail Cap(c_a), veh/h	298	0	1076	328	0	1150	298	0	996	298	0	1097
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.7	0.0	12.3	13.2	0.0	10.3	13.9	0.0	9.8	14.7	0.0	10.3
Incr Delay (d2), s/veh	33.3	0.0	1.1	3.4	0.0	0.2	4.6	0.0	0.3	33.3	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.3	0.5	0.0	0.2	0.2	0.0	0.2	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.1	0.0	13.4	16.5	0.0	10.5	18.5	0.0	10.1	48.1	0.0	10.4
LnGrp LOS	D	A	B	B	A	B	B	A	B	D	A	B
Approach Vol, veh/h		68			126			105			16	
Approach Delay, s/veh		15.0			14.1			12.8			17.4	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.6	10.6	6.8	7.6	5.7	9.5	4.6	9.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	18.5	18.5	5.5	18.0	5.0	18.5	5.0	18.5				
Max Q Clear Time (g_c+1/2I), s	3.1	3.1	3.2	3.0	2.6	2.2	2.1	2.7				
Green Ext Time (p_c), s	0.0	0.2	0.0	0.2	0.0	0.0	0.0	0.1				

Intersection Summary

HCM 6th Ctrl Delay	14.0
HCM 6th LOS	B

HCM 6th Roundabout  
76: Campus Parkway & Meyers Gate Road

02/23/2022

Intersection						
Intersection Delay, s/veh 19.6						
Intersection LOS C						
Approach	EB	WB	NB		SB	
Entry Lanes	1	1	2		2	
Conflicting Circle Lanes	1	1	1		1	
Adj Approach Flow, veh/h	151	277	980		830	
Demand Flow Rate, veh/h	155	285	1009		856	
Vehicles Circulating, veh/h	907	1035	212		254	
Vehicles Exiting, veh/h	203	186	850		1066	
Ped Vol Crossing Leg, #/h	20	20	20		0	
Ped Cap Adj	1.000	1.000	0.981		1.000	
Approach Delay, s/veh	10.8	21.3	23.8		15.6	
Approach LOS	B	C	C		C	
Lane	Left	Left	Left	Right	Left	Right
Designated Moves	LTR	LTR	LT	R	LT	R
Assumed Moves	LTR	LTR	LT	R	LT	R
RT Channelized						
Lane Util	1.000	1.000	0.987	0.013	0.979	0.021
Follow-Up Headway, s	2.609	2.609	2.535	2.535	2.535	2.535
Critical Headway, s	4.976	4.976	4.544	4.544	4.544	4.544
Entry Flow, veh/h	155	285	996	13	838	18
Cap Entry Lane, veh/h	547	480	1171	1171	1127	1127
Entry HV Adj Factor	0.972	0.973	0.970	1.000	0.971	0.944
Flow Entry, veh/h	151	277	967	13	813	17
Cap Entry, veh/h	532	467	1115	1149	1094	1064
V/C Ratio	0.283	0.594	0.867	0.011	0.744	0.016
Control Delay, s/veh	10.8	21.3	24.1	3.2	15.9	3.5
LOS	B	C	C	A	C	A
95th %tile Queue, veh	1	4	12	0	7	0

HCM 6th Signalized Intersection Summary  
 77: Lake Road & Virginia Smith Parkway

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	54	16	197	47	142	33	22	87	102	62	15
Future Volume (veh/h)	32	54	16	197	47	142	33	22	87	102	62	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.94		0.93	1.00		0.95	1.00		0.88	1.00		0.91
Parking Bus, Adj	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	35	59	17	214	51	154	36	24	95	111	67	16
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	338	177	51	275	756	607	74	251	188	163	263	63
Arrive On Green	0.13	0.13	0.13	0.16	0.41	0.41	0.04	0.14	0.14	0.09	0.19	0.19
Sat Flow, veh/h	1100	1359	391	1767	1856	1489	1767	1856	1387	1767	1416	338
Grp Volume(v), veh/h	35	0	76	214	51	154	36	24	95	111	0	83
Grp Sat Flow(s),veh/h/ln1100	0	1750	1767	1856	1489	1767	1856	1387	1767	0	1754	
Q Serve(g_s), s	1.1	0.0	1.5	4.3	0.6	2.5	0.7	0.4	2.3	2.2	0.0	1.5
Cycle Q Clear(g_c), s	1.1	0.0	1.5	4.3	0.6	2.5	0.7	0.4	2.3	2.2	0.0	1.5
Prop In Lane	1.00		0.22	1.00		1.00	1.00		1.00	1.00		0.19
Lane Grp Cap(c), veh/h	338	0	227	275	756	607	74	251	188	163	0	325
V/C Ratio(X)	0.10	0.00	0.33	0.78	0.07	0.25	0.49	0.10	0.51	0.68	0.00	0.26
Avail Cap(c_a), veh/h	730	0	852	459	1611	1293	263	949	709	263	0	897
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.4	0.0	14.6	15.0	6.7	7.2	17.3	14.0	14.8	16.3	0.0	12.9
Incr Delay (d2), s/veh	0.1	0.0	0.9	4.7	0.0	0.2	4.9	0.2	2.1	5.0	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/lr0.2	0.0	0.0	0.5	1.7	0.2	0.5	0.3	0.1	0.7	0.9	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.6	0.0	15.5	19.7	6.7	7.5	22.2	14.2	16.9	21.2	0.0	13.3
LnGrp LOS	B	A	B	B	A	A	C	B	B	C	A	B
Approach Vol, veh/h		111			419			155			194	
Approach Delay, s/veh		15.2			13.6			17.7			17.8	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	8					
Phs Duration (G+Y+Rc), s7.9	9.5	10.3	9.3	6.0	11.4		19.6					
Change Period (Y+Rc), s 4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5					
Max Green Setting (Gmax), s 5.5	18.9	9.6	18.0	5.5	18.9		32.1					
Max Q Clear Time (g_c+14.2)	4.3	6.3	3.5	2.7	3.5		4.5					
Green Ext Time (p_c), s 0.0	0.3	0.2	0.4	0.0	0.2		0.8					
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			15.5									
HCM 6th LOS			B									

HCM 6th Roundabout  
78: Campus Parkway & Virginia Smith Parkway

02/23/2022

Intersection						
Intersection Delay, s/veh 16.5						
Intersection LOS C						
Approach	EB	WB	NB		SB	
Entry Lanes	1	1	2		2	
Conflicting Circle Lanes	2	2	2		2	
Adj Approach Flow, veh/h	289	433	1198		942	
Demand Flow Rate, veh/h	298	446	1234		970	
Vehicles Circulating, veh/h	1073	1178	331		451	
Vehicles Exiting, veh/h	348	387	1040		1173	
Ped Vol Crossing Leg, #/h	20	20	20		20	
Ped Cap Adj	1.000	1.000	0.983		0.986	
Approach Delay, s/veh	16.0	40.4	12.2		11.1	
Approach LOS	C	E	B		B	
Lane	Left	Left	Left	Right	Left	Right
Designated Moves	LTR	LTR	LT	TR	LT	TR
Assumed Moves	LTR	LTR	LT	TR	LT	TR
RT Channelized						
Lane Util	1.000	1.000	0.470	0.530	0.470	0.530
Follow-Up Headway, s	2.535	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.328	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	298	446	580	654	456	514
Cap Entry Lane, veh/h	570	522	996	1072	891	968
Entry HV Adj Factor	0.971	0.971	0.971	0.971	0.971	0.971
Flow Entry, veh/h	289	433	563	635	443	499
Cap Entry, veh/h	554	507	950	1023	853	927
V/C Ratio	0.522	0.855	0.592	0.620	0.519	0.539
Control Delay, s/veh	16.0	40.4	12.1	12.2	11.3	11.0
LOS	C	E	B	B	B	B
95th %tile Queue, veh	3	9	4	4	3	3

HCM 6th TWSC  
79: Virginia Smith Parkway & Golden BObc

02/23/2022

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	42	219	57	36	235	27	48	33	38	23	35	32
Future Vol, veh/h	42	219	57	36	235	27	48	33	38	23	35	32
Conflicting Peds, #/hr	20	0	20	20	0	20	20	0	20	20	0	20
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	150	-	-	150	-	-
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	46	238	62	39	255	29	52	36	41	25	38	35

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	304	0	0	320	0	0	785	763	309	788	780	310
Stage 1	-	-	-	-	-	-	381	381	-	368	368	-
Stage 2	-	-	-	-	-	-	404	382	-	420	412	-
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	1251	-	-	1234	-	-	309	333	729	308	326	728
Stage 1	-	-	-	-	-	-	639	612	-	650	620	-
Stage 2	-	-	-	-	-	-	621	611	-	609	593	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1227	-	-	1210	-	-	241	299	701	240	292	701
Mov Cap-2 Maneuver	-	-	-	-	-	-	241	299	-	240	292	-
Stage 1	-	-	-	-	-	-	603	578	-	614	589	-
Stage 2	-	-	-	-	-	-	524	580	-	508	560	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.1	1	18.7	17.3
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	241	431	1227	-	-	1210	-	-	240	405
HCM Lane V/C Ratio	0.216	0.179	0.037	-	-	0.032	-	-	0.104	0.18
HCM Control Delay (s)	24	15.2	8	-	-	8.1	-	-	21.7	15.8
HCM Lane LOS	C	C	A	-	-	A	-	-	C	C
HCM 95th %tile Q(veh)	0.8	0.6	0.1	-	-	0.1	-	-	0.3	0.6

HCM 6th Roundabout  
80: Virginia Smith Parkway & Main Street

02/23/2022

Intersection				
Intersection Delay, s/veh	5.2			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	328	157	110	227
Demand Flow Rate, veh/h	337	161	114	234
Vehicles Circulating, veh/h	130	211	350	161
Vehicles Exiting, veh/h	265	253	117	211
Ped Vol Crossing Leg, #/h	20	20	20	20
Ped Cap Adj	0.997	0.997	0.997	0.997
Approach Delay, s/veh	5.7	4.6	5.0	5.0
Approach LOS	A	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	337	161	114	234
Cap Entry Lane, veh/h	1209	1113	966	1171
Entry HV Adj Factor	0.974	0.974	0.969	0.972
Flow Entry, veh/h	328	157	110	227
Cap Entry, veh/h	1173	1081	933	1135
V/C Ratio	0.280	0.145	0.118	0.200
Control Delay, s/veh	5.7	4.6	5.0	5.0
LOS	A	A	A	A
95th %tile Queue, veh	1	1	0	1

HCM 6th TWSC  
81: 4th Street & Virginia Smith Parkway

02/23/2022

Intersection												
Int Delay, s/veh	6.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Vol, veh/h	49	39	62	23	36	12	76	11	14	16	10	44
Future Vol, veh/h	49	39	62	23	36	12	76	11	14	16	10	44
Conflicting Peds, #/hr	0	0	20	20	0	0	20	0	20	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	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	53	42	67	25	39	13	83	12	15	17	11	48

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	52	0	0	129	0	0	347	304	116	311	331	66
Stage 1	-	-	-	-	-	-	202	202	-	96	96	-
Stage 2	-	-	-	-	-	-	145	102	-	215	235	-
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	1548	-	-	1451	-	-	606	608	934	640	587	995
Stage 1	-	-	-	-	-	-	798	732	-	908	814	-
Stage 2	-	-	-	-	-	-	855	809	-	785	709	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1548	-	-	1423	-	-	525	566	899	584	546	976
Mov Cap-2 Maneuver	-	-	-	-	-	-	525	566	-	584	546	-
Stage 1	-	-	-	-	-	-	756	694	-	877	799	-
Stage 2	-	-	-	-	-	-	773	794	-	718	672	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	2.4			2.5			12.4			9.9		
HCM LOS							B			A		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	525	714	1548	-	-	1423	-	-	584	852
HCM Lane V/C Ratio	0.157	0.038	0.034	-	-	0.018	-	-	0.03	0.069
HCM Control Delay (s)	13.1	10.2	7.4	-	-	7.6	-	-	11.4	9.5
HCM Lane LOS	B	B	A	-	-	A	-	-	B	A
HCM 95th %tile Q(veh)	0.6	0.1	0.1	-	-	0.1	-	-	0.1	0.2

**Horizon Year (2042) With Project and  
Recommended Improvements  
PM Peak Hour**



HCM 6th Signalized Intersection Summary  
 1: Snelling Highway (SR 59) & Bellevue Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	130	10	790	272	112	8	95	827	117	186	23
Future Volume (veh/h)	15	130	10	790	272	112	8	95	827	117	186	23
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	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	16	141	11	859	296	122	9	103	899	127	202	25
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	34	193	15	995	480	198	20	480	1519	160	547	68
Arrive On Green	0.02	0.11	0.11	0.29	0.38	0.38	0.01	0.26	0.26	0.09	0.34	0.34
Sat Flow, veh/h	1767	1699	133	3428	1248	515	1767	1856	2768	1767	1619	200
Grp Volume(v), veh/h	16	0	152	859	0	418	9	103	899	127	0	227
Grp Sat Flow(s),veh/h/ln	1767	0	1832	1714	0	1763	1767	1856	1384	1767	0	1819
Q Serve(g_s), s	0.7	0.0	5.8	17.3	0.0	13.9	0.4	3.2	15.8	5.1	0.0	6.9
Cycle Q Clear(g_c), s	0.7	0.0	5.8	17.3	0.0	13.9	0.4	3.2	15.8	5.1	0.0	6.9
Prop In Lane	1.00		0.07	1.00		0.29	1.00		1.00	1.00		0.11
Lane Grp Cap(c), veh/h	34	0	208	995	0	678	20	480	1519	160	0	615
V/C Ratio(X)	0.48	0.00	0.73	0.86	0.00	0.62	0.45	0.21	0.59	0.79	0.00	0.37
Avail Cap(c_a), veh/h	121	0	452	1200	0	931	121	509	1562	206	0	615
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	35.4	0.0	31.2	24.5	0.0	18.1	35.8	21.2	11.0	32.5	0.0	18.2
Incr Delay (d2), s/veh	10.1	0.0	4.9	5.8	0.0	0.9	14.6	0.2	0.6	14.7	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	2.6	6.7	0.0	4.8	0.2	1.2	3.5	2.6	0.0	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.5	0.0	36.2	30.3	0.0	19.0	50.4	21.4	11.6	47.1	0.0	18.6
LnGrp LOS	D	A	D	C	A	B	D	C	B	D	A	B
Approach Vol, veh/h		168			1277			1011				354
Approach Delay, s/veh		37.1			26.6			12.9				28.8
Approach LOS		D			C			B				C
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.1	23.4	25.6	12.8	5.3	29.1	5.9	32.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	8.5	20.0	25.5	18.0	5.0	23.5	5.0	38.5				
Max Q Clear Time (g_c+I1), s	7.1	17.8	19.3	7.8	2.4	8.9	2.7	15.9				
Green Ext Time (p_c), s	0.0	1.0	1.8	0.4	0.0	0.9	0.0	2.2				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				22.6								
HCM 6th LOS				C								

# HCM 6th Signalized Intersection Summary

## 2: G Street & Bellevue Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	61	853	151	860	939	14	146	254	750	9	209	42
Future Volume (veh/h)	61	853	151	860	939	14	146	254	750	9	209	42
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	66	927	164	935	1021	15	159	276	815	10	227	46
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	84	1031	460	1029	1921	857	184	700	785	25	383	171
Arrive On Green	0.05	0.29	0.29	0.30	0.54	0.54	0.10	0.20	0.20	0.01	0.11	0.11
Sat Flow, veh/h	1767	3526	1572	3428	3526	1572	1767	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	66	927	164	935	1021	15	159	276	815	10	227	46
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1714	1763	1572	1767	1763	1572	1767	1763	1572
Q Serve(g_s), s	4.9	33.7	11.0	35.0	24.8	0.6	11.8	9.1	26.5	0.7	8.2	3.6
Cycle Q Clear(g_c), s	4.9	33.7	11.0	35.0	24.8	0.6	11.8	9.1	26.5	0.7	8.2	3.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	84	1031	460	1029	1921	857	184	700	785	25	383	171
V/C Ratio(X)	0.78	0.90	0.36	0.91	0.53	0.02	0.87	0.39	1.04	0.41	0.59	0.27
Avail Cap(c_a), veh/h	162	1123	501	1297	2134	952	218	700	785	79	383	171
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	62.9	45.3	37.3	44.9	19.5	14.0	58.9	46.5	33.4	65.3	56.7	54.6
Incr Delay (d2), s/veh	14.5	9.4	0.5	8.1	0.2	0.0	25.4	1.7	42.6	10.4	6.6	3.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	15.3	4.1	15.3	9.3	0.2	6.4	4.0	32.1	0.4	3.9	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	77.3	54.7	37.8	53.1	19.7	14.0	84.3	48.2	76.1	75.7	63.3	58.5
LnGrp LOS	E	D	D	D	B	B	F	D	F	E	E	E
Approach Vol, veh/h		1157			1971			1250			283	
Approach Delay, s/veh		53.6			35.5			71.0			62.9	
Approach LOS		D			D			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.4	33.0	46.6	45.5	20.4	21.0	12.9	79.2				
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5				
Max Green Setting (Gmax), s	6.0	25.0	50.5	42.5	16.5	14.5	12.2	80.8				
Max Q Clear Time (g_c+1/2), s	12.5	28.5	37.0	35.7	13.8	10.2	6.9	26.8				
Green Ext Time (p_c), s	0.0	0.0	3.0	3.3	0.1	0.5	0.0	7.7				

### Intersection Summary

HCM 6th Ctrl Delay	51.2
HCM 6th LOS	D

### Notes

User approved changes to right turn type.

