

APPENDIX C

TRAFFIC IMPACT ANALYSIS

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MERCED MALL EXPANSION AND REDEVELOPMENT PROJECT

CITY OF MERCED

MERCED COUNTY, CALIFORNIA

LSA

September 2018

TRAFFIC IMPACT ANALYSIS

MERCED MALL EXPANSION AND REDEVELOPMENT PROJECT

CITY OF MERCED

MERCED COUNTY, CALIFORNIA

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Project No. MED1801



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1.0 INTRODUCTION

1.1 PROJECT DESCRIPTION

This Traffic Impact Analysis (TIA) has been prepared to assess the potential circulation impacts associated with the proposed Merced Mall Expansion and Redevelopment Project in the City of Merced (City).

The approximately 52-acre project site is located at 851 West Olive Avenue. The site is bounded by Olive Avenue to the south, R Street to the west, Loughborough Drive, office buildings, and Merced Fire Station 53 to the north, and M Street and office buildings to the east.

Regional vehicular access to the project site is provided via Olive Avenue, while local access is provided via R Street, M Street, and Loughborough Drive. In addition, State Route (SR-59) is located to the west of the project site and SR-99 is located to the south and east of the project site. Figure 1-1 illustrates the regional and project location. (Figures and tables are located at the end of each chapter.)

Merced Mall is a single-level enclosed shopping center with Sears, JC Penney, and Kohl's department stores. In addition, a Target store is located near the northeast corner of the project site. A seven-screen United Artists Theater currently exists on the east side of the project site, which is not attached to the main shopping center building. A Michael's Arts and Crafts store is located adjacent to the theater within the project site.

The project applicant proposes to improve the project site by increasing leasable retail area and constructing a new movie theater at one of two possible locations within the project site. Both movie theater locations are described below and, upon further consideration, the project applicant will select one alternative to construct and operate.

1.1.1 Building Program

Phase I

Phase I of the proposed project would expand the buildings located along the southern elevation of the shopping center south toward West Olive Avenue by an additional 80 feet. This would increase the gross leasable area (GLA) of the project site by approximately 50,000 square feet. The vacant retail space east of the main mall entrance (previously occupied by CVS) would be reconfigured and leased to new retailers and restaurants, some of which would have storefronts facing the parking lot adjacent to West Olive Avenue. The southern parking lot would be reconfigured, repaved, restriped, and relandscaped. As a result of the increase in GLA and reconfigured parking, the total parking within the project site under Phase I would decrease by 232 parking spaces for a total of 2,867 parking spaces. Figure 1-2 shows the proposed expansion site plan for Phase I.

Phase II

Phase II of the proposed project would include construction of a 72,000-square foot movie theater with 14 screens and containing up to 3,000 seats. The project applicant has proposed two

alternatives under Phase II, which would result in the location of the new movie theater at one of two locations within the project site.

Alternative I. Phase II Alternative I (Alternative I) would add an at-grade 72,000-square foot theater between the existing JC Penney and Kohl's stores in the main shopping center building. In addition, this phase would remove the enclosed mall roof between JC Penney and Kohl's, and would result in a pedestrian mall and open courtyard in front of the new theater.

As with the completion of Phase I, the total number of parking spaces within the project site will be 2,867. Figure 1-3 shows the proposed expansion site plan for Phase II Alternative I.

Alternative II. Phase II Alternative II (Alternative II) would demolish the existing United Artists Theater and two retail stores located along the eastern boundary of the project site, and would construct a 72,000-square foot at-grade theater at that location. The existing theater is approximately 22,680 square feet (with seven screens) and the existing retail stores are approximately 25,416 square feet.

Construction of Alternative II would include reconfigured parking for the theater. The existing 3,099 parking spaces would decrease by 124 parking spaces under Alternative II, resulting in a total of 2,975 parking spaces under Alternative II buildout. Figure 1-4 shows the proposed expansion site plan for Alternative II.

1.2 TRAFFIC STUDY SCOPE

This report is intended to satisfy the requirements established by the City of Merced guidelines, as well as the requirements for the disclosure of potential impacts and mitigation measures pursuant to the California Environmental Quality Act (CEQA). The scope of work for this TIA, including study area and analysis methodologies have been approved by City staff.

This study examines traffic operations in the vicinity of the proposed project under the following seven scenarios:

- Existing conditions;
- Existing with project Phase I conditions;
- Existing with project Phase I and Phase II conditions Alternative I;
- Existing with project Phase I and Phase II conditions Alternative II;
- Cumulative (future short-term year, corresponding to project opening) without project conditions;
- Cumulative with project Phase I and Phase II conditions Alternative I; and
- Cumulative with project Phase I and Phase II conditions Alternative II.

Traffic conditions were examined for the weekday daily, a.m., and p.m. peak hour conditions. The a.m. peak hour is defined as the one hour of highest traffic volumes occurring between 7:00 and

9:00 a.m. The p.m. peak hour is the one hour of highest traffic volumes occurring between 4:00 and 6:00 p.m.