# HCM 6th Signalized Intersection Summary

## 3: Lake Street/Lake Road & Bellevue Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	92	56	286	101	355	21	367	370	48	14	569	407
Future Volume (veh/h)	92	56	286	101	355	21	367	370	48	14	569	407
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	100	61	311	110	386	23	399	402	52	15	618	442
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	128	773	655	355	440	26	495	1296	167	403	1454	649
Arrive On Green	0.07	0.42	0.42	0.25	0.25	0.25	0.41	0.41	0.41	0.41	0.41	0.41
Sat Flow, veh/h	1767	1856	1572	1002	1734	103	1025	3142	404	930	3526	1572
Grp Volume(v), veh/h	100	61	311	110	0	409	399	224	230	15	618	442
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1002	0	1837	512	1763	1783	930	1763	1572
Q Serve(g_s), s	4.0	1.4	10.4	6.6	0.0	15.4	20.7	6.2	6.3	0.8	9.0	16.5
Cycle Q Clear(g_c), s	4.0	1.4	10.4	6.6	0.0	15.4	29.7	6.2	6.3	7.0	9.0	16.5
Prop In Lane	1.00		1.00	1.00		0.06	1.00		0.23	1.00		1.00
Lane Grp Cap(c), veh/h	128	773	655	355	0	467	495	727	735	403	1454	649
V/C Ratio(X)	0.78	0.08	0.47	0.31	0.00	0.88	0.81	0.31	0.31	0.04	0.42	0.68
Avail Cap(c_a), veh/h	169	884	749	391	0	533	495	727	735	403	1454	649
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.8	12.7	15.3	22.5	0.0	25.8	28.4	14.2	14.3	16.6	15.1	17.3
Incr Delay (d2), s/veh	15.6	0.0	0.5	0.5	0.0	13.9	13.2	1.1	1.1	0.2	0.9	5.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.5	3.1	1.4	0.0	7.5	4.2	2.4	2.4	0.2	3.3	5.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.5	12.7	15.8	23.0	0.0	39.7	41.5	15.3	15.4	16.8	16.0	23.0
LnGrp LOS	D	B	B	C	A	D	D	B	B	B	B	C
Approach Vol, veh/h		472			519			853			1075	
Approach Delay, s/veh		22.3			36.1			27.6			18.9	
Approach LOS		C			D			C			B	
Timer - Assigned Phs		2		4		6	7	8				
Phs Duration (G+Y+Rc), s		35.5		36.5		35.5	11.7	24.8				
Change Period (Y+Rc), s		* 5.8		6.5		5.8	6.5	6.5				
Max Green Setting (Gmax), s		* 30		34.3		28.4	6.9	20.9				
Max Q Clear Time (g_c+I1), s		31.7		12.4		18.5	6.0	17.4				
Green Ext Time (p_c), s		0.0		1.2		3.9	0.0	0.9				

### Intersection Summary

HCM 6th Ctrl Delay	25.0
HCM 6th LOS	C

### Notes

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

# HCM 6th Signalized Intersection Summary

## 4: G Street & Cardella Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	146	1	61	1	14	6	67	1290	3	10	1322	148
Future Volume (veh/h)	146	1	61	1	14	6	67	1290	3	10	1322	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		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	159	1	66	1	15	7	73	1402	3	11	1437	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	272	251	213	45	162	72	100	2313	5	30	2121	
Arrive On Green	0.14	0.14	0.14	0.14	0.14	0.14	0.06	0.64	0.64	0.02	0.60	0.00
Sat Flow, veh/h	1379	1856	1572	19	1200	533	1767	3609	8	1767	3526	1572
Grp Volume(v), veh/h	159	1	66	23	0	0	73	685	720	11	1437	0
Grp Sat Flow(s),veh/h/ln	1379	1856	1572	1752	0	0	1767	1763	1854	1767	1763	1572
Q Serve(g_s), s	8.7	0.0	3.4	0.0	0.0	0.0	3.6	20.3	20.3	0.5	24.4	0.0
Cycle Q Clear(g_c), s	9.7	0.0	3.4	1.0	0.0	0.0	3.6	20.3	20.3	0.5	24.4	0.0
Prop In Lane	1.00		1.00	0.04		0.30	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	272	251	213	279	0	0	100	1130	1188	30	2121	
V/C Ratio(X)	0.58	0.00	0.31	0.08	0.00	0.00	0.73	0.61	0.61	0.37	0.68	
Avail Cap(c_a), veh/h	374	388	329	407	0	0	189	1130	1188	119	2121	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	37.3	33.3	34.7	33.7	0.0	0.0	41.3	9.4	9.4	43.2	11.9	0.0
Incr Delay (d2), s/veh	2.0	0.0	0.8	0.1	0.0	0.0	9.9	2.4	2.3	7.3	1.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/lr	3.4	0.0	1.3	0.4	0.0	0.0	1.7	6.2	6.5	0.3	7.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.3	33.3	35.5	33.8	0.0	0.0	51.2	11.8	11.7	50.5	13.7	0.0
LnGrp LOS	D	C	D	C	A	A	D	B	B	D	B	
Approach Vol, veh/h	226			23			1478			1448		
Approach Delay, s/veh	38.2			33.8			13.7			14.0		
Approach LOS	D			C			B			B		
Timer - Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	8.0	63.5	17.4		11.5	60.0	17.4					
Change Period (Y+Rc), s	6.5	6.5	5.4		6.5	6.5	5.4					
Max Green Setting (Gmax), s	6.0	57.0	18.6		9.5	53.5	18.6					
Max Q Clear Time (g_c+I), s	12.5	22.3	11.7		5.6	26.4	3.0					
Green Ext Time (p_c), s	0.0	10.4	0.4		0.0	11.1	0.0					

### Intersection Summary

HCM 6th Ctrl Delay	15.7
HCM 6th LOS	B

### Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

# HCM 6th Signalized Intersection Summary

## 5: Lake Road & Cardella Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	52	14	87	41	56	10	95	76	78	113	18
Future Volume (veh/h)	17	52	14	87	41	56	10	95	76	78	113	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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	18	57	15	95	45	61	11	103	83	85	123	20
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	750	318	84	429	89	98	664	514	435	677	431	70
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	1278	1416	373	601	395	434	1235	1856	1572	1188	1557	253
Grp Volume(v), veh/h	18	0	72	201	0	0	11	103	83	85	0	143
Grp Sat Flow(s),veh/h/ln	1278	0	1788	1431	0	0	1235	1856	1572	1188	0	1810
Q Serve(g_s), s	0.0	0.0	0.6	1.8	0.0	0.0	0.1	0.8	0.7	1.1	0.0	1.1
Cycle Q Clear(g_c), s	0.1	0.0	0.6	2.4	0.0	0.0	1.2	0.8	0.7	1.8	0.0	1.1
Prop In Lane	1.00		0.21	0.47		0.30	1.00		1.00	1.00		0.14
Lane Grp Cap(c), veh/h	750	0	402	615	0	0	664	514	435	677	0	501
V/C Ratio(X)	0.02	0.00	0.18	0.33	0.00	0.00	0.02	0.20	0.19	0.13	0.00	0.29
Avail Cap(c_a), veh/h	1737	0	1783	1763	0	0	1554	1850	1568	1533	0	1804
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	5.5	0.0	5.7	6.4	0.0	0.0	5.6	5.0	5.0	5.7	0.0	5.1
Incr Delay (d2), s/veh	0.0	0.0	0.2	0.3	0.0	0.0	0.0	0.2	0.2	0.1	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/lr	0.0	0.0	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.5	0.0	5.9	6.7	0.0	0.0	5.6	5.2	5.2	5.8	0.0	5.4
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		90		201			197			228		
Approach Delay, s/veh		5.8		6.7			5.2			5.6		
Approach LOS		A		A			A			A		
Timer - Assigned Phs		2		4			6			8		
Phs Duration (G+Y+Rc), s		9.5		8.6			9.5			8.6		
Change Period (Y+Rc), s		4.5		4.5			4.5			4.5		
Max Green Setting (Gmax), s		18.0		18.0			18.0			18.0		
Max Q Clear Time (g_c+I1), s		3.2		2.6			3.8			4.4		
Green Ext Time (p_c), s		0.6		0.3			0.7			0.9		
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				5.8								
HCM 6th LOS				A								

# HCM 6th Signalized Intersection Summary

## 6: Snelling Highway (SR 59) & Yosemite Avenue

02/23/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	264	464	1045	289	448	999
Future Volume (veh/h)	264	464	1045	289	448	999
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	287	504	1136	314	487	1086
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	771	612	1324	590	564	2190
Arrive On Green	0.22	0.22	0.38	0.38	0.16	0.62
Sat Flow, veh/h	3428	1572	3618	1572	3428	3618
Grp Volume(v), veh/h	287	504	1136	314	487	1086
Grp Sat Flow(s),veh/h/ln	1714	1572	1763	1572	1714	1763
Q Serve(g_s), s	5.7	18.0	23.8	12.5	11.1	13.5
Cycle Q Clear(g_c), s	5.7	18.0	23.8	12.5	11.1	13.5
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	771	612	1324	590	564	2190
V/C Ratio(X)	0.37	0.82	0.86	0.53	0.86	0.50
Avail Cap(c_a), veh/h	771	612	1324	590	579	2190
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.2	21.9	23.0	19.5	32.5	8.3
Incr Delay (d2), s/veh	0.3	8.9	7.4	3.4	12.6	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	8.9	9.6	4.4	5.1	3.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	26.5	30.8	30.4	22.9	45.1	9.1
LnGrp LOS	C	C	C	C	D	A
Approach Vol, veh/h	791		1450			1573
Approach Delay, s/veh	29.3		28.8			20.3
Approach LOS	C		C			C
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	19.7	36.5			56.2	23.8
Change Period (Y+Rc), s	6.5	6.5			6.5	5.8
Max Green Setting (Gmax), s	13.5	29.7			49.7	18.0
Max Q Clear Time (g_c+I), s	11.3	25.8			15.5	20.0
Green Ext Time (p_c), s	0.1	2.7			8.0	0.0
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			25.4			
HCM 6th LOS			C			

# HCM 6th Signalized Intersection Summary

## 7: G Street & Yosemite Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑	↗	↔↔	↑↑	↗	↔↔	↑↑	↗	↔↔	↑↑	↗
Traffic Volume (veh/h)	306	1190	168	760	960	163	300	954	798	225	809	406
Future Volume (veh/h)	306	1190	168	760	960	163	300	954	798	225	809	406
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	333	1293	183	826	1043	177	326	1037	867	245	879	441
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	380	1075	479	667	1370	611	265	977	742	218	929	414
Arrive On Green	0.11	0.30	0.30	0.19	0.39	0.39	0.08	0.28	0.28	0.06	0.26	0.26
Sat Flow, veh/h	3428	3526	1572	3428	3526	1572	3428	3526	1572	3428	3526	1572
Grp Volume(v), veh/h	333	1293	183	826	1043	177	326	1037	867	245	879	441
Grp Sat Flow(s),veh/h/ln	1714	1763	1572	1714	1763	1572	1714	1763	1572	1714	1763	1572
Q Serve(g_s), s	13.9	44.2	10.3	28.2	37.3	11.2	11.2	40.2	29.8	9.2	35.5	38.2
Cycle Q Clear(g_c), s	13.9	44.2	10.3	28.2	37.3	11.2	11.2	40.2	29.8	9.2	35.5	38.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	380	1075	479	667	1370	611	265	977	742	218	929	414
V/C Ratio(X)	0.88	1.20	0.38	1.24	0.76	0.29	1.23	1.06	1.17	1.13	0.95	1.06
Avail Cap(c_a), veh/h	414	1075	479	667	1370	611	265	977	742	218	929	414
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	63.5	50.4	23.7	58.4	38.5	30.6	66.9	52.4	21.4	67.9	52.4	53.4
Incr Delay (d2), s/veh	17.7	100.4	0.5	120.0	2.6	0.3	132.4	46.4	90.1	99.1	19.1	62.4
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/lr	6.9	33.9	3.8	23.1	16.1	4.2	9.7	23.6	26.6	7.0	17.7	21.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	81.1	150.8	24.2	178.4	41.1	30.8	199.3	98.8	111.5	167.0	71.5	115.8
LnGrp LOS	F	F	C	F	D	C	F	F	F	F	E	F
Approach Vol, veh/h		1809			2046			2230			1565	
Approach Delay, s/veh		125.2			95.6			118.4			98.9	
Approach LOS		F			F			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.0	46.0	34.0	50.0	17.0	44.0	21.9	62.1				
Change Period (Y+Rc), s	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8				
Max Green Setting (Gmax), s	40.2	40.2	28.2	44.2	11.2	38.2	17.5	54.9				
Max Q Clear Time (g_c+fl), s	42.2	42.2	30.2	46.2	13.2	40.2	15.9	39.3				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.2	6.7				

### Intersection Summary

HCM 6th Ctrl Delay	109.9
HCM 6th LOS	F



HCM 6th Signalized Intersection Summary  
 8: Parsons Avenue/Gardner Avenue & Yosemite Avenue