1.3 STUDY AREA

The analysis addresses the operations of 11 study intersections, as directed by City staff. The study area consists of the following intersections:

1.3.1 Study Intersections

1. R Street/Loughborough Drive;
2. R Street/99 Cents Stores Driveway–Mall Driveway 1;
3. R Street/Olive Avenue;
4. R Street/Olivewood Drive;
5. Mall Driveway 2–Pepperwood Lane/Olive Avenue;
6. Laurel Glenn Apartments Driveway–Mall Driveway 3/Loughborough Drive;
7. Mall Driveway 4–Applewood Lane/Olive Avenue;
8. M Street/Loughborough Drive–Collins Drive;
9. M Street/Fairfield Drive;
10. M Street/Olive Avenue; and
11. M Street/Olivewood Drive.

Figure 1-5 illustrates the locations of all analysis intersections.

1.3.2 Roadway Segments

The study area includes the following roadway segments identified by City staff:

Olivewood Drive

1. Between Meadows Avenue and R Street; and
2. Between R Street and M Street.

R Street

3. Between Loughborough Drive and Olive Avenue.

Loughborough Drive

4. Between R Street and M Street.

Olive Avenue

5. Between R Street and M Street.

M Street

6. Between Loughborough Drive/Collins Drive and Olive Avenue.

1.4 LIST OF CHAPTER 1.0 FIGURES

- Figure 1-1: Regional and Project Location
- Figure 1-2: Phase I Expansion Site Plan
- Figure 1-3: Phase II Alternative I Expansion Site Plan
- Figure 1-4: Phase II Alternative II Expansion Site Plan
- Figure 1-5: Study Area Intersections

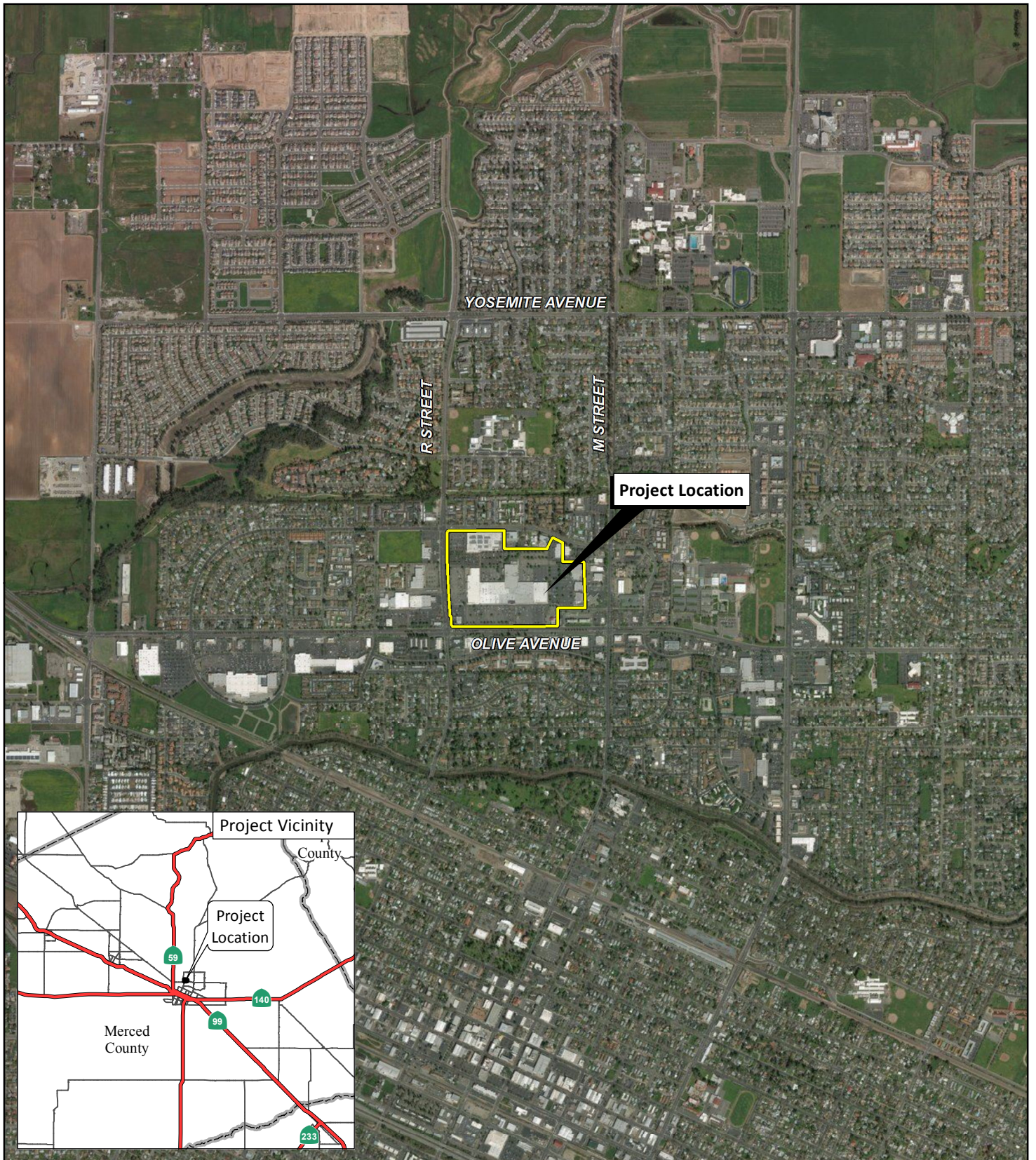
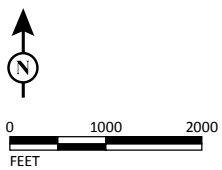


FIGURE 1-1

LSA



SOURCE: Bing Aerial, 2017; ESRI Streetmap, 2013.

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Merced Mall Expansion and Redevelopment Project
Traffic Impact Analysis

Regional and Project Location

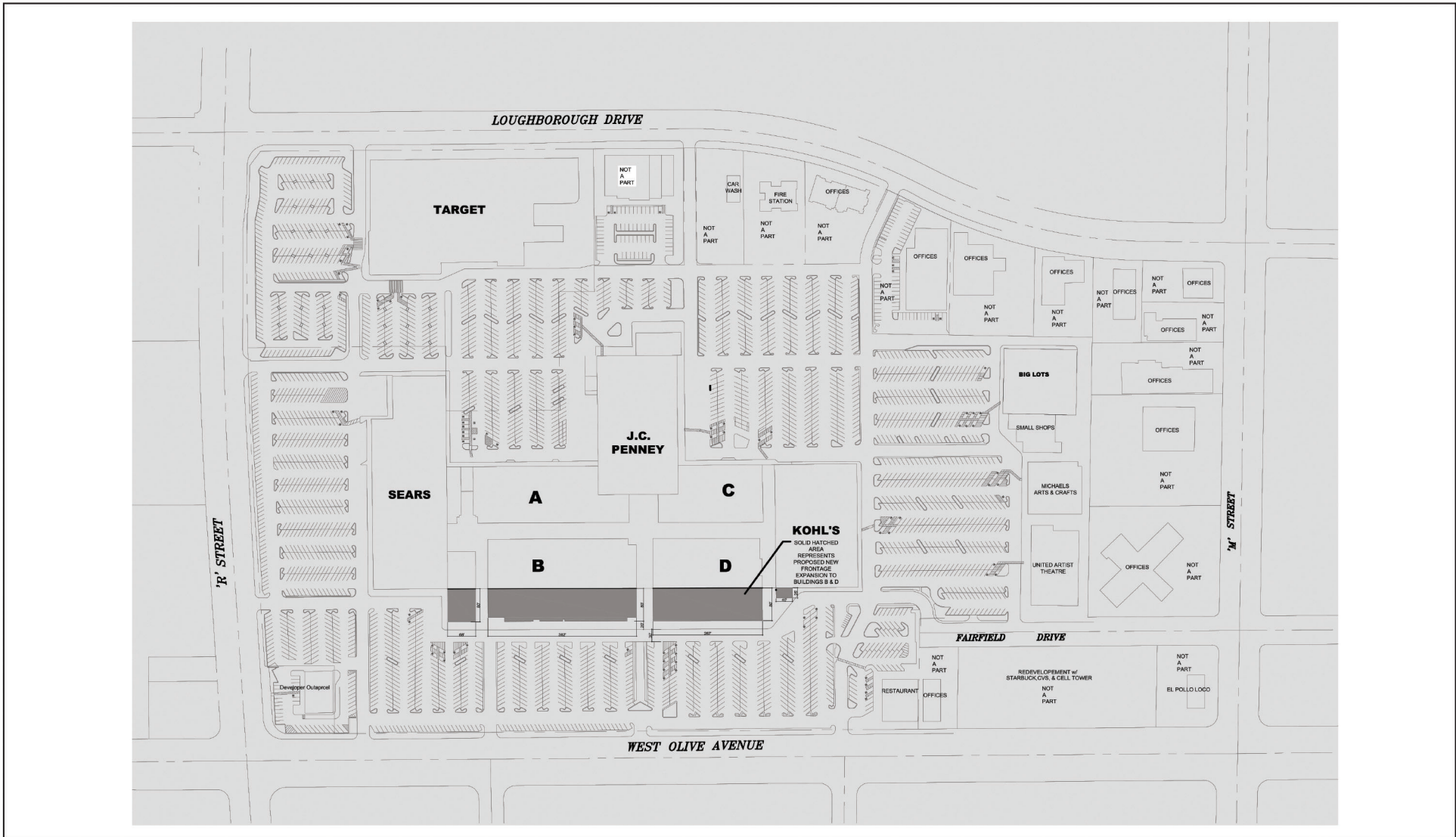


FIGURE 1-2

LSA



SOURCE: Coddling

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Merced Mall Expansion and Redevelopment Project
Traffic Impact Analysis