02/23/2022



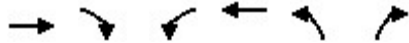
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	105	1505	185	53	1449	45	113	131	22	58	106	75
Future Volume (veh/h)	105	1505	185	53	1449	45	113	131	22	58	106	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		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	114	1636	201	58	1575	49	123	142	24	63	115	82
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	209	2156	261	163	2377	74	178	338	57	132	215	343
Arrive On Green	0.68	0.68	0.68	0.68	0.68	0.68	0.22	0.22	0.22	0.22	0.22	0.22
Sat Flow, veh/h	308	3167	383	250	3490	108	1176	1547	261	352	986	1572
Grp Volume(v), veh/h	114	899	938	58	794	830	123	0	166	178	0	82
Grp Sat Flow(s),veh/h/ln	308	1763	1787	250	1763	1836	1176	0	1808	1338	0	1572
Q Serve(g_s), s	30.6	29.6	31.5	18.1	23.3	23.5	7.4	0.0	7.1	5.1	0.0	3.8
Cycle Q Clear(g_c), s	54.1	29.6	31.5	49.6	23.3	23.5	19.5	0.0	7.1	12.1	0.0	3.8
Prop In Lane	1.00		0.21	1.00		0.06	1.00		0.14	0.35		1.00
Lane Grp Cap(c), veh/h	209	1200	1217	163	1200	1250	178	0	395	347	0	343
V/C Ratio(X)	0.54	0.75	0.77	0.36	0.66	0.66	0.69	0.00	0.42	0.51	0.00	0.24
Avail Cap(c_a), veh/h	212	1214	1230	165	1214	1264	178	0	395	347	0	343
HCM Platoon Ratio	1.00	1.00	1.00	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	24.1	9.3	9.6	26.2	8.3	8.3	41.8	0.0	30.0	32.0	0.0	28.8
Incr Delay (d2), s/veh	2.8	2.6	3.0	1.3	1.3	1.3	10.9	0.0	0.7	1.3	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	8.8	9.6	1.0	6.7	7.0	3.1	0.0	3.0	3.5	0.0	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.9	11.9	12.6	27.6	9.6	9.6	52.7	0.0	30.8	33.3	0.0	29.1
LnGrp LOS	C	B	B	C	A	A	D	A	C	C	A	C
Approach Vol, veh/h		1951			1682			289			260	
Approach Delay, s/veh		13.1			10.2			40.1			32.0	
Approach LOS		B			B			D			C	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		24.0		65.3		24.0		65.3				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		19.5		61.5		19.5		61.5				
Max Q Clear Time (g_c+I1), s		21.5		56.1		14.1		51.6				
Green Ext Time (p_c), s		0.0		4.7		0.5		7.3				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay					15.0							
HCM 6th LOS					B							



# HCM 6th Signalized Intersection Summary

## 9: McKee Road & Yosemite Avenue

02/23/2022

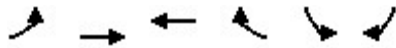


Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↔	↑↑	↑	↔
Traffic Volume (veh/h)	1213	201	390	1282	113	355
Future Volume (veh/h)	1213	201	390	1282	113	355
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	1318	218	424	1393	123	386
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	1440	642	495	2180	435	387
Arrive On Green	0.41	0.41	0.14	0.62	0.25	0.25
Sat Flow, veh/h	3618	1572	3428	3618	1767	1572
Grp Volume(v), veh/h	1318	218	424	1393	123	386
Grp Sat Flow(s),veh/h/ln	1763	1572	1714	1763	1767	1572
Q Serve(g_s), s	31.3	8.4	10.7	22.1	5.0	21.7
Cycle Q Clear(g_c), s	31.3	8.4	10.7	22.1	5.0	21.7
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1440	642	495	2180	435	387
V/C Ratio(X)	0.92	0.34	0.86	0.64	0.28	1.00
Avail Cap(c_a), veh/h	1481	661	511	2237	435	387
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.7	18.0	37.0	10.7	27.0	33.4
Incr Delay (d2), s/veh	9.0	0.3	13.2	0.6	1.6	45.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ft	3.4	2.8	5.1	6.9	2.1	12.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	33.8	18.3	50.2	11.3	28.7	78.4
LnGrp LOS	C	B	D	B	C	E
Approach Vol, veh/h	1536			1817	509	
Approach Delay, s/veh	31.6			20.3	66.4	
Approach LOS	C			C	E	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		28.0	18.6	42.0		60.6
Change Period (Y+Rc), s		6.2	5.8	5.8		5.8
Max Green Setting (Gmax), s		21.8	13.2	37.2		56.2
Max Q Clear Time (g_c+I1), s		23.7	12.7	33.3		24.1
Green Ext Time (p_c), s		0.0	0.1	2.9		12.1
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			30.9			
HCM 6th LOS			C			

# HCM 6th Signalized Intersection Summary

## 10: Yosemite Avenue & Lake Road

02/23/2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	45	977	1405	17	14	32
Future Volume (veh/h)	45	977	1405	17	14	32
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	49	1062	1527	18	15	35
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	307	2205	2232	26	64	150
Arrive On Green	0.63	0.63	0.63	0.63	0.13	0.13
Sat Flow, veh/h	332	3618	3661	42	479	1119
Grp Volume(v), veh/h	49	1062	754	791	51	0
Grp Sat Flow(s),veh/h/ln	332	1763	1763	1848	1630	0
Q Serve(g_s), s	4.2	6.0	10.5	10.5	1.0	0.0
Cycle Q Clear(g_c), s	14.7	6.0	10.5	10.5	1.0	0.0
Prop In Lane	1.00			0.02	0.29	0.69
Lane Grp Cap(c), veh/h	307	2205	1102	1156	218	0
V/C Ratio(X)	0.16	0.48	0.68	0.68	0.23	0.00
Avail Cap(c_a), veh/h	380	2971	1486	1558	851	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	9.4	3.8	4.6	4.6	14.5	0.0
Incr Delay (d2), s/veh	0.2	0.2	0.8	0.8	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/lr	0.2	0.1	0.3	0.4	0.3	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	9.6	3.9	5.4	5.4	15.0	0.0
LnGrp LOS	A	A	A	A	B	A
Approach Vol, veh/h		1111	1545		51	
Approach Delay, s/veh		4.2	5.4		15.0	
Approach LOS		A	A		B	
Timer - Assigned Phs				4	6	8
Phs Duration (G+Y+Rc), s				27.9	9.5	27.9
Change Period (Y+Rc), s				4.5	4.5	4.5
Max Green Setting (Gmax), s				31.5	19.5	31.5
Max Q Clear Time (g_c+I1), s				16.7	3.0	12.5
Green Ext Time (p_c), s				6.7	0.1	9.7

### Intersection Summary

HCM 6th Ctrl Delay	5.1
HCM 6th LOS	A

### Notes

User approved volume balancing among the lanes for turning movement.

# HCM 6th Signalized Intersection Summary

## 11: Snelling Highway (SR 59) & Santa Fe Drive/Olive Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑	↗	↔↔	↑↑	↗	↔↔	↑↑	↗	↔↔	↑↑	↗
Traffic Volume (veh/h)	168	999	175	356	1010	341	117	1001	410	312	889	134
Future Volume (veh/h)	168	999	175	356	1010	341	117	1001	410	312	889	134
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	183	1086	190	387	1098	371	127	1088	446	339	966	146
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	211	1060	563	401	1256	722	196	1065	659	353	1227	644
Arrive On Green	0.06	0.30	0.30	0.12	0.36	0.36	0.06	0.30	0.30	0.10	0.35	0.35
Sat Flow, veh/h	3428	3526	1572	3428	3526	1572	3428	3526	1572	3428	3526	1572
Grp Volume(v), veh/h	183	1086	190	387	1098	371	127	1088	446	339	966	146
Grp Sat Flow(s),veh/h/ln	1714	1763	1572	1714	1763	1572	1714	1763	1572	1714	1763	1572
Q Serve(g_s), s	7.1	40.6	3.0	15.2	39.3	22.5	4.9	40.8	31.0	13.3	33.2	5.5
Cycle Q Clear(g_c), s	7.1	40.6	3.0	15.2	39.3	22.5	4.9	40.8	31.0	13.3	33.2	5.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	211	1060	563	401	1256	722	196	1065	659	353	1227	644
V/C Ratio(X)	0.87	1.02	0.34	0.96	0.87	0.51	0.65	1.02	0.68	0.96	0.79	0.23
Avail Cap(c_a), veh/h	211	1060	563	401	1256	722	196	1065	659	353	1227	644
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	62.8	47.2	14.0	59.3	40.6	25.8	62.3	47.1	31.8	60.3	39.5	12.6
Incr Delay (d2), s/veh	29.7	34.0	0.4	35.6	7.1	0.6	7.3	33.0	5.5	37.4	5.1	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	22.2	2.5	8.4	17.6	8.2	2.3	22.1	12.3	7.4	14.5	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	92.5	81.2	14.4	95.0	47.7	26.5	69.7	80.1	37.3	97.7	44.6	13.4
LnGrp LOS	F	F	B	F	D	C	E	F	D	F	D	B
Approach Vol, veh/h		1459			1856			1661			1451	
Approach Delay, s/veh		73.9			53.3			67.8			53.9	
Approach LOS		E			D			E			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	30.4	46.6	21.6	46.4	13.5	53.5	14.1	53.9				
Change Period (Y+Rc), s	6.5	5.8	5.8	5.8	5.8	6.5	5.8	5.8				
Max Green Setting (Gmax), s	33.9	40.8	15.8	40.6	7.7	47.0	8.3	48.1				
Max Q Clear Time (g_c+1/3), s	11.3	42.8	17.2	42.6	6.9	35.2	9.1	41.3				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	4.9	0.0	4.3				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay											61.9	
HCM 6th LOS											E	

# HCM 6th Signalized Intersection Summary

## 12: R Street & Olive Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑	↗	↘	↑↑↑	↗	↘	↑↑		↘	↑↑	↗
Traffic Volume (veh/h)	245	1205	376	310	1172	234	516	895	145	216	845	161
Future Volume (veh/h)	245	1205	376	310	1172	234	516	895	145	216	845	161
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		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	266	1310	409	337	1274	254	561	973	158	235	918	175
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	197	1125	692	234	1230	586	385	1097	178	229	963	605
Arrive On Green	0.11	0.22	0.22	0.13	0.24	0.24	0.22	0.36	0.36	0.13	0.27	0.27
Sat Flow, veh/h	1767	5066	1572	1767	5066	1572	1767	3037	493	1767	3526	1572
Grp Volume(v), veh/h	266	1310	409	337	1274	254	561	564	567	235	918	175
Grp Sat Flow(s),veh/h/ln	1767	1689	1572	1767	1689	1572	1767	1763	1767	1767	1763	1572
Q Serve(g_s), s	16.2	32.2	28.5	19.2	35.2	4.2	31.6	43.6	43.7	18.8	37.1	11.2
Cycle Q Clear(g_c), s	16.2	32.2	28.5	19.2	35.2	4.2	31.6	43.6	43.7	18.8	37.1	11.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.28	1.00		1.00
Lane Grp Cap(c), veh/h	197	1125	692	234	1230	586	385	637	638	229	963	605
V/C Ratio(X)	1.35	1.16	0.59	1.44	1.04	0.43	1.46	0.89	0.89	1.03	0.95	0.29
Avail Cap(c_a), veh/h	197	1125	692	234	1230	586	385	637	638	229	963	605
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	64.4	56.4	30.7	62.9	54.9	15.7	56.7	43.5	43.5	63.1	51.8	30.9
Incr Delay (d2), s/veh	186.0	84.0	1.3	220.7	35.5	0.5	219.5	16.6	16.7	66.3	19.7	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.4	22.1	10.8	22.8	18.6	3.9	37.3	21.5	21.6	12.6	18.7	4.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	250.4	140.4	32.1	283.6	90.4	16.2	276.2	60.1	60.2	129.4	71.5	32.1
LnGrp LOS	F	F	C	F	F	B	F	E	E	F	E	C
Approach Vol, veh/h		1985			1865			1692			1328	
Approach Delay, s/veh		132.8			115.2			131.8			76.6	
Approach LOS		F			F			F			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	24.2	57.8	25.0	38.0	37.0	45.0	22.0	41.0				
Change Period (Y+Rc), s	5.4	5.4	5.8	5.8	5.4	5.4	5.8	5.8				
Max Green Setting (Gmax), s	18.8	52.4	19.2	32.2	31.6	39.6	16.2	35.2				
Max Q Clear Time (g_c+Q), s	20.8	45.7	21.2	34.2	33.6	39.1	18.2	37.2				
Green Ext Time (p_c), s	0.0	3.7	0.0	0.0	0.0	0.3	0.0	0.0				

### Intersection Summary

HCM 6th Ctrl Delay	116.9
HCM 6th LOS	F

# HCM 6th Signalized Intersection Summary

## 13: M Street & Olive Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘ ↑↑↑	↑↑↑	↗	↘ ↑↑↑	↑↑↑		↘ ↑↑	↑↑		↘ ↑↑	↑↑	
Traffic Volume (veh/h)	223	1293	196	256	1195	133	306	1061	184	378	884	200
Future Volume (veh/h)	223	1293	196	256	1195	133	306	1061	184	378	884	200
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	242	1405	213	278	1299	145	333	1153	200	411	961	217
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	203	1189	595	214	1116	125	254	974	168	302	1002	226
Arrive On Green	0.11	0.23	0.23	0.12	0.24	0.24	0.14	0.32	0.32	0.17	0.35	0.35
Sat Flow, veh/h	1767	5066	1572	1767	4624	516	1767	3006	519	1767	2858	644
Grp Volume(v), veh/h	242	1405	213	278	949	495	333	674	679	411	592	586
Grp Sat Flow(s),veh/h/ln	1767	1689	1572	1767	1689	1763	1767	1763	1762	1767	1763	1740
Q Serve(g_s), s	17.2	35.2	14.6	18.2	36.2	36.2	21.6	48.6	48.6	25.6	49.3	49.5
Cycle Q Clear(g_c), s	17.2	35.2	14.6	18.2	36.2	36.2	21.6	48.6	48.6	25.6	49.3	49.5
Prop In Lane	1.00		1.00	1.00		0.29	1.00		0.29	1.00		0.37
Lane Grp Cap(c), veh/h	203	1189	595	214	815	425	254	571	571	302	618	610
V/C Ratio(X)	1.19	1.18	0.36	1.30	1.16	1.16	1.31	1.18	1.19	1.36	0.96	0.96
Avail Cap(c_a), veh/h	203	1189	595	214	815	425	254	571	571	302	618	610
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	66.4	57.4	33.5	65.9	56.9	56.9	64.2	50.7	50.7	62.2	47.6	47.7
Incr Delay (d2), s/veh	125.5	90.7	0.4	163.4	87.1	96.8	164.2	98.1	101.8	183.2	27.2	27.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	24.6	5.6	17.8	24.9	27.2	21.2	36.5	37.1	26.7	25.8	25.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	191.9	148.1	33.9	229.3	144.0	153.7	228.4	148.8	152.5	245.4	74.8	75.6
LnGrp LOS	F	F	C	F	F	F	F	F	F	F	F	E
Approach Vol, veh/h		1860			1722			1686			1589	
Approach Delay, s/veh		140.7			160.6			166.0			119.2	
Approach LOS		F			F			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	31.0	54.0	24.0	41.0	27.0	58.0	23.0	42.0				
Change Period (Y+Rc), s	5.4	5.4	5.8	5.8	5.4	5.4	5.8	5.8				
Max Green Setting (Gmax), s	25.6	48.6	18.2	35.2	21.6	52.6	17.2	36.2				
Max Q Clear Time (g_c+Q), s	27.6	50.6	20.2	37.2	23.6	51.5	19.2	38.2				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			147.0									
HCM 6th LOS			F									