Phase I Expansion Site Plan

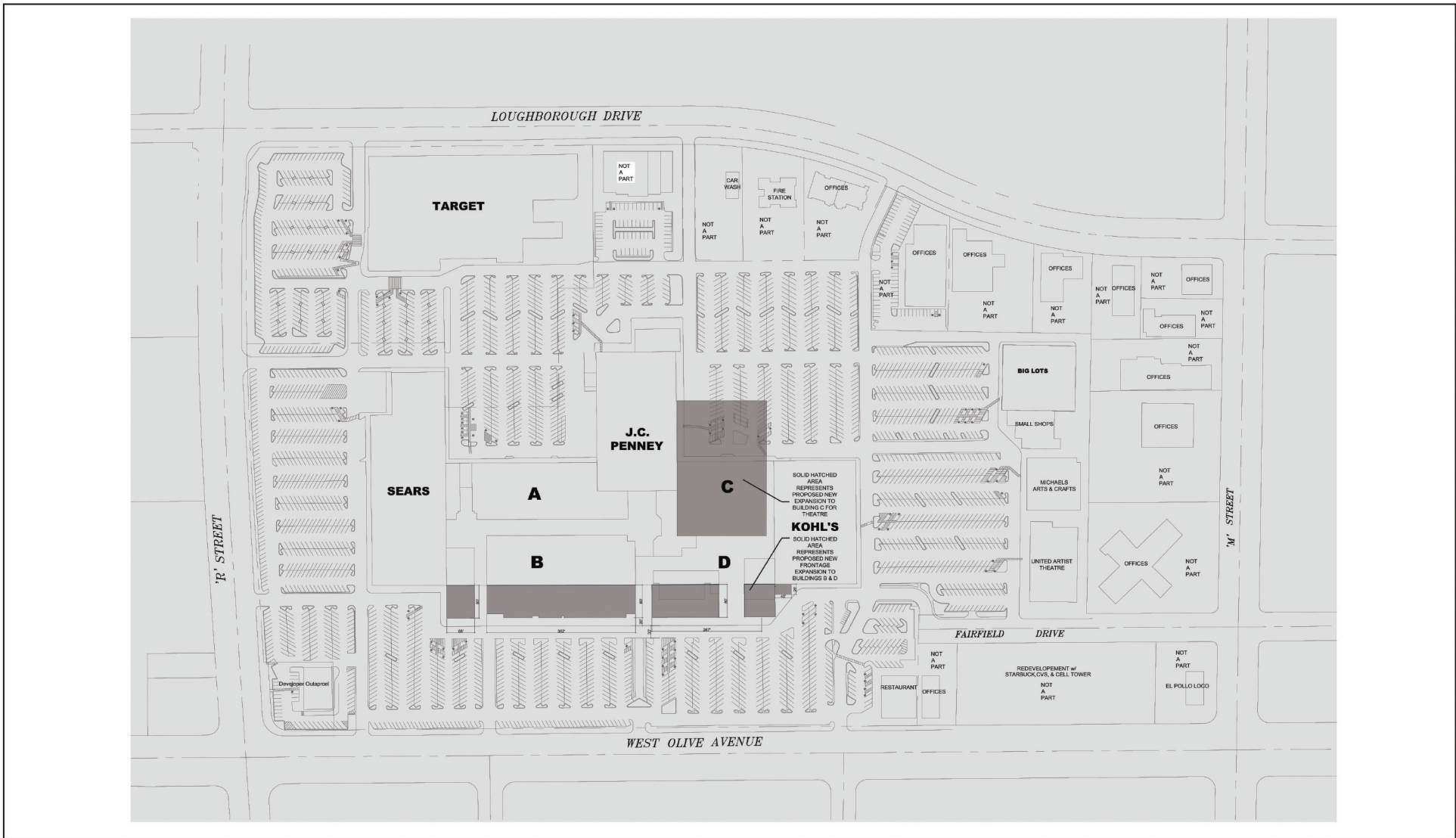


FIGURE 1-3

LSA



SOURCE: Codding

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Merced Mall Expansion and Redevelopment Project
Traffic Impact Analysis

Phase II Alternative I Expansion Site Plan

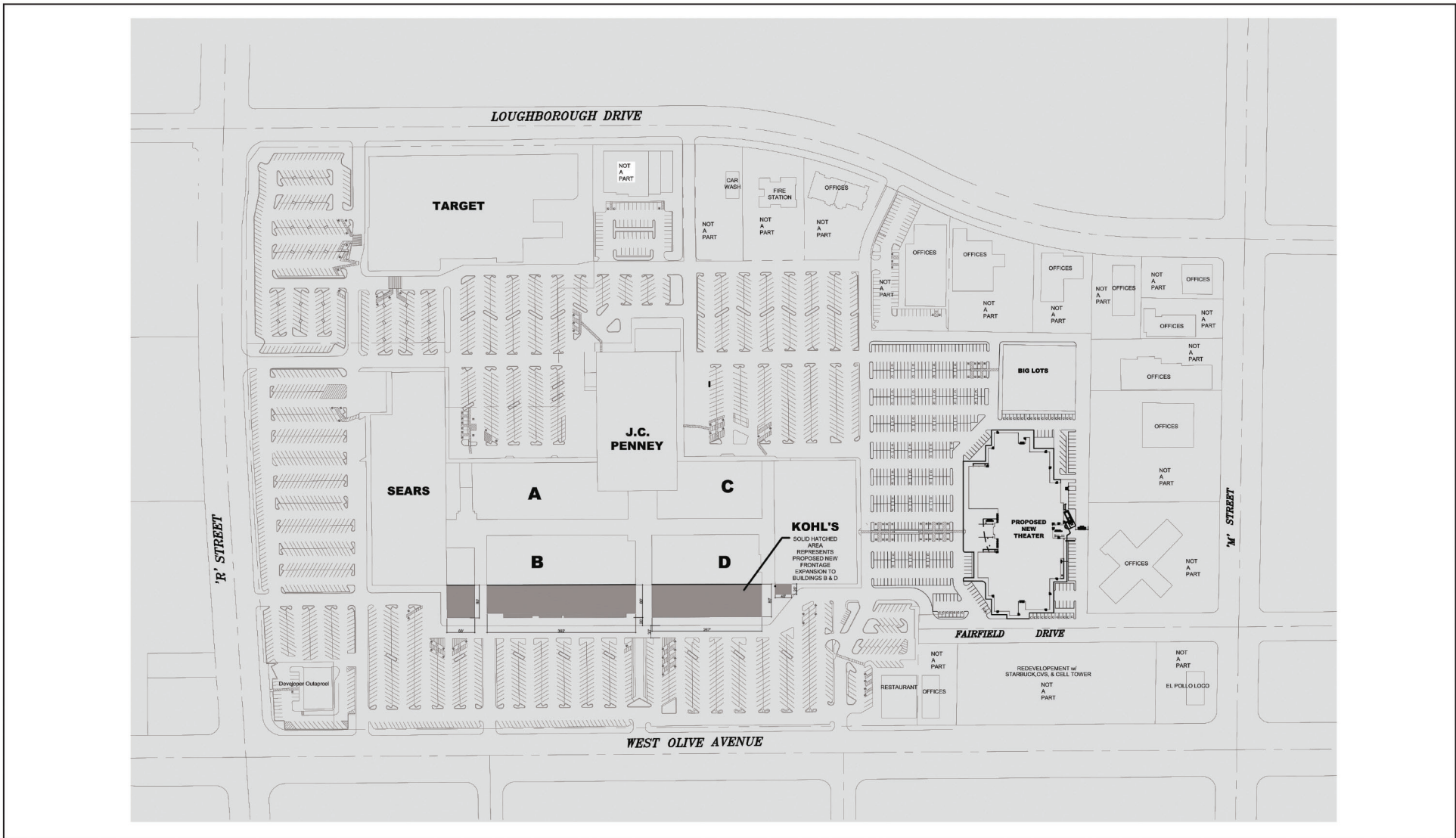


FIGURE 1-4

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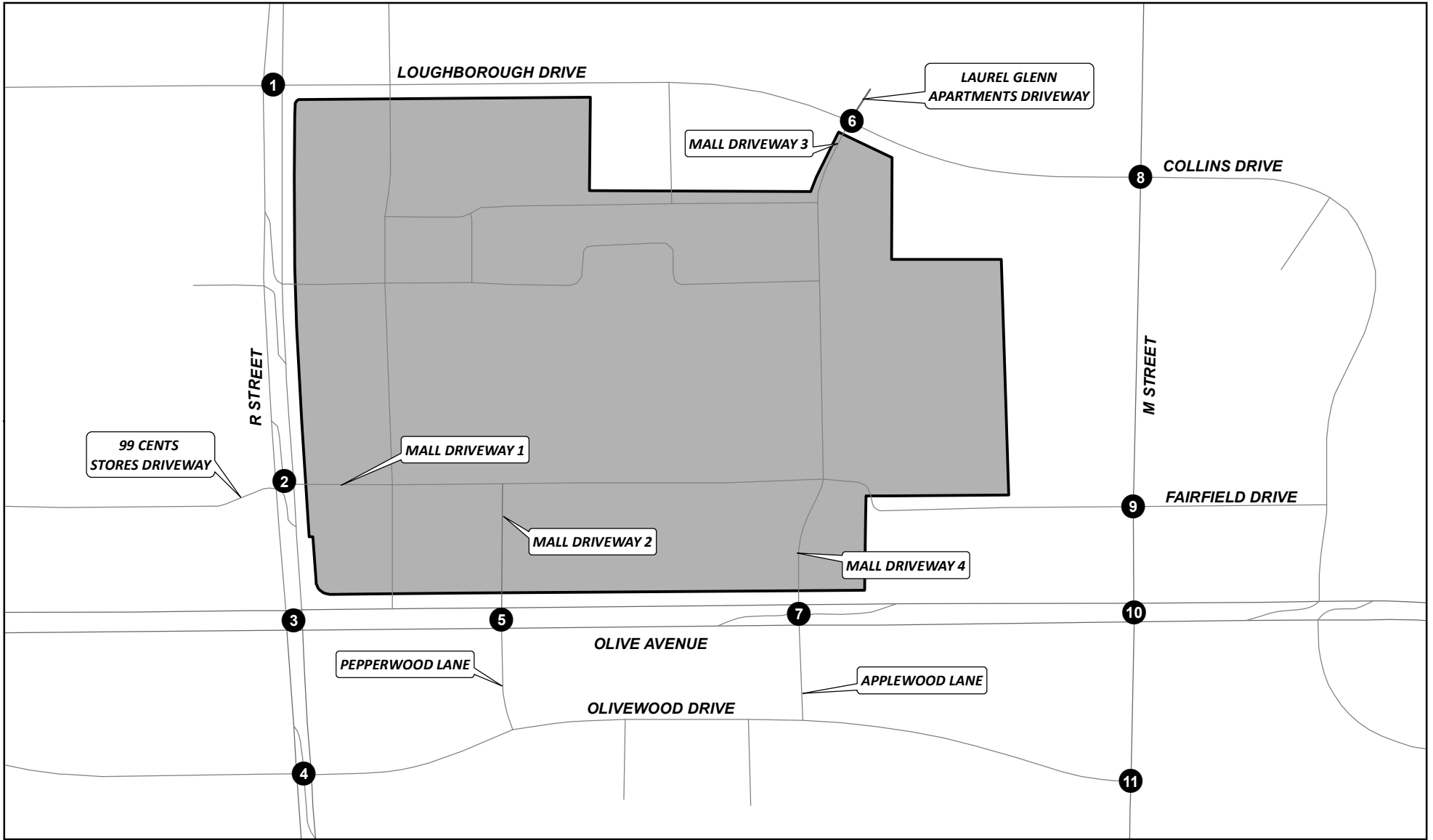


SOURCE: Codding

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Merced Mall Expansion and Redevelopment Project
Traffic Impact Analysis

Phase II Alternative II Expansion Site Plan



LSA

LEGEND

- Merced Mall
- Study Intersections



SOURCE: ESRI Streetmap, 2013.

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FIGURE 1-5

*Merced Mall Expansion and Redevelopment Project
Traffic Impact Analysis
Study Area Intersections*

2.0 ANALYSIS METHODOLOGY

2.1 LEVEL OF SERVICE DEFINITIONS AND PROCEDURES

Roadway operations and the relationship between capacity and traffic volumes are generally expressed in terms of levels of service (which are defined using the letter grades A through F). These levels recognize that, while an absolute limit exists as to the amount of traffic traveling through a given intersection (the absolute capacity), the conditions that motorists experience rapidly deteriorate as traffic approaches the absolute capacity. Under such conditions, congestion is experienced. There is general instability in the traffic flow, which means that relatively small incidents (e.g., a momentary engine stall) can cause considerable fluctuations in speeds and delays. This near-capacity situation is labeled Level of Service (LOS) E. Beyond LOS E, capacity has been exceeded, and arriving traffic will exceed the ability of the intersection to accommodate it. An upstream queue will then form and continue to expand in length until the demand volume again declines.