# HCM 6th Signalized Intersection Summary

## 14: Olive Avenue & G Street

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	575	869	332	219	618	108	263	1638	261	143	1538	519
Future Volume (veh/h)	575	869	332	219	618	108	263	1638	261	143	1538	519
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	625	945	361	238	672	117	286	1780	284	155	1672	564
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	356	941	574	228	584	102	173	1342	801	112	1221	861
Arrive On Green	0.20	0.27	0.27	0.13	0.19	0.19	0.10	0.38	0.38	0.06	0.35	0.35
Sat Flow, veh/h	1767	3526	1572	1767	3002	522	1767	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	625	945	361	238	394	395	286	1780	284	155	1672	564
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1762	1767	1763	1572	1767	1763	1572
Q Serve(g_s), s	29.2	38.7	27.4	18.7	28.2	28.2	14.2	55.2	15.7	9.2	50.2	11.2
Cycle Q Clear(g_c), s	29.2	38.7	27.4	18.7	28.2	28.2	14.2	55.2	15.7	9.2	50.2	11.2
Prop In Lane	1.00		1.00	1.00		0.30	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	356	941	574	228	343	343	173	1342	801	112	1221	861
V/C Ratio(X)	1.76	1.00	0.63	1.04	1.15	1.15	1.65	1.33	0.35	1.38	1.37	0.65
Avail Cap(c_a), veh/h	356	941	574	228	343	343	173	1342	801	112	1221	861
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	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	57.9	53.1	38.0	63.1	58.4	58.4	65.4	44.9	21.3	67.9	47.4	8.4
Incr Delay (d2), s/veh	351.7	30.4	2.2	71.7	95.9	96.7	318.0	152.1	1.2	217.9	171.7	3.9
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	17.5	20.6	10.7	12.8	21.4	21.5	21.6	51.5	5.9	10.9	50.4	6.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	409.6	83.5	40.2	134.8	154.3	155.1	383.4	197.0	22.5	285.8	219.1	12.2
LnGrp LOS	F	F	D	F	F	F	F	F	C	F	F	B
Approach Vol, veh/h		1931			1027			2350			2391	
Approach Delay, s/veh		181.0			150.1			198.6			174.7	
Approach LOS		F			F			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.0	61.0	24.5	44.5	20.0	56.0	35.0	34.0				
Change Period (Y+Rc), s	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8				
Max Green Setting (Gmax), s	2.8	55.2	18.7	38.7	14.2	50.2	29.2	28.2				
Max Q Clear Time (g_c+fl), s	1.2	57.2	20.7	40.7	16.2	52.2	31.2	30.2				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				

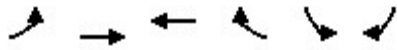
### Intersection Summary

HCM 6th Ctrl Delay		180.3										
HCM 6th LOS			F									

# HCM 6th Signalized Intersection Summary

## 15: 16th Street & Snelling Highway (SR 59)

02/23/2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖↗	↑↑	↑↑	↖	↖↗	↖
Traffic Volume (veh/h)	826	584	636	624	454	771
Future Volume (veh/h)	826	584	636	624	454	771
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	898	635	691	0	493	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	1112	2583	2583		604	
Arrive On Green	0.73	0.73	0.73	0.00	0.18	0.00
Sat Flow, veh/h	1448	3618	3618	1572	3428	1572
Grp Volume(v), veh/h	898	635	691	0	493	0
Grp Sat Flow(s),veh/h/ln	724	1763	1763	1572	1714	1572
Q Serve(g_s), s	53.6	5.8	6.4	0.0	13.7	0.0
Cycle Q Clear(g_c), s	60.0	5.8	6.4	0.0	13.7	0.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	1112	2583	2583		604	
V/C Ratio(X)	0.81	0.25	0.27		0.82	
Avail Cap(c_a), veh/h	1204	2805	2805		1477	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	14.4	4.3	4.4	0.0	39.1	0.0
Incr Delay (d2), s/veh	3.9	0.0	0.1	0.0	2.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/lr	6.7	1.3	1.7	0.0	5.7	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	18.3	4.4	4.4	0.0	41.9	0.0
LnGrp LOS	B	A	A		D	
Approach Vol, veh/h		1533	691	A	493	A
Approach Delay, s/veh		12.5	4.4		41.9	
Approach LOS		B	A		D	
Timer - Assigned Phs				4	6	8
Phs Duration (G+Y+Rc), s				76.8	21.9	76.8
Change Period (Y+Rc), s				4.5	4.5	4.5
Max Green Setting (Gmax), s				78.5	42.5	78.5
Max Q Clear Time (g_c+I1), s				62.0	15.7	8.4
Green Ext Time (p_c), s				10.3	1.7	5.2

### Intersection Summary

HCM 6th Ctrl Delay	15.8
HCM 6th LOS	B

### Notes

Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.



HCM 6th Signalized Intersection Summary  
 16: MLK JR Way & SR 99 NB Ramps

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕		↕	↕			↕	↕
Traffic Volume (veh/h)	0	0	0	41	0	90	319	962	0	0	852	491
Future Volume (veh/h)	0	0	0	41	0	90	319	962	0	0	852	491
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No			No	
Adj Sat Flow, veh/h/ln				1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h				45	0	98	347	1046	0	0	926	534
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				56	0	122	386	2761	0	0	1111	625
Arrive On Green				0.11	0.00	0.11	0.22	0.78	0.00	0.00	0.51	0.51
Sat Flow, veh/h				513	0	1116	1767	3618	0	0	2267	1224
Grp Volume(v), veh/h				143	0	0	347	1046	0	0	746	714
Grp Sat Flow(s),veh/h/ln				1629	0	0	1767	1763	0	0	1763	1635
Q Serve(g_s), s				7.2	0.0	0.0	16.0	7.7	0.0	0.0	30.0	31.7
Cycle Q Clear(g_c), s				7.2	0.0	0.0	16.0	7.7	0.0	0.0	30.0	31.7
Prop In Lane				0.31		0.69	1.00		0.00	0.00		0.75
Lane Grp Cap(c), veh/h				178	0	0	386	2761	0	0	901	835
V/C Ratio(X)				0.80	0.00	0.00	0.90	0.38	0.00	0.00	0.83	0.85
Avail Cap(c_a), veh/h				302	0	0	433	2761	0	0	901	835
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				36.4	0.0	0.0	31.8	2.8	0.0	0.0	17.4	17.8
Incr Delay (d2), s/veh				8.1	0.0	0.0	19.9	0.4	0.0	0.0	8.7	10.8
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				3.1	0.0	0.0	8.7	1.8	0.0	0.0	13.2	13.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				44.5	0.0	0.0	51.7	3.2	0.0	0.0	26.1	28.6
LnGrp LOS				D	A	A	D	A	A	A	C	C
Approach Vol, veh/h				143			1393				1460	
Approach Delay, s/veh				44.5			15.3				27.3	
Approach LOS				D			B				C	
Timer - Assigned Phs		2		5	6		8					
Phs Duration (G+Y+Rc), s		70.0		22.8	47.2		13.7					
Change Period (Y+Rc), s		4.5		4.5	4.5		4.5					
Max Green Setting (Gmax), s		65.5		20.5	40.5		15.5					
Max Q Clear Time (g_c+I1), s		9.7		18.0	33.7		9.2					
Green Ext Time (p_c), s		10.2		0.3	5.0		0.3					
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				22.5								
HCM 6th LOS				C								



HCM 6th Signalized Intersection Summary  
 17: G Street & 14th Street/SR 99 NB Off Ramp

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	239	0	10	18	10	138	12	835	0	0	813	83
Future Volume (veh/h)	239	0	10	18	10	138	12	835	0	0	813	83
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	0	1856	1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h	260	0	11	20	11	150	13	908	0	0	884	90
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	0	3	3	3	3	3	3	0	0	3	3
Cap, veh/h	0	0	0	22	12	163	29	2390	0	0	1813	185
Arrive On Green	0.00	0.00	0.00	0.12	0.12	0.12	0.02	0.68	0.00	0.00	0.56	0.56
Sat Flow, veh/h		0		178	98	1332	1767	3618	0	0	3323	329
Grp Volume(v), veh/h		0.0		181	0	0	13	908	0	0	482	492
Grp Sat Flow(s),veh/h/ln				1607	0	0	1767	1763	0	0	1763	1796
Q Serve(g_s), s				5.0	0.0	0.0	0.3	5.0	0.0	0.0	7.4	7.4
Cycle Q Clear(g_c), s				5.0	0.0	0.0	0.3	5.0	0.0	0.0	7.4	7.4
Prop In Lane				0.11		0.83	1.00		0.00	0.00		0.18
Lane Grp Cap(c), veh/h				196	0	0	29	2390	0	0	989	1008
V/C Ratio(X)				0.92	0.00	0.00	0.44	0.38	0.00	0.00	0.49	0.49
Avail Cap(c_a), veh/h				196	0	0	196	2390	0	0	989	1008
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)				1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				19.5	0.0	0.0	21.9	3.1	0.0	0.0	6.0	6.0
Incr Delay (d2), s/veh				42.7	0.0	0.0	10.0	0.5	0.0	0.0	1.7	1.7
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				3.9	0.0	0.0	0.2	0.7	0.0	0.0	2.1	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				62.3	0.0	0.0	32.0	3.6	0.0	0.0	7.7	7.7
LnGrp LOS				E	A	A	C	A	A	A	A	A
Approach Vol, veh/h					181			921			974	
Approach Delay, s/veh					62.3			4.0			7.7	
Approach LOS					E			A			A	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		35.0			5.2	29.8		10.0				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		30.5			5.0	21.0		5.5				
Max Q Clear Time (g_c+I1), s		7.0			2.3	9.4		7.0				
Green Ext Time (p_c), s		6.7			0.0	4.7		0.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay											10.8	
HCM 6th LOS											B	

HCM 6th Roundabout  
18: Campus Parkway & Yosemite Avenue

02/23/2022

Intersection									
Intersection Delay, s/veh									
336.2									
Intersection LOS									
F									
Approach	EB		WB		NB		SB		
Entry Lanes	2		2		2		2		
Conflicting Circle Lanes	2		2		2		2		
Adj Approach Flow, veh/h	1077		694		1928		1387		
Demand Flow Rate, veh/h	1109		715		1986		1429		
Vehicles Circulating, veh/h	1255		2261		994		1418		
Vehicles Exiting, veh/h	1592		719		1370		1558		
Ped Vol Crossing Leg, #/h	0		0		0		0		
Ped Cap Adj	1.000		1.000		1.000		1.000		
Approach Delay, s/veh	143.1		469.3		352.6		396.8		
Approach LOS	F		F		F		F		
Lane	Left	Right	Left	Right	Left	Right	Left	Right	
Designated Moves	LT	TR	LT	TR	LT	TR	LT	TR	
Assumed Moves	LT	TR	LT	TR	LT	TR	LT	TR	
RT Channelized									
Lane Util	0.470	0.530	0.470	0.530	0.470	0.530	0.470	0.530	
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.667	2.535	2.667	2.535	
Critical Headway, s	4.645	4.328	4.645	4.328	4.645	4.328	4.645	4.328	
Entry Flow, veh/h	521	588	336	379	933	1053	672	757	
Cap Entry Lane, veh/h	426	489	169	208	541	610	366	425	
Entry HV Adj Factor	0.971	0.971	0.971	0.971	0.971	0.970	0.970	0.971	
Flow Entry, veh/h	506	571	326	368	906	1022	652	735	
Cap Entry, veh/h	413	474	164	202	525	592	355	413	
V/C Ratio	1.224	1.203	1.992	1.824	1.725	1.726	1.835	1.780	
Control Delay, s/veh	149.9	137.1	513.9	429.8	353.5	351.8	411.8	383.4	
LOS	F	F	F	F	F	F	F	F	
95th %tile Queue, veh	21	22	25	26	54	60	43	46	

HCM 6th Roundabout  
19: Campus Parkway & Olive Avenue

02/23/2022

Intersection									
Intersection Delay, s/veh29.1									
Intersection LOS D									
Approach	EB		WB		NB		SB		
Entry Lanes	2		2		2		2		
Conflicting Circle Lanes	2		2		2		2		
Adj Approach Flow, veh/h	171		159		807		1191		
Demand Flow Rate, veh/h	176		164		832		1227		
Vehicles Circulating, veh/h	1250		828		188		158		
Vehicles Exiting, veh/h	135		192		1238		834		
Ped Vol Crossing Leg, #/h	0		0		0		0		
Ped Cap Adj	1.000		1.000		1.000		1.000		
Approach Delay, s/veh	10.9		7.0		6.7		49.8		
Approach LOS	B		A		A		E		
Lane	Left	Right	Left	Right	Left	Right	Left	Right	
Designated Moves	LT	TR	LT	TR	LT	TR	LT	R	
Assumed Moves	LT	TR	LT	TR	LT	TR	LT	R	
RT Channelized									
Lane Util	0.472	0.528	0.470	0.530	0.470	0.530	0.971	0.029	
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.667	2.535	2.667	2.535	
Critical Headway, s	4.645	4.328	4.645	4.328	4.645	4.328	4.645	4.328	
Entry Flow, veh/h	83	93	77	87	391	441	1191	36	
Cap Entry Lane, veh/h	427	491	630	702	1135	1210	1167	1242	
Entry HV Adj Factor	0.968	0.975	0.969	0.967	0.971	0.970	0.971	0.972	
Flow Entry, veh/h	80	91	75	84	380	428	1156	35	
Cap Entry, veh/h	414	478	611	679	1102	1175	1133	1207	
V/C Ratio	0.194	0.190	0.122	0.124	0.344	0.364	1.020	0.029	
Control Delay, s/veh	11.7	10.2	7.3	6.7	6.7	6.6	51.2	3.2	
LOS	B	B	A	A	A	A	F	A	
95th %tile Queue, veh	1	1	0	0	2	2	22	0	

# HCM 6th Signalized Intersection Summary

## 20: Campus Parkway & Connector Road

02/23/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖↗	↖	↕↕	↖	↖↗	↕↕
Traffic Volume (veh/h)	71	231	614	93	211	822
Future Volume (veh/h)	71	231	614	93	211	822
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	77	0	667	0	229	893
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	353		1535		379	2362
Arrive On Green	0.10	0.00	0.44	0.00	0.11	0.67
Sat Flow, veh/h	3428	1572	3618	1572	3428	3618
Grp Volume(v), veh/h	77	0	667	0	229	893
Grp Sat Flow(s),veh/h/ln	1714	1572	1763	1572	1714	1763
Q Serve(g_s), s	1.1	0.0	6.9	0.0	3.3	5.9
Cycle Q Clear(g_c), s	1.1	0.0	6.9	0.0	3.3	5.9
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	353		1535		379	2362
V/C Ratio(X)	0.22		0.43		0.60	0.38
Avail Cap(c_a), veh/h	2159		1535		491	2362
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	21.6	0.0	10.3	0.0	22.2	3.8
Incr Delay (d2), s/veh	0.3	0.0	0.9	0.0	1.6	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	1.9	0.0	1.2	0.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	21.9	0.0	11.2	0.0	23.8	4.3
LnGrp LOS	C		B		C	A
Approach Vol, veh/h	77	A	667	A		1122
Approach Delay, s/veh	21.9		11.2			8.3
Approach LOS	C		B			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	2.3	29.3			41.6	10.8
Change Period (Y+Rc), s	6.5	6.5			6.5	5.4
Max Green Setting (Gmax), s	7.5	21.1			35.1	33.0
Max Q Clear Time (g_c+1/3), s	15.3	8.9			7.9	3.1
Green Ext Time (p_c), s	0.2	3.1			5.8	0.2