A complete description of the meaning of level of service can be found in the Transportation Research Board Special Report 209, *Highway Capacity Manual* (HCM).¹ The HCM establishes levels of service A through F for intersections and roadways as shown in Tables 2-A and 2-B, respectively. Table 2-C shows the level of service criteria for unsignalized and signalized intersections.

For all study area intersections (except the intersections of Mall Driveway 2–Pepperwood Lane/Olive Avenue, and Mall Driveway 4–Applewood Lane/Olive Avenue), the *Highway Capacity Manual 6* (HCM 6)² analysis methodologies were used to determine intersection levels of service. Intersection LOS was calculated using the Synchro 10 software, which uses HCM 6 methodologies.

For the intersections of Mall Driveway 2–Pepperwood Lane/Olive Avenue, and Mall Driveway 4–Applewood Lane/Olive Avenue, there are more than three through lanes on the major street approaches. Synchro does not generate a LOS for such intersections, as they cannot be analyzed using HCM 6 analysis methodologies. Therefore, these two intersections were analyzed using the Traffix software, which uses HCM 2000 methodologies.

As for roadway segments, the *Merced Vision 2030 General Plan* (General Plan),³ adopted January 2012, presents daily traffic volume LOS thresholds that can be employed on a planning level basis. These values are illustrated in Table 2-D.

2.2 SIGNIFICANCE STANDARDS

All study intersections and roadway segments are under the jurisdiction of the City of Merced. At study intersections under the jurisdiction of the City, the determination of a significant circulation impact is based on the criteria contained in the General Plan.

¹ Transportation Research Board. *Transportation Research Board Special Report 209: Highway Capacity Manual, 3rd Edition*.

² Transportation Research Board. *Highway Capacity Manual, Sixth Edition: A Guide for Multimodal Mobility Analysis*.

³ City of Merced, January 2012. *Merced Vision 2030 General Plan*.

Action T-1.8.b of the City's General Plan establishes LOS D as the acceptable level of service standard for intersections and roadways. Action T-1.8.b states:

Use peak-hour Level of Service "D" ("Tolerable Delays") as the design standard for new streets and intersections in new growth areas.

The preferred LOS levels are typically "C" and "D," particularly for larger roads and major intersections. With LOS C, the road provides stable operation but is still underutilized to some degree. LOS D represents a fine balance between the relatively large number of vehicles served and the generally acceptable level of service provided. It is the intent of the City's standards and policies for new and most upgraded intersections and road segments to be designed and built so as not to drop below LOS D ("tolerable delay") during peak traffic periods.¹

However, in certain cases, deviations are allowed as stated in Action T-1.8.c of the General Plan. Action T-1.8.c states:

Establish minimum Level of Service standards for existing roadways and intersections that reflect the special circumstances of the surrounding area. For example, in the downtown area or adjacent to interchanges in build-out areas, LOS E or F would be acceptable if roadway widening conflicts with other General Plan policies or significant right-of-way acquisition, which would be severely disruptive to adjacent development, is required.

Maintaining a LOS D on existing roadways and intersections is not always feasible, appropriate, or necessary. People may expect and tolerate varying levels of congestion depending on location (e.g. central Merced) and time of day. Heavier traffic can also be a reason to encourage greater pedestrian activity and heavier transit use in such areas. Other factors may make higher levels of service infeasible. In Central Merced, for example, widening existing streets could create great disruption to stable, older neighborhoods. In these areas, "significant delays" (LOS E) or even LOS F may have to be acceptable at peak hours. Special studies may be necessary to determine the appropriate LOS standards in such areas.²

Therefore, in this TIA, it has been considered that a significant project impact occurs at study intersections or roadway segments when the peak hour LOS falls below the City's LOS standard, LOS D (to E or F), or the project contributes to an existing or forecast deficiency. However, based on discussions with City staff and the policy stated in Action T-1.8.c of the General Plan, LOS E and F have also been considered to be acceptable for some study intersections and roadway segments, as the area around Merced Mall is dense with heavy existing traffic, making road widening and other mitigations difficult.

2.3 LIST OF CHAPTER 2.0 TABLES

- Table 2-A: Level of Service Definitions for Intersections
- Table 2-B: Level of Service Definitions for Roadway Segments
- Table 2-C: Level of Service Criteria for Unsignalized and Signalized Intersections

¹ Ibid.

² Ibid.

-
- Table 2-D: Level of Service Thresholds for Roadway Segments

Table 2-A: Level of Service Definitions for Intersections

LOS	Description
A	No approach phase is fully utilized by traffic and no vehicle waits longer than one red indication. Typically, the approach appears quite open, turns are made easily and nearly all drivers find freedom of operation.
B	This service level represents stable operation, where an occasional approach phase is fully utilized and a substantial number are approaching full use. Many drivers begin to feel restricted within platoons of vehicles.
C	This level still represents stable operating conditions. Occasionally drivers may have to wait through more than one red signal indication, and backups may develop behind turning vehicles. Most drivers feel somewhat restricted, but not objectionably so.
D	This level encompasses a zone of increasing restriction approaching instability at the intersection. Delays to approaching vehicles may be substantial during short peaks within the peak period; however, enough cycles with lower demand occur to permit periodic clearance of developing queues, thus preventing excessive backups.
E	Capacity occurs at the upper end of this service level. It represents the most vehicles that any particular intersection approach can accommodate. Full utilization of every signal cycle is seldom attained no matter how great the demand.
F	This level describes forced flow operations at low speeds, where volumes exceed capacity. These conditions usually result from queues of vehicles backing up from a restriction downstream. Speeds are reduced substantially and stoppages may occur for short or long periods of time due to the congestion. In the extreme case, both speed and volume can drop to zero.