### Intersection Summary

HCM 6th Ctrl Delay	9.9
HCM 6th LOS	A

### Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

# HCM 6th Signalized Intersection Summary

## 21: SR 140 & Connector Road

02/23/2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations	↙	↑	↑	↘	↙	↘	
Traffic Volume (veh/h)	24	298	203	204	235	58	
Future Volume (veh/h)	24	298	203	204	235	58	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	
Adj Flow Rate, veh/h	26	324	221	222	255	63	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	3	3	3	3	3	3	
Cap, veh/h	64	681	375	318	702	625	
Arrive On Green	0.04	0.37	0.20	0.20	0.40	0.40	
Sat Flow, veh/h	1767	1856	1856	1572	1767	1572	
Grp Volume(v), veh/h	26	324	221	222	255	63	
Grp Sat Flow(s),veh/h/ln	1767	1856	1856	1572	1767	1572	
Q Serve(g_s), s	0.7	6.8	5.5	6.6	5.1	1.3	
Cycle Q Clear(g_c), s	0.7	6.8	5.5	6.6	5.1	1.3	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	64	681	375	318	702	625	
V/C Ratio(X)	0.41	0.48	0.59	0.70	0.36	0.10	
Avail Cap(c_a), veh/h	210	1394	936	793	702	625	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	23.8	12.3	18.3	18.7	10.7	9.6	
Incr Delay (d2), s/veh	4.1	0.5	1.5	2.8	1.5	0.3	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.3	2.0	2.0	2.1	1.8	1.5	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	27.9	12.8	19.7	21.5	12.2	9.9	
LnGrp LOS	C	B	B	C	B	A	
Approach Vol, veh/h		350	443		318		
Approach Delay, s/veh		13.9	20.6		11.7		
Approach LOS		B	C		B		
Timer - Assigned Phs			4		6	7	8
Phs Duration (G+Y+Rc), s			25.1		25.5	8.3	16.7
Change Period (Y+Rc), s			6.5		5.4	6.5	6.5
Max Green Setting (Gmax), s			38.0		20.1	6.0	25.5
Max Q Clear Time (g_c+I1), s			8.8		7.1	2.7	8.6
Green Ext Time (p_c), s			1.6		0.8	0.0	1.6
<b>Intersection Summary</b>							
HCM 6th Ctrl Delay			16.0				
HCM 6th LOS			B				

# HCM 6th Signalized Intersection Summary

## 22: Campus Parkway & Childs Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	144	56	111	90	15	91	625	95	9	780	15
Future Volume (veh/h)	9	144	56	111	90	15	91	625	95	9	780	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	10	157	61	121	98	16	99	679	103	10	848	16
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	27	392	175	154	680	303	247	1565	698	27	1365	609
Arrive On Green	0.02	0.11	0.11	0.09	0.19	0.19	0.07	0.44	0.44	0.02	0.39	0.39
Sat Flow, veh/h	1767	3526	1572	1767	3526	1572	3428	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	10	157	61	121	98	16	99	679	103	10	848	16
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1572	1714	1763	1572	1767	1763	1572
Q Serve(g_s), s	0.4	3.0	2.6	4.8	1.7	0.6	2.0	9.5	2.8	0.4	13.9	0.5
Cycle Q Clear(g_c), s	0.4	3.0	2.6	4.8	1.7	0.6	2.0	9.5	2.8	0.4	13.9	0.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	27	392	175	154	680	303	247	1565	698	27	1365	609
V/C Ratio(X)	0.37	0.40	0.35	0.79	0.14	0.05	0.40	0.43	0.15	0.37	0.62	0.03
Avail Cap(c_a), veh/h	148	1915	854	204	2028	905	286	1565	698	148	1365	609
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.0	29.7	29.5	32.1	24.1	23.6	31.8	13.7	11.9	35.0	17.8	13.6
Incr Delay (d2), s/veh	8.5	0.7	1.2	13.7	0.1	0.1	1.1	0.9	0.4	8.5	2.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.2	1.0	2.5	0.6	0.2	0.8	3.2	0.9	0.2	5.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.5	30.3	30.7	45.8	24.2	23.7	32.9	14.6	12.3	43.5	19.9	13.7
LnGrp LOS	D	C	C	D	C	C	C	B	B	D	B	B
Approach Vol, veh/h		228			235			881			874	
Approach Delay, s/veh		31.0			35.3			16.4			20.0	
Approach LOS		C			D			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.6	38.4	12.0	13.8	11.7	34.3	6.2	19.6				
Change Period (Y+Rc), s	6.5	6.5	5.8	* 5.8	6.5	6.5	5.1	5.8				
Max Green Setting (Gmax), s	6.0	27.8	8.3	* 39	6.0	27.8	6.0	41.3				
Max Q Clear Time (g_c+1), s	12.4	11.5	6.8	5.0	4.0	15.9	2.4	3.7				
Green Ext Time (p_c), s	0.0	3.9	0.0	1.2	0.0	4.0	0.0	0.6				

### Intersection Summary

HCM 6th Ctrl Delay	21.3
HCM 6th LOS	C

### Notes

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

# HCM 6th Signalized Intersection Summary

## 23: Campus Parkway & Gerard Avenue

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑	↗	↔↔	↑↑	↗	↔↔	↑↑	↗	↔↔	↑↑	↗
Traffic Volume (veh/h)	28	242	44	18	18	9	96	556	29	7	957	36
Future Volume (veh/h)	28	242	44	18	18	9	96	556	29	7	957	36
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	30	263	48	20	20	10	104	604	32	8	1040	39
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	126	419	187	93	417	186	237	1783	795	42	1582	705
Arrive On Green	0.04	0.12	0.12	0.03	0.12	0.12	0.07	0.51	0.51	0.01	0.45	0.45
Sat Flow, veh/h	3428	3526	1572	3428	3526	1572	3428	3526	1572	3428	3526	1572
Grp Volume(v), veh/h	30	263	48	20	20	10	104	604	32	8	1040	39
Grp Sat Flow(s),veh/h/ln	1714	1763	1572	1714	1763	1572	1714	1763	1572	1714	1763	1572
Q Serve(g_s), s	0.7	5.5	2.1	0.4	0.4	0.4	2.3	7.9	0.8	0.2	17.8	1.1
Cycle Q Clear(g_c), s	0.7	5.5	2.1	0.4	0.4	0.4	2.3	7.9	0.8	0.2	17.8	1.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	126	419	187	93	417	186	237	1783	795	42	1582	705
V/C Ratio(X)	0.24	0.63	0.26	0.22	0.05	0.05	0.44	0.34	0.04	0.19	0.66	0.06
Avail Cap(c_a), veh/h	266	1732	773	266	1732	773	266	1783	795	266	1582	705
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.2	32.4	31.0	36.8	30.2	30.3	34.5	11.4	9.6	37.8	16.7	12.1
Incr Delay (d2), s/veh	1.0	1.5	0.7	1.1	0.0	0.1	1.3	0.5	0.1	2.2	2.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	2.3	0.8	0.2	0.2	0.2	0.9	2.5	0.2	0.1	6.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.1	34.0	31.7	38.0	30.3	30.4	35.8	11.9	9.7	40.0	18.8	12.2
LnGrp LOS	D	C	C	D	C	C	D	B	A	D	B	B
Approach Vol, veh/h		341			50			740			1087	
Approach Delay, s/veh		33.9			33.4			15.2			18.7	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.4	45.6	8.6	15.7	11.9	41.2	8.7	15.6				
Change Period (Y+Rc), s	6.5	6.5	6.5	* 6.5	6.5	6.5	5.8	6.5				
Max Green Setting (Gmax), s	6.0	34.7	6.0	* 38	6.0	34.7	6.0	38.0				
Max Q Clear Time (g_c+1), s	12.2	9.9	2.4	7.5	4.3	19.8	2.7	2.4				
Green Ext Time (p_c), s	0.0	3.7	0.0	1.7	0.0	5.7	0.0	0.1				

### Intersection Summary

HCM 6th Ctrl Delay	20.2
HCM 6th LOS	C

### Notes

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

# HCM 6th Signalized Intersection Summary

## 24: Coffee Street & Campus Parkway

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	115	710	125	18	516	321	61	257	36	118	463	130
Future Volume (veh/h)	115	710	125	18	516	321	61	257	36	118	463	130
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	125	772	136	20	561	349	66	279	39	128	503	141
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	150	1294	577	36	631	392	85	770	108	0	739	626
Arrive On Green	0.17	0.73	0.73	0.02	0.30	0.30	0.05	0.48	0.48	0.00	0.40	0.40
Sat Flow, veh/h	1767	3526	1572	1767	2087	1298	1767	1593	223	0	1856	1572
Grp Volume(v), veh/h	125	772	136	20	474	436	66	0	318	0	503	141
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1622	1767	0	1815	0	1856	1572
Q Serve(g_s), s	8.2	12.4	3.3	1.3	30.8	30.8	4.4	0.0	13.2	0.0	26.9	7.1
Cycle Q Clear(g_c), s	8.2	12.4	3.3	1.3	30.8	30.8	4.4	0.0	13.2	0.0	26.9	7.1
Prop In Lane	1.00		1.00	1.00		0.80	1.00		0.12	0.00		1.00
Lane Grp Cap(c), veh/h	150	1294	577	36	533	490	85	0	878	0	739	626
V/C Ratio(X)	0.83	0.60	0.24	0.56	0.89	0.89	0.78	0.00	0.36	0.00	0.68	0.23
Avail Cap(c_a), veh/h	258	1542	688	96	617	568	155	0	878	0	739	626
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.66	0.66	0.66	0.79	0.79	0.79	1.00	0.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	49.0	11.8	10.5	58.3	39.9	39.9	56.5	0.0	19.4	0.0	29.8	23.9
Incr Delay (d2), s/veh	7.7	0.3	0.1	10.3	11.1	12.0	14.2	0.0	1.2	0.0	5.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	3.1	1.0	0.7	14.1	13.1	2.3	0.0	5.6	0.0	12.6	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.7	12.1	10.7	68.6	51.1	51.9	70.7	0.0	20.6	0.0	34.8	24.7
LnGrp LOS	E	B	B	E	D	D	E	A	C	A	C	C
Approach Vol, veh/h		1033			930			384			644	
Approach Delay, s/veh		17.3			51.8			29.2			32.6	
Approach LOS		B			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	0.0	62.5	6.9	50.5	10.3	52.3	14.7	42.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	6.5	4.5	4.5	4.5	*6.5				
Max Green Setting (Gmax), s	5.0	36.0	6.5	52.5	10.5	30.5	17.5	*42				
Max Q Clear Time (g_c+10), s	10.0	15.2	3.3	14.4	6.4	28.9	10.2	32.8				
Green Ext Time (p_c), s	0.0	1.7	0.0	5.6	0.0	0.6	0.1	3.5				

### Intersection Summary

HCM 6th Ctrl Delay	32.9
HCM 6th LOS	C

### Notes

User approved volume balancing among the lanes for turning movement.  
 \* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



# HCM 6th Signalized Intersection Summary

## 25: SR 99 NB Ramps & Campus Parkway

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	87	849	0	0	350	304	255	5	245	0	0	0
Future Volume (veh/h)	87	849	0	0	350	304	255	5	245	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1856	1856	0	0	1856	1856	1856	1856	1856			
Adj Flow Rate, veh/h	95	923	0	0	380	330	277	5	266			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	3	3	0	0	3	3	3	3	3			
Cap, veh/h	120	1294	0	0	865	386	921	17	834			
Arrive On Green	0.07	0.37	0.00	0.00	0.08	0.08	0.53	0.53	0.53			
Sat Flow, veh/h	1767	3618	0	0	3618	1572	1737	31	1572			
Grp Volume(v), veh/h	95	923	0	0	380	330	282	0	266			
Grp Sat Flow(s),veh/h/ln	1767	1763	0	0	1763	1572	1769	0	1572			
Q Serve(g_s), s	6.4	26.9	0.0	0.0	12.3	24.9	10.7	0.0	11.5			
Cycle Q Clear(g_c), s	6.4	26.9	0.0	0.0	12.3	24.9	10.7	0.0	11.5			
Prop In Lane	1.00		0.00	0.00		1.00	0.98		1.00			
Lane Grp Cap(c), veh/h	120	1294	0	0	865	386	938	0	834			
V/C Ratio(X)	0.79	0.71	0.00	0.00	0.44	0.86	0.30	0.00	0.32			
Avail Cap(c_a), veh/h	272	1866	0	0	1131	505	938	0	834			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	0.33	0.33	1.00	1.00	1.00			
Upstream Filter(l)	1.00	1.00	0.00	0.00	0.58	0.58	1.00	0.00	1.00			
Uniform Delay (d), s/veh	55.1	32.6	0.0	0.0	47.3	53.0	15.7	0.0	15.9			
Incr Delay (d2), s/veh	11.2	0.7	0.0	0.0	0.2	6.7	0.8	0.0	1.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	3.1	10.8	0.0	0.0	5.7	11.1	4.3	0.0	4.1			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.3	33.3	0.0	0.0	47.5	59.7	16.6	0.0	16.9			
LnGrp LOS	E	C	A	A	D	E	B	A	B			
Approach Vol, veh/h	1018				710		548					
Approach Delay, s/veh	36.4				53.2		16.7					
Approach LOS	D				D		B					
Timer - Assigned Phs	2		4		7		8					
Phs Duration (G+Y+Rc), s	69.4		50.6		14.6		35.9					
Change Period (Y+Rc), s	5.8		6.5		6.5		6.5					
Max Green Setting (Gmax), s	44.2		63.5		18.5		38.5					
Max Q Clear Time (g_c+I1), s	13.5		28.9		8.4		26.9					
Green Ext Time (p_c), s	2.5		6.4		0.1		2.6					
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay	36.9											
HCM 6th LOS	D											

# HCM 6th Signalized Intersection Summary

## 26: Lake Street & Meyers Gate Road

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	5	48	33	65	46	2	17	9	77	3	7	3
Future Volume (veh/h)	5	48	33	65	46	2	17	9	77	3	7	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	5	52	36	71	50	2	18	10	84	3	8	3
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	12	121	84	132	330	13	41	32	271	7	219	82
Arrive On Green	0.01	0.12	0.12	0.07	0.19	0.19	0.02	0.19	0.19	0.00	0.17	0.17
Sat Flow, veh/h	1767	1021	707	1767	1772	71	1767	170	1428	1767	1286	482
Grp Volume(v), veh/h	5	0	88	71	0	52	18	0	94	3	0	11
Grp Sat Flow(s),veh/h/ln	1767	0	1728	1767	0	1843	1767	0	1598	1767	0	1769
Q Serve(g_s), s	0.1	0.0	1.4	1.1	0.0	0.7	0.3	0.0	1.5	0.0	0.0	0.2
Cycle Q Clear(g_c), s	0.1	0.0	1.4	1.1	0.0	0.7	0.3	0.0	1.5	0.0	0.0	0.2
Prop In Lane	1.00		0.41	1.00		0.04	1.00		0.89	1.00		0.27
Lane Grp Cap(c), veh/h	12	0	204	132	0	343	41	0	303	7	0	301
V/C Ratio(X)	0.42	0.00	0.43	0.54	0.00	0.15	0.44	0.00	0.31	0.41	0.00	0.04
Avail Cap(c_a), veh/h	301	0	1060	331	0	1162	301	0	1008	301	0	1115
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.5	0.0	12.0	13.1	0.0	10.0	14.1	0.0	10.2	14.6	0.0	10.2
Incr Delay (d2), s/veh	21.3	0.0	1.4	3.4	0.0	0.2	7.2	0.0	0.6	33.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.4	0.4	0.0	0.2	0.2	0.0	0.3	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.8	0.0	13.5	16.4	0.0	10.2	21.3	0.0	10.8	47.9	0.0	10.2
LnGrp LOS	D	A	B	B	A	B	C	A	B	D	A	B
Approach Vol, veh/h		93			123			112			14	
Approach Delay, s/veh		14.7			13.8			12.5			18.3	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.6	10.1	6.7	8.0	5.2	9.5	4.7	10.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	18.5	18.5	5.5	18.0	5.0	18.5	5.0	18.5				
Max Q Clear Time (g_c+1/2g), s	12.0	3.5	3.1	3.4	2.3	2.2	2.1	2.7				
Green Ext Time (p_c), s	0.0	0.3	0.0	0.3	0.0	0.0	0.0	0.1				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay												13.8
HCM 6th LOS												B

HCM 6th Roundabout  
76: Campus Parkway & Meyers Gate Road

02/23/2022

Intersection						
Intersection Delay, s/veh	8.4					
Intersection LOS	A					
Approach	EB	WB	NB		SB	
Entry Lanes	1	1	2		2	
Conflicting Circle Lanes	2	2	2		2	
Adj Approach Flow, veh/h	243	210	654		1039	
Demand Flow Rate, veh/h	250	216	674		1070	
Vehicles Circulating, veh/h	1073	678	225		240	
Vehicles Exiting, veh/h	237	221	1098		654	
Ped Vol Crossing Leg, #/h	20	20	20		0	
Ped Cap Adj	1.000	0.997	0.981		1.000	
Approach Delay, s/veh	13.7	7.7	6.3		8.7	
Approach LOS	B	A	A		A	
Lane	Left	Left	Left	Right	Left	Right
Designated Moves	LTR	LTR	LT	TR	LT	TR
Assumed Moves	LTR	LTR	LT	TR	LT	TR
RT Channelized						
Lane Util	1.000	1.000	0.470	0.530	0.470	0.530
Follow-Up Headway, s	2.535	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.328	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	250	216	317	357	503	567
Cap Entry Lane, veh/h	570	798	1097	1173	1082	1158
Entry HV Adj Factor	0.971	0.972	0.970	0.971	0.971	0.971
Flow Entry, veh/h	243	210	308	347	488	551
Cap Entry, veh/h	554	774	1045	1118	1051	1125
V/C Ratio	0.438	0.271	0.294	0.310	0.465	0.490
Control Delay, s/veh	13.7	7.7	6.3	6.2	8.7	8.7
LOS	B	A	A	A	A	A
95th %tile Queue, veh	2	1	1	1	3	3

HCM 6th Signalized Intersection Summary  
 77: Lake Road & Virginia Smith Parkway

02/23/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	55	36	96	63	112	21	75	218	180	26	35
Future Volume (veh/h)	18	55	36	96	63	112	21	75	218	180	26	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.93		0.92	1.00		0.94	1.00		0.92	1.00		0.94
Parking Bus, Adj	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	20	60	39	104	68	122	23	82	237	196	28	38
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	303	119	77	149	575	457	50	412	321	251	231	313
Arrive On Green	0.12	0.12	0.12	0.08	0.31	0.31	0.03	0.22	0.22	0.14	0.34	0.34
Sat Flow, veh/h	1106	1013	659	1767	1856	1473	1767	1856	1447	1767	686	932
Grp Volume(v), veh/h	20	0	99	104	68	122	23	82	237	196	0	66
Grp Sat Flow(s),veh/h/ln	1106	0	1672	1767	1856	1473	1767	1856	1447	1767	0	1618
Q Serve(g_s), s	0.7	0.0	2.3	2.4	1.1	2.6	0.5	1.5	6.3	4.4	0.0	1.2
Cycle Q Clear(g_c), s	0.7	0.0	2.3	2.4	1.1	2.6	0.5	1.5	6.3	4.4	0.0	1.2
Prop In Lane	1.00		0.39	1.00		1.00	1.00		1.00	1.00		0.58
Lane Grp Cap(c), veh/h	303	0	196	149	575	457	50	412	321	251	0	544
V/C Ratio(X)	0.07	0.00	0.51	0.70	0.12	0.27	0.46	0.20	0.74	0.78	0.00	0.12
Avail Cap(c_a), veh/h	654	0	726	235	1254	996	213	851	663	405	0	918
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.4	0.0	17.2	18.5	10.2	10.7	19.8	13.1	15.0	17.1	0.0	9.5
Incr Delay (d2), s/veh	0.1	0.0	2.0	5.8	0.1	0.3	6.6	0.2	3.3	5.2	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.8	1.0	0.3	0.6	0.3	0.5	1.9	1.7	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.5	0.0	19.2	24.3	10.3	11.1	26.4	13.4	18.3	22.4	0.0	9.6
LnGrp LOS	B	A	B	C	B	B	C	B	B	C	A	A
Approach Vol, veh/h		119			294			342			262	
Approach Delay, s/veh		18.7			15.6			17.7			19.2	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	8					
Phs Duration (G+Y+Rc), s	10.4	13.7	8.0	9.4	5.7	18.4		17.3				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	19.5	19.0	5.5	18.0	5.0	23.5		28.0				
Max Q Clear Time (g_c+1/4), s	10.4	8.3	4.4	4.3	2.5	3.2		4.6				
Green Ext Time (p_c), s	0.1	0.9	0.0	0.4	0.0	0.2		0.7				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				17.6								
HCM 6th LOS				B								

HCM 6th Roundabout  
78: Campus Parkway & Virginia Smith Parkway

02/23/2022

Intersection						
Intersection Delay, s/veh 13.4						
Intersection LOS B						
Approach	EB	WB	NB		SB	
Entry Lanes	1	1	2		2	
Conflicting Circle Lanes	2	2	2		2	
Adj Approach Flow, veh/h	378	419	941		1000	
Demand Flow Rate, veh/h	390	431	970		1031	
Vehicles Circulating, veh/h	1094	863	387		395	
Vehicles Exiting, veh/h	332	494	1097		899	
Ped Vol Crossing Leg, #/h	20	20	20		20	
Ped Cap Adj	1.000	0.997	0.985		0.985	
Approach Delay, s/veh	23.9	17.6	10.1		10.9	
Approach LOS	C	C	B		B	
Lane	Left	Left	Left	Right	Left	Right
Designated Moves	LTR	LTR	LT	TR	LT	TR
Assumed Moves	LTR	LTR	LT	TR	LT	TR
RT Channelized						
Lane Util	1.000	1.000	0.470	0.530	0.470	0.530
Follow-Up Headway, s	2.535	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.328	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	390	431	456	514	485	546
Cap Entry Lane, veh/h	560	682	946	1022	939	1015
Entry HV Adj Factor	0.970	0.971	0.970	0.971	0.969	0.971
Flow Entry, veh/h	378	419	442	499	470	530
Cap Entry, veh/h	543	660	903	977	896	971
V/C Ratio	0.696	0.634	0.490	0.511	0.525	0.546
Control Delay, s/veh	23.9	17.6	10.2	10.0	11.0	10.8
LOS	C	C	B	B	B	B
95th %tile Queue, veh	5	5	3	3	3	3

HCM 6th TWSC  
79: Virginia Smith Parkway & Golden BObc

02/23/2022

Intersection												
Int Delay, s/veh	6.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Vol, veh/h	36	258	52	41	239	25	62	38	39	29	36	46
Future Vol, veh/h	36	258	52	41	239	25	62	38	39	29	36	46
Conflicting Peds, #/hr	20	0	20	20	0	20	20	0	20	20	0	20
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	150	-	-	150	-	-
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	39	280	57	45	260	27	67	41	42	32	39	50

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	307	0	0	357	0	0	835	804	349	832	819	314
Stage 1	-	-	-	-	-	-	407	407	-	384	384	-
Stage 2	-	-	-	-	-	-	428	397	-	448	435	-
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	1248	-	-	1196	-	-	286	315	692	287	309	724
Stage 1	-	-	-	-	-	-	619	596	-	637	610	-
Stage 2	-	-	-	-	-	-	603	602	-	588	579	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1224	-	-	1173	-	-	216	282	666	218	277	697
Mov Cap-2 Maneuver	-	-	-	-	-	-	216	282	-	218	277	-
Stage 1	-	-	-	-	-	-	588	566	-	605	576	-
Stage 2	-	-	-	-	-	-	492	568	-	485	550	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.8			1.1			22			18.1		
HCM LOS							C			C		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	216	398	1224	-	-	1173	-	-	218	418
HCM Lane V/C Ratio	0.312	0.21	0.032	-	-	0.038	-	-	0.145	0.213
HCM Control Delay (s)	29	16.4	8	-	-	8.2	-	-	24.3	15.9
HCM Lane LOS	D	C	A	-	-	A	-	-	C	C
HCM 95th %tile Q(veh)	1.3	0.8	0.1	-	-	0.1	-	-	0.5	0.8

HCM 6th Roundabout  
80: Virginia Smith Parkway & Main Street

02/23/2022

Intersection				
Intersection Delay, s/veh	5.9			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	355	269	111	244
Demand Flow Rate, veh/h	366	277	115	252
Vehicles Circulating, veh/h	150	236	382	264
Vehicles Exiting, veh/h	366	261	134	249
Ped Vol Crossing Leg, #/h	20	20	20	20
Ped Cap Adj	0.997	0.997	0.997	0.997
Approach Delay, s/veh	6.1	5.9	5.2	5.8
Approach LOS	A	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	366	277	115	252
Cap Entry Lane, veh/h	1184	1085	935	1054
Entry HV Adj Factor	0.971	0.970	0.967	0.969
Flow Entry, veh/h	355	269	111	244
Cap Entry, veh/h	1146	1049	902	1019
V/C Ratio	0.310	0.256	0.123	0.240
Control Delay, s/veh	6.1	5.9	5.2	5.8
LOS	A	A	A	A
95th %tile Queue, veh	1	1	0	1

HCM 6th TWSC  
81: 4th Street & Virginia Smith Parkway

02/23/2022

Intersection												
Int Delay, s/veh	6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷		↶	↷		↶	↷	
Traffic Vol, veh/h	48	38	75	15	21	8	48	12	27	13	12	53
Future Vol, veh/h	48	38	75	15	21	8	48	12	27	13	12	53
Conflicting Peds, #/hr	0	0	20	20	0	0	20	0	20	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	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	52	41	82	16	23	9	52	13	29	14	13	58

Major/Minor	Major1		Major2		Minor1			Minor2				
Conflicting Flow All	32	0	0	143	0	0	321	270	122	287	307	48
Stage 1	-	-	-	-	-	-	206	206	-	60	60	-
Stage 2	-	-	-	-	-	-	115	64	-	227	247	-
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	1574	-	-	1434	-	-	630	635	926	663	605	1018
Stage 1	-	-	-	-	-	-	794	729	-	949	843	-
Stage 2	-	-	-	-	-	-	887	840	-	773	700	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1574	-	-	1407	-	-	542	596	891	598	567	999
Mov Cap-2 Maneuver	-	-	-	-	-	-	542	596	-	598	567	-
Stage 1	-	-	-	-	-	-	754	692	-	918	834	-
Stage 2	-	-	-	-	-	-	798	831	-	696	664	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.2	2.6	11.2	9.8
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	542	773	1574	-	-	1407	-	-	598	876
HCM Lane V/C Ratio	0.096	0.055	0.033	-	-	0.012	-	-	0.024	0.081
HCM Control Delay (s)	12.3	9.9	7.4	-	-	7.6	-	-	11.2	9.5
HCM Lane LOS	B	A	A	-	-	A	-	-	B	A
HCM 95th %tile Q(veh)	0.3	0.2	0.1	-	-	0	-	-	0.1	0.3



## APPENDIX D

### Internal Trip Calculations/NCHRP Worksheets

NCHRP 8-51 Internal Trip Capture Estimation Tool					
Project Name:	VST Project			Organization:	VRPA Technologies, Inc.
Project Location:	Merced			Performed By:	VRPA Technologies, Inc.
Scenario Description:	Phase 1			Date:	3/30/2020
Analysis Year:	2025			Checked By:	
Analysis Period:	AM Street Peak Hour			Date:	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips		
	ITE LUCs <sup>1</sup>	Quantity	Units	Total	Entering	Exiting
Office	710	275,000	sf GFA	319	274	45
Retail	875	426,000	sf GFA	247	158	89
Restaurant	875	106,500	sf GFA	62	40	22
Cinema/Entertainment				0		
Residential	220, 225, 231	2,559	D.U.	902	215	687
Hotel				0		
All Other Land Uses <sup>2</sup>				0		
Total				1530	687	843

Table 2-P: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office	1.67			1.67		
Retail	1.67			1.67		
Restaurant	1.67			1.67		
Cinema/Entertainment						
Residential	1.67			1.67		
Hotel						
All Other Land Uses <sup>2</sup>						

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		250	250		500	
Retail					250	
Restaurant					250	
Cinema/Entertainment						
Residential		250	250			
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		15	1	0	2	0
Retail	3		19	0	39	0
Restaurant	1	15		0	7	0
Cinema/Entertainment	0	0	0		0	0
Residential	46	26	9	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	2,556	1,148	1,408
Internal Capture Percentage	14%	16%	13%
External Vehicle-Trips <sup>3</sup>	1,311	578	733
External Transit-Trips <sup>4</sup>	0	0	0
External Non-Motorized Trips <sup>4</sup>	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	11%	24%
Retail	21%	41%
Restaurant	43%	62%
Cinema/Entertainment	N/A	N/A
Residential	13%	7%
Hotel	N/A	N/A

<sup>1</sup>Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

<sup>2</sup>Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

<sup>3</sup>Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

<sup>4</sup>Person-Trips

\*Indicates computation that has been rounded to the nearest whole number.

*Estimation Tool Developed by the Texas Transportation Institute*

<b>Project Name:</b>	VST Project
<b>Analysis Period:</b>	AM Street Peak Hour

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends						
Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.67	274	458	1.67	45	75
Retail	1.67	174	291	1.67	98	164
Restaurant	1.67	44	73	1.67	25	42
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.67	332	554	1.67	1069	1785
Hotel	1.00	0	0	1.00	0	0

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		15	3	0	2	0
Retail	3		48	7	43	8
Restaurant	1	17		3	8	3
Cinema/Entertainment	0	0	0		0	0
Residential	71	738	369	0		54
Hotel	0	0	0	0	0	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		23	1	0	22	0
Retail	142		21	0	255	0
Restaurant	137	146		0	89	0
Cinema/Entertainment	27	12	2		22	0
Residential	261	29	10	0		0
Hotel	0	6	4	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)						
Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles <sup>1</sup>	Transit <sup>2</sup>	Non-Motorized <sup>2</sup>
Office	75	383	458	229	0	0
Retail	61	230	291	138	0	0
Restaurant	32	41	73	25	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	53	501	554	300	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses <sup>3</sup>	0	0	0	0	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)						
Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles <sup>1</sup>	Transit <sup>2</sup>	Non-Motorized <sup>2</sup>
Office	18	57	75	34	0	0
Retail	67	97	164	58	0	0
Restaurant	26	16	42	10	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	110	1675	1785	1003	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses <sup>3</sup>	0	0	0	0	0	0

<sup>1</sup>Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

<sup>2</sup>Person-Trips

<sup>3</sup>Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

\*Indicates computation that has been rounded to the nearest whole number.

NCHRP 8-51 Internal Trip Capture Estimation Tool						
Project Name:	VST Project			Organization:	VRPA Technologies, Inc.	
Project Location:	Merced			Performed By:	VRPA Technologies, Inc.	
Scenario Description:	Phase 1			Date:	3/30/2020	
Analysis Year:	2025			Checked By:		
Analysis Period:	PM Street Peak Hour			Date:		

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips		
	ITE LUCs <sup>1</sup>	Quantity	Units	Total	Entering	Exiting
Office	710	275,000	sf GFA	298	48	250
Retail	875	426,000	sf GFA	831	415	416
Restaurant	875	106,500	sf GFA	208	104	104
Cinema/Entertainment				0		
Residential	220, 225, 231	2,559	D.U.	1070	653	417
Hotel				0		
All Other Land Uses <sup>2</sup>				0		
Total				2407	1220	1187

Table 2-P: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office	1.67			1.67		
Retail	1.67			1.67		
Restaurant	1.67			1.67		
Cinema/Entertainment						
Residential	1.67			1.67		
Hotel						
All Other Land Uses <sup>2</sup>						

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		250	250		500	
Retail					250	
Restaurant					250	
Cinema/Entertainment						
Residential		250	250			
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		55	3	0	8	0
Retail	14		50	0	181	0
Restaurant	5	71		0	31	0
Cinema/Entertainment	0	0	0		0	0
Residential	28	68	24	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	4,021	2,038	1,983
Internal Capture Percentage	27%	26%	27%
External Vehicle-Trips <sup>3</sup>	1,764	899	865
External Transit-Trips <sup>4</sup>	0	0	0
External Non-Motorized Trips <sup>4</sup>	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	59%	16%
Retail	28%	35%
Restaurant	44%	61%
Cinema/Entertainment	N/A	N/A
Residential	20%	17%
Hotel	N/A	N/A

<sup>1</sup>Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

<sup>2</sup>Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

<sup>3</sup>Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

<sup>4</sup>Person-Trips

\*Indicates computation that has been rounded to the nearest whole number.

*Estimation Tool Developed by the Texas Transportation Institute*

<b>Project Name:</b>	VST Project
<b>Analysis Period:</b>	PM Street Peak Hour

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends						
Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.67	48	80	1.67	250	418
Retail	1.67	458	765	1.67	458	765
Restaurant	1.67	115	192	1.67	115	192
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.67	981	1638	1.67	619	1034
Hotel	1.00	0	0	1.00	0	0

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		82	16	0	8	0
Retail	15		222	31	199	38
Restaurant	6	79		15	35	13
Cinema/Entertainment	0	0	0		0	0
Residential	41	428	214	0		31
Hotel	0	0	0	0	0	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		60	4	0	66	0
Retail	25		56	0	753	0
Restaurant	24	383		0	262	0
Cinema/Entertainment	5	31	6		66	0
Residential	46	75	26	0		0
Hotel	0	15	10	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)						
Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles <sup>1</sup>	Transit <sup>2</sup>	Non-Motorized <sup>2</sup>
Office	62	18	80	11	0	0
Retail	214	551	765	330	0	0
Restaurant	86	106	192	63	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	242	1396	1638	836	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses <sup>3</sup>	0	0	0	0	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)						
Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles <sup>1</sup>	Transit <sup>2</sup>	Non-Motorized <sup>2</sup>
Office	72	346	418	207	0	0
Retail	270	495	765	296	0	0
Restaurant	120	72	192	43	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	142	892	1034	534	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses <sup>3</sup>	0	0	0	0	0	0

<sup>1</sup>Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

<sup>2</sup>Person-Trips

<sup>3</sup>Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

\*Indicates computation that has been rounded to the nearest whole number.

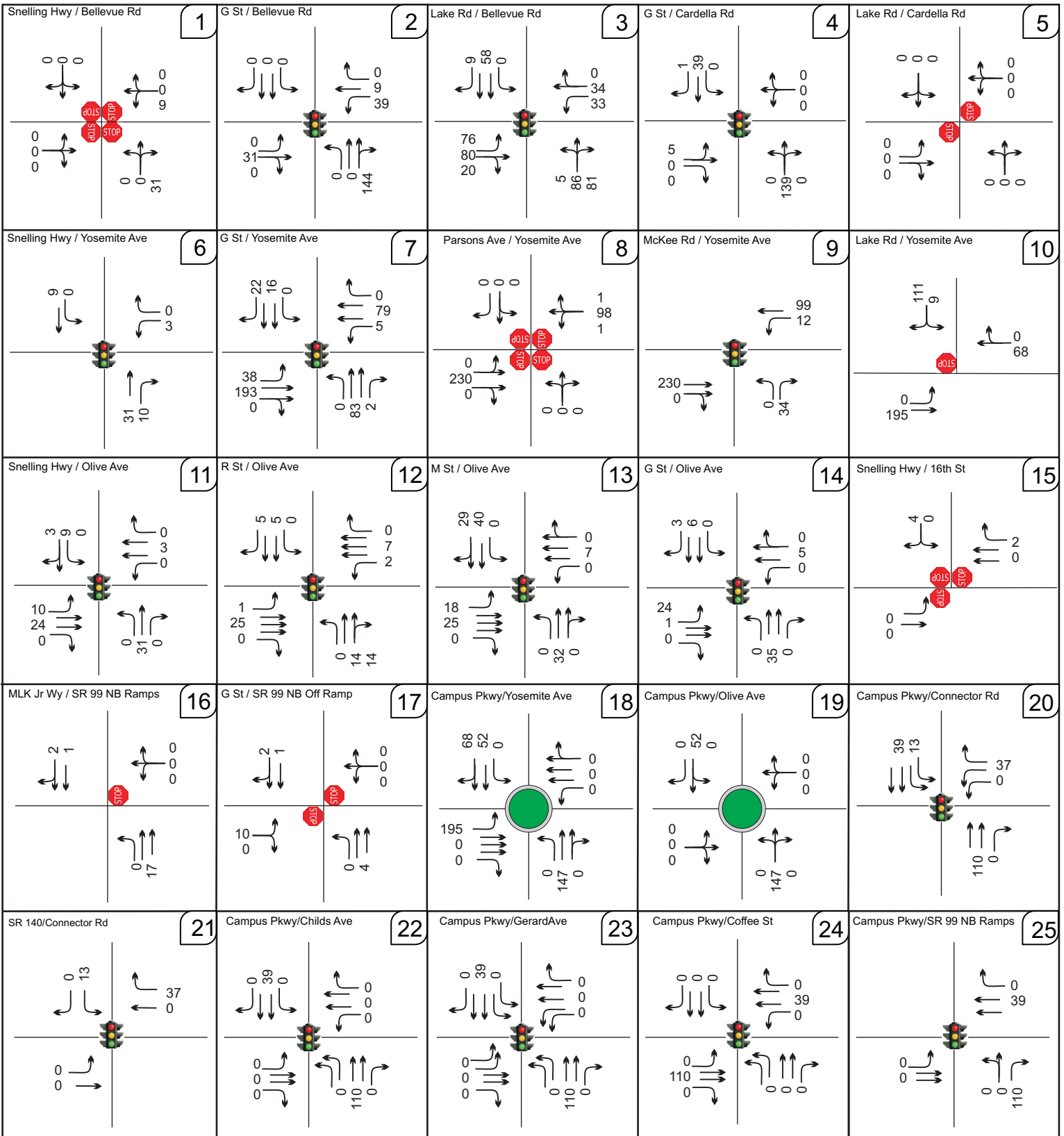
## APPENDIX E

### Approved/Pending Projects – 2042 Horizon Year

# VST Specific Plan

## LRDP Project AM Peak Hour Traffic - Horizon Year (2042)

Figure E-1a



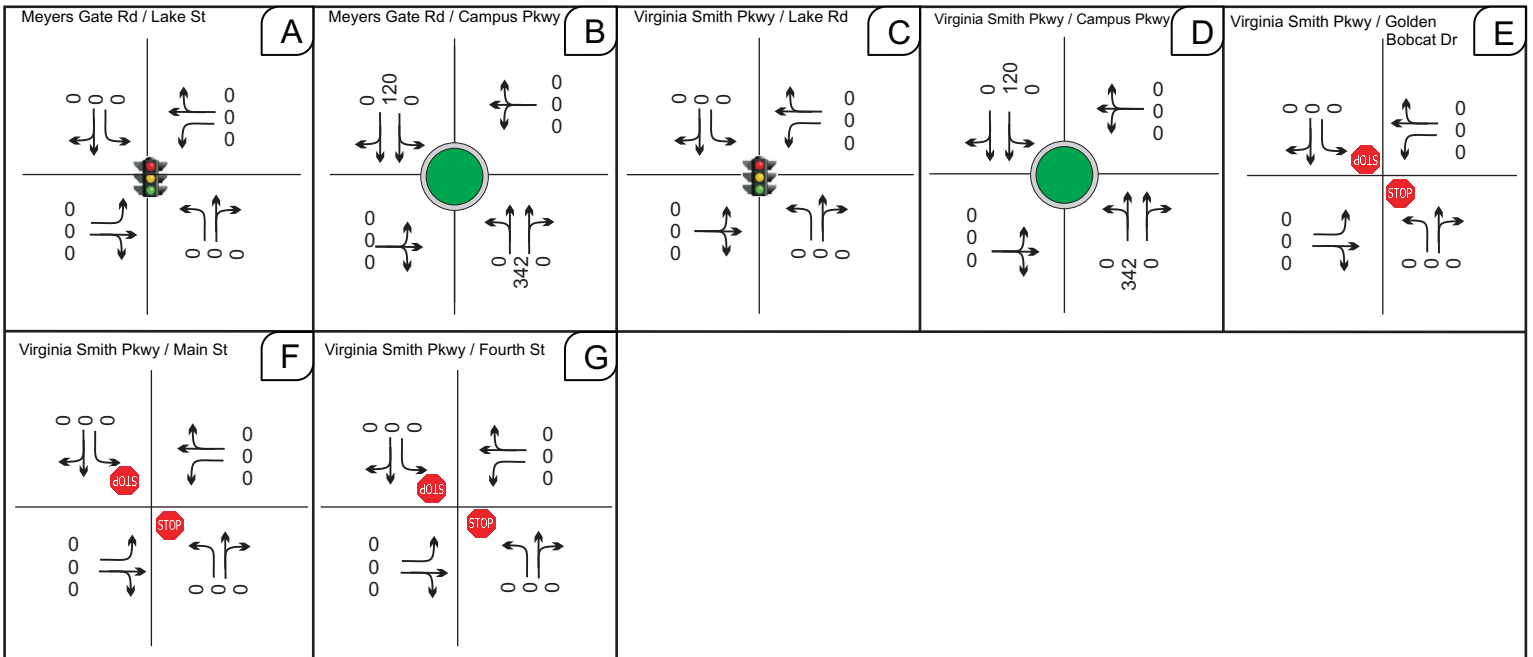
### LEGEND

- # Study Intersections
- Traffic Signal
- Lane Geometry
- Stop Sign



# VST Specific Plan LRDP Project AM Peak Hour Traffic - Horizon Year (2042)

Figure  
E-1b



**LEGEND**

- # Study Intersections
- Traffic Signal
- Lane Geometry
- Stop Sign

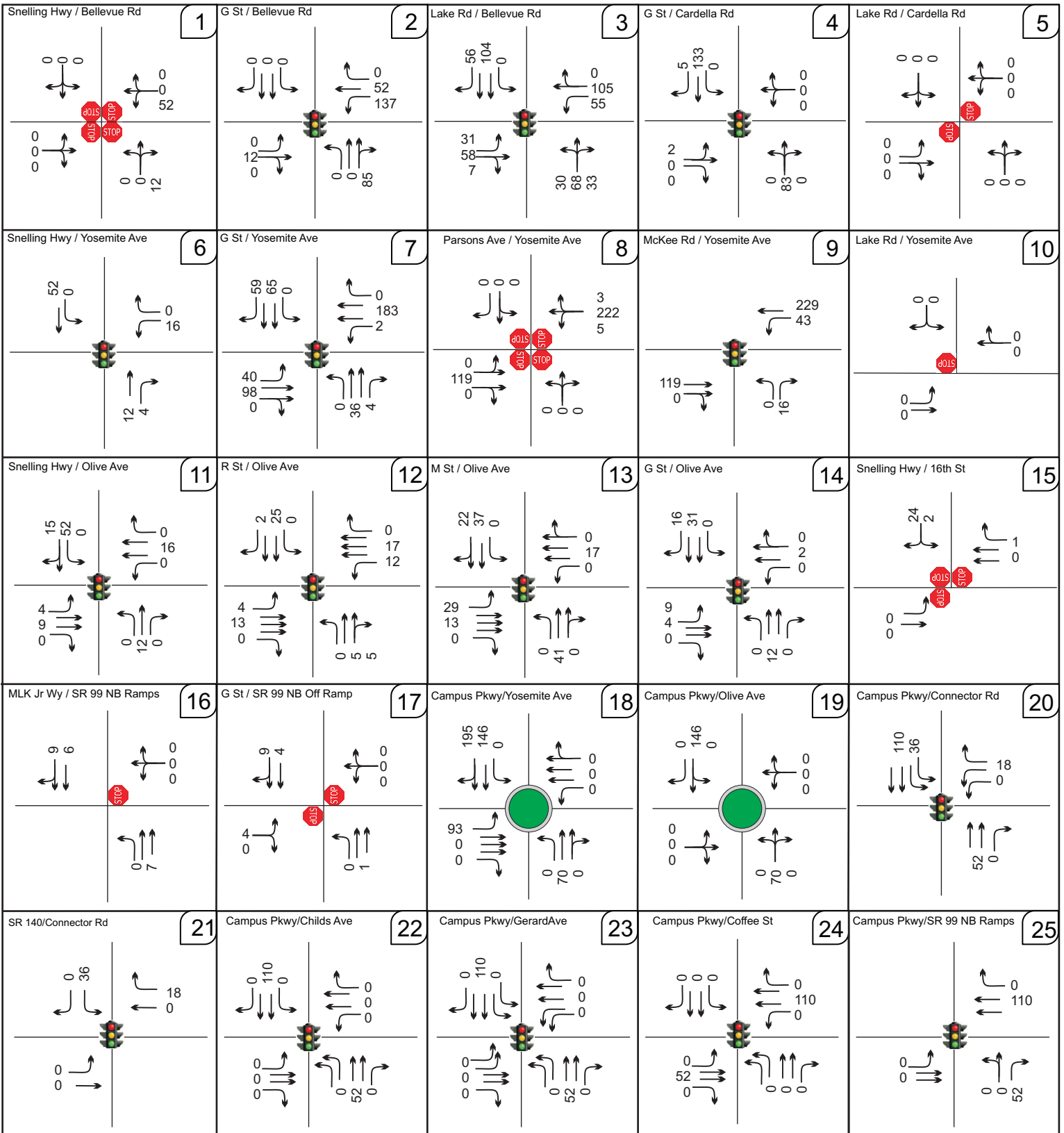




# VST Specific Plan

## LRDP Project PM Peak Hour Traffic - Horizon Year (2042)

Figure E-2a



### LEGEND

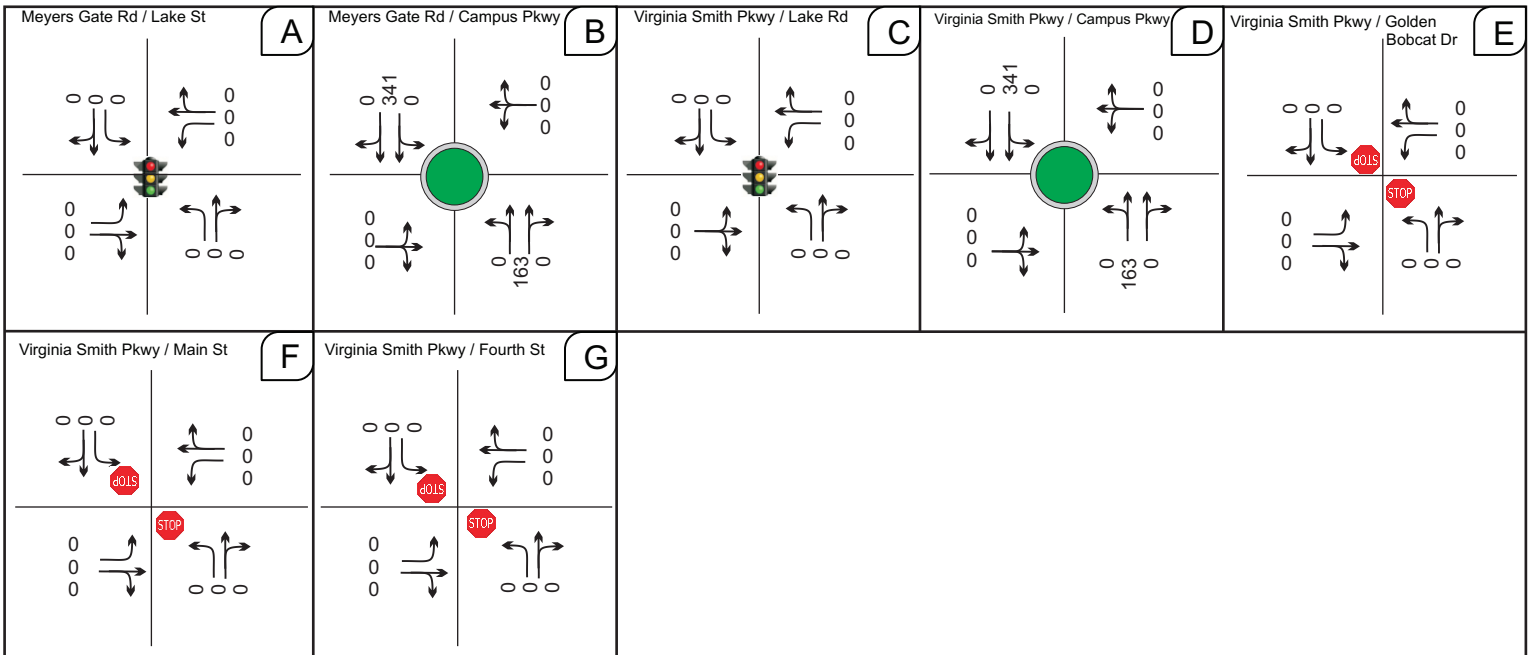
- # Study Intersections
- Traffic Signal
- Lane Geometry
- Stop Sign



# VST Specific Plan

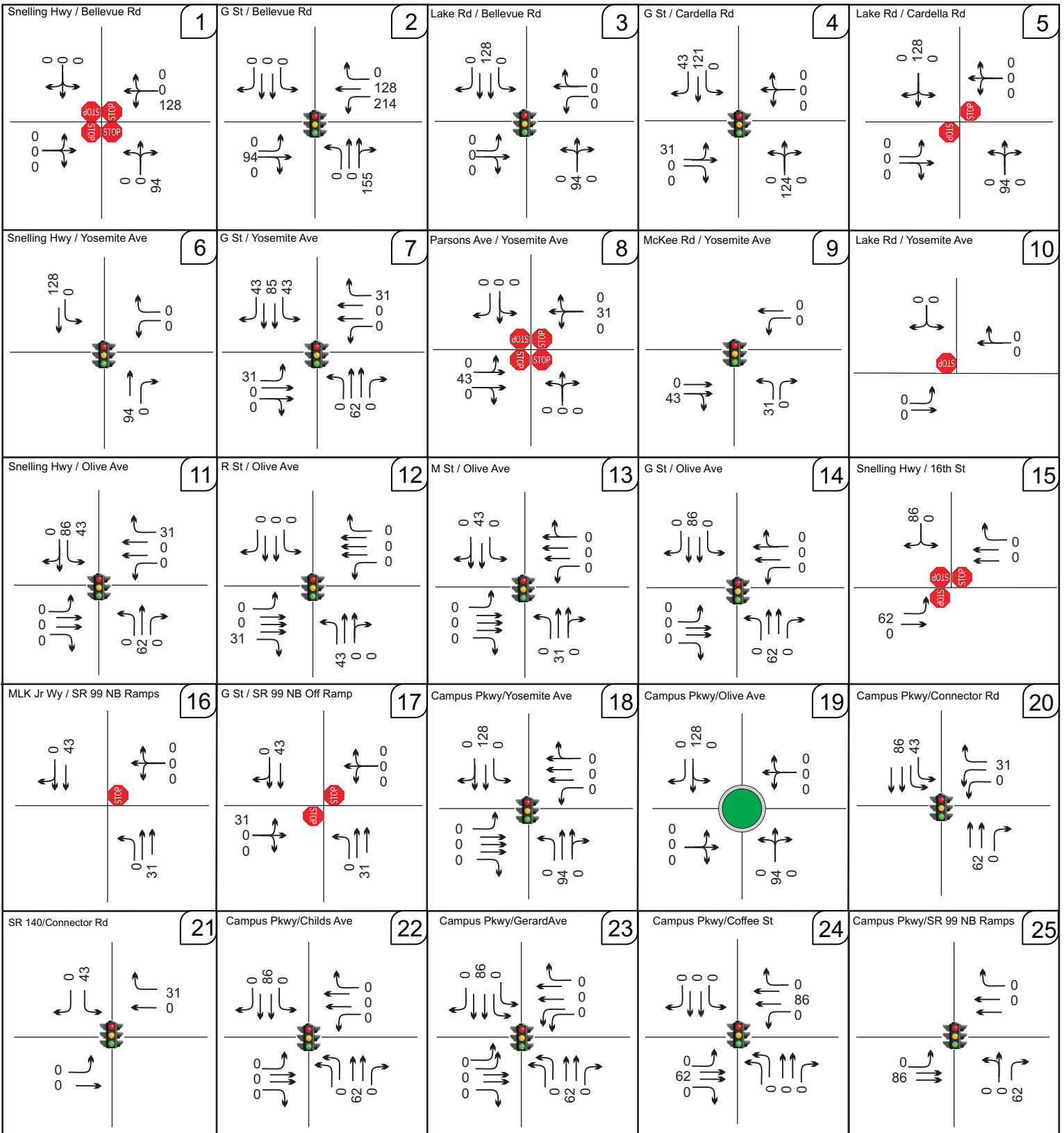
## LRDP Project PM Peak Hour Traffic - Horizon Year (2042)

Figure E-2b



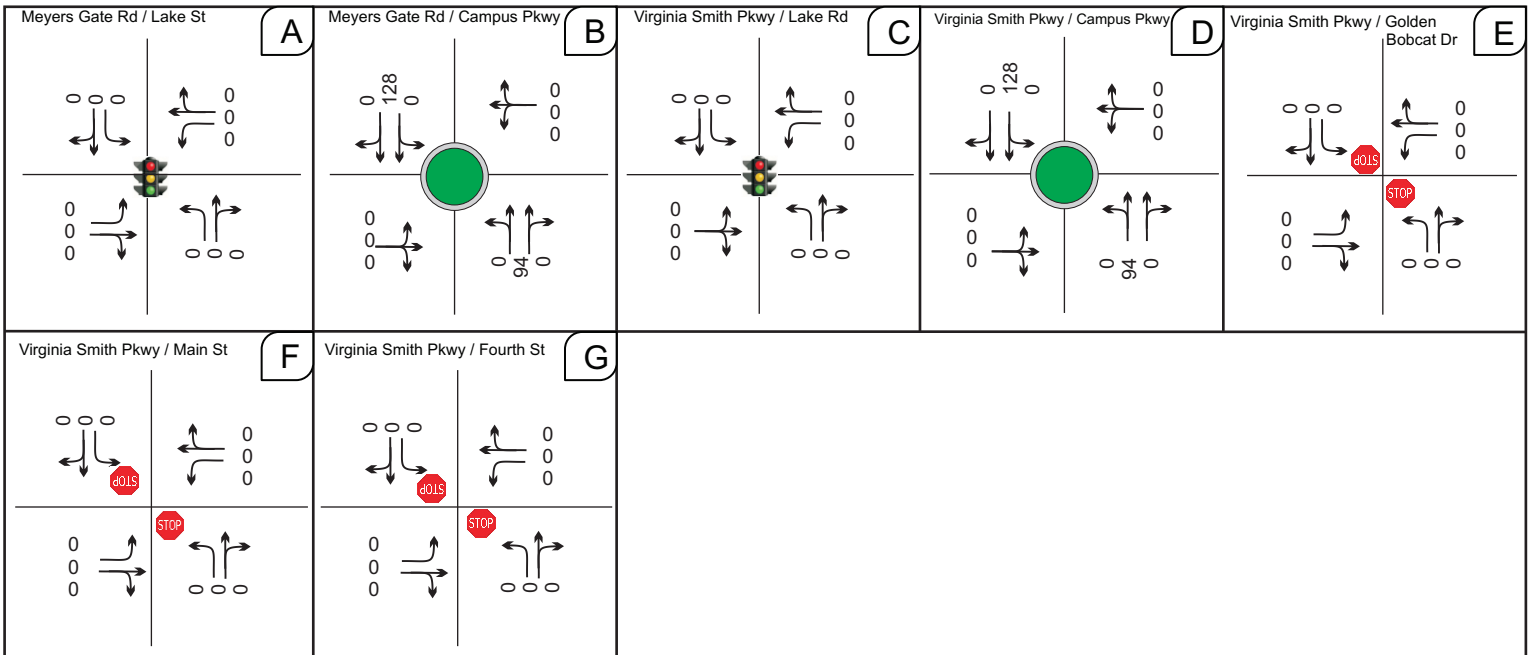
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#	Study Intersections
	Traffic Signal
	Lane Geometry
	Stop Sign





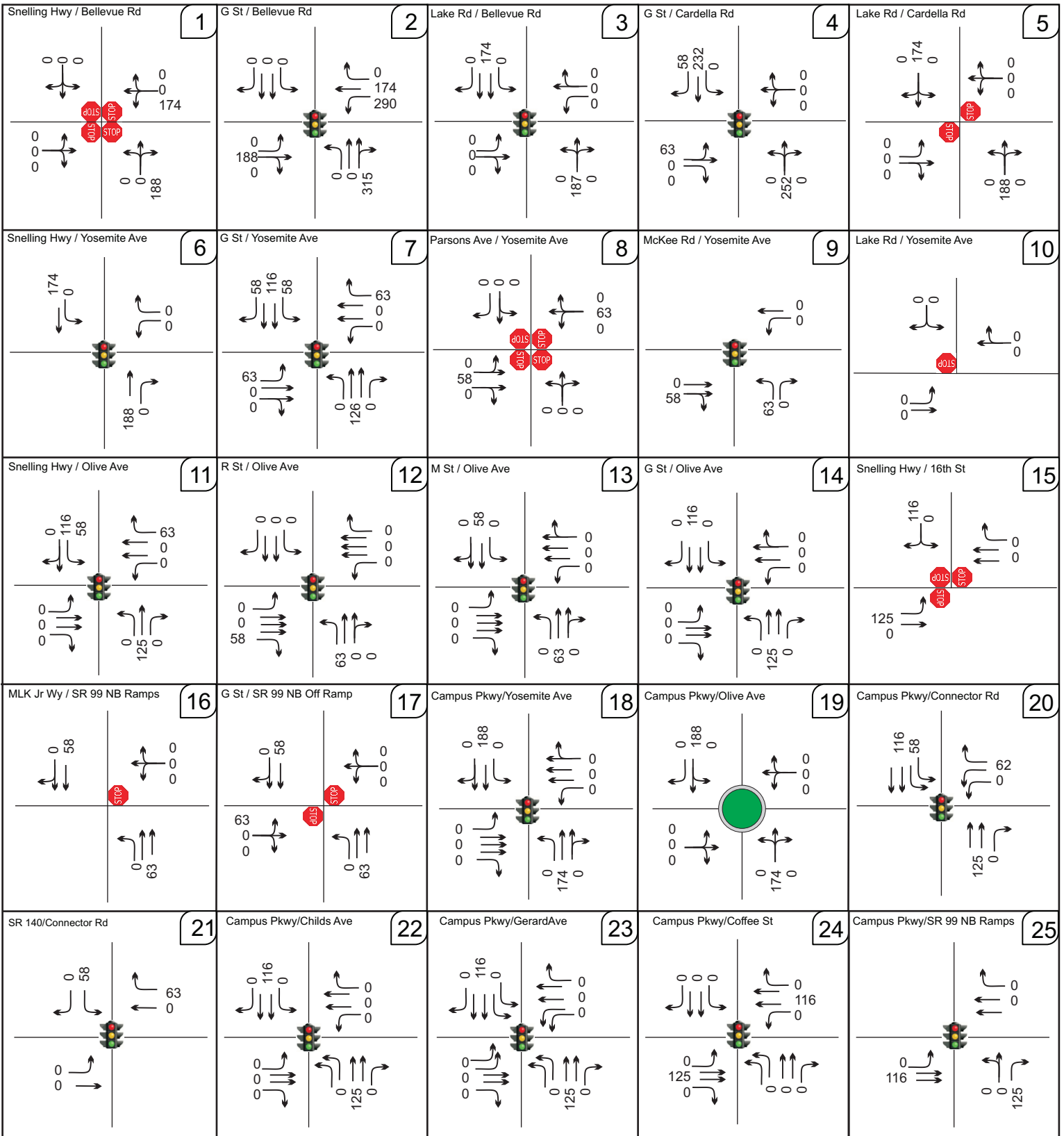
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#	Study Intersections		Traffic Signal
	Lane Geometry		Stop Sign





LEGEND	
#	Study Intersections
	Traffic Signal
	Lane Geometry
	Stop Sign

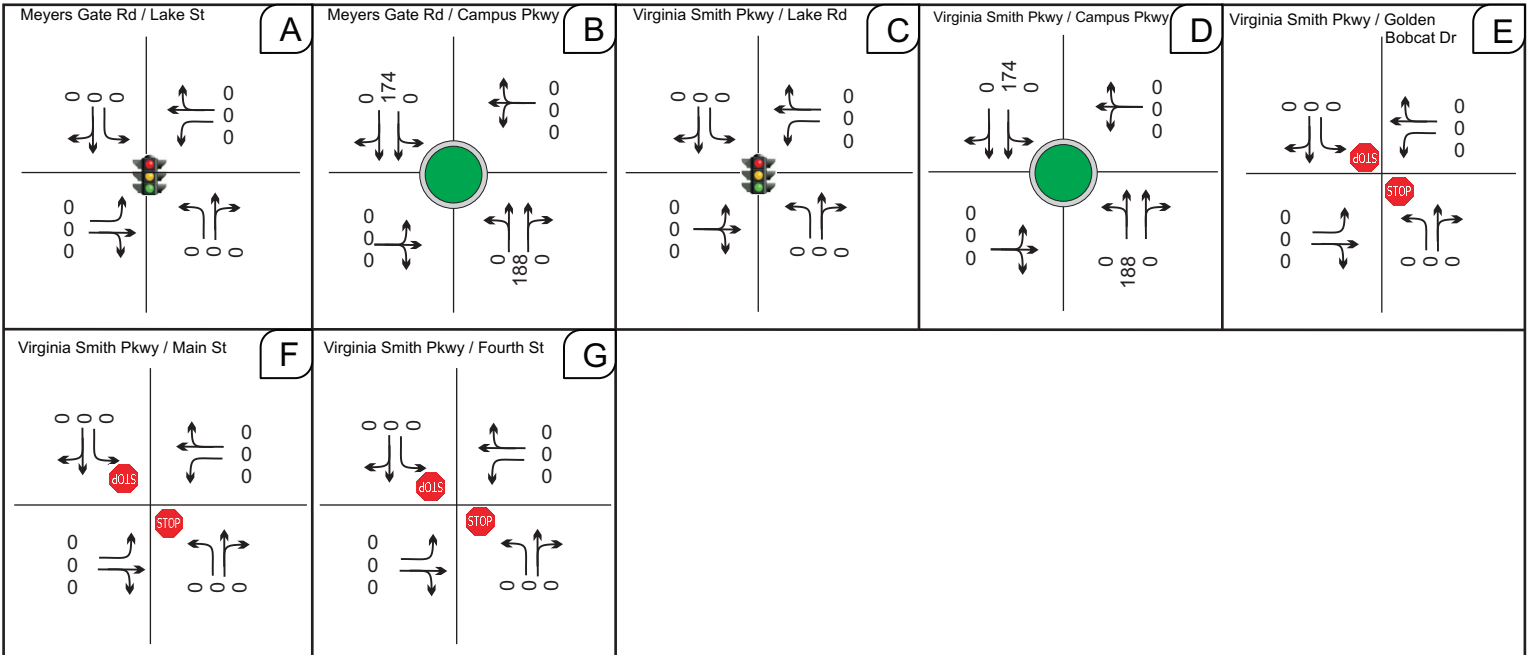




### LEGEND

- # Study Intersections
-  Traffic Signal
-  Lane Geometry
-  Stop Sign





LEGEND	
#	Study Intersections
	Traffic Signal
	Lane Geometry
	Stop Sign