Table 2-B: Level of Service Definitions for Roadway Segments

LOS	Description
A	Describes primarily free-flow operation. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Control Delay at the boundary intersection is minimal. The travel speed exceeds 85% of the base free-flow speed, and the volume-to-capacity ratio is no greater than 1.0.
B	Describes reasonably unimpeded operation. The ability to maneuver within the traffic stream is only slightly restricted, and control delay at the boundary is not significant. The travel speed is between 67% and 85% of the base free-flow speed, and the volume-to-capacity ratio is no greater than 1.0.
C	Describes stable operation. The ability to maneuver and change lanes at mid-segment locations may be more restricted than at LOS B. Longer queues at the boundary intersection may contribute to lower travel speeds. The travel speed is between 50% and 67% of the base free-flow speed, and the volume-to-capacity ratio is no greater than 1.0.
D	Indicates a less stable condition in which small increases in flow may cause substantial increases in delay and decreases in travel speed. This operation may be due to adverse signal progression, high volume, or inappropriate signal timing at the boundary intersection. The travel speed is between 40% and 50% of the base free-flow speed, and the volume-to-capacity ratio is no greater than 1.0.
E	Characterized by unstable operation and significant delay. Such operations may be due to some combination of adverse progression, high volume, and inappropriate signal timing at the boundary intersection. The travel speed is between 30% and 40% of the base free-flow speed, and the volume-to-capacity ratio is no greater than 1.0.
F	Characterized by flow at extremely low speed. Congestion is likely occurring at the boundary intersection, as indicated by high delay and extensive queuing. The travel speed is between 30% or less of the base free-flow speed, and the volume-to-capacity ratio is greater than 1.0.

Table 2-C: Level of Service Criteria for Unsignalized and Signalized Intersections

Level of Service	Unsignalized Intersection Average Delay per Vehicle (sec.)	Signalized Intersection Average Delay per Vehicle (sec.)
A	≤ 10	≤ 10
B	> 10 and ≤ 15	> 10 and ≤ 20
C	> 15 and ≤ 25	> 20 and ≤ 35
D	> 25 and ≤ 35	> 35 and ≤ 55
E	> 35 and ≤ 50	> 55 and ≤ 80
F	> 50	> 80

Table 2-D: Level of Service Thresholds for Roadways Segments

Functional Classification	LOS A Threshold	LOS B Threshold	LOS C Threshold	LOS D Threshold	LOS E Threshold
2-Lane Expressway	—	—	16,800	23,200	24,400
4-Lane Expressway	—	3,000	27,800	36,000	37,800
6-Lane Expressway	—	5,900	38,900	48,900	51,300
8-Lane Expressway	—	9,600	60,600	73,500	77,100
2-Lane Highway	2,300	7,600	14,200	20,000	27,400
4-Lane Highway	20,500	33,200	48,000	62,200	70,600
2-Lane County Road	—	—	7,700	15,000	16,100
4-Lane County Road	—	—	18,000	32,200	34,000
2-Lane Arterial	—	—	11,600	16,000	16,800
4-Lane Arterial	—	4,100	26,800	33,700	35,400
6-Lane Arterial	—	6,600	41,800	50,700	53,200
2-Lane Collector	—	—	4,800	10,300	13,200
4-Lane Collector	—	—	11,300	22,200	26,400

Source: *Merced Vision 2030 General Plan*, January 2012

3.0 CIRCULATION NETWORK SETTING

3.1 EXISTING ROADWAY SETTING

Figure 3-1 illustrates existing study intersection geometrics and traffic control. Table 3-A summarizes the classifications and the number of mid-block arterial lanes on major roadways in the study area. Following is a brief description of major roadways within the TIA study area:

- **R Street:** Based on the City's General Plan, R Street is designated as a Minor Arterial within the study area. Between Loughborough Drive and Olive Avenue, R Street is a four-lane divided road with a raised median. Bicycle lanes are present on both sides of the segment.
- **Loughborough Drive:** Based on the City's General Plan, Loughborough Drive is designated as a Collector Street within the study area. Between R Street and M Street, Loughborough Drive is a two-lane divided street with a two-way left-turn lane. There is provision for on-street parking on both sides of the segment.
- **Olive Avenue:** Based on the City's General Plan, Olive Avenue is designated as a Divided Arterial. Within the study area, Olive Avenue is a seven-lane divided road (four westbound lanes and three eastbound lanes) with a raised median.
- **M Street:** Based on the City's General Plan, M Street is designated as a Minor Arterial within the study area. Between Loughborough Drive and Olive Avenue, M Street is a four-lane divided road, with a two-way left-turn lane in the northern part of the segment and a raised median in the southern part. Bicycle lanes are present on both sides of the segment.

3.2 ALTERNATIVE TRANSPORTATION MODES

3.2.1 Pedestrians

Sidewalks are present all along the Merced Mall perimeter (R Street, Olive Avenue, M Street, and Loughborough Drive), making it easily accessible for pedestrians.

3.2.2 Transit

The Bus, Merced's regional transit system, provides transit service to the project site. Six stops along Loughborough Drive between R Street and M Street provide stops for five routes; Merced Routes (M1, M2, M3, and W2) and Livingston Route (L). Two stops along R Street between Loughborough Drive and Olive Avenue provide stops for the W2 and L Routes. Two other stops along M Street between Loughborough Drive and Olive Avenue provide stops for the UC Merced Route. All these stops are easily accessible within approximately a quarter mile of the project.

3.2.3 Bicycles

The City's General Plan includes the Bicycle Transportation Plan, which identifies existing and proposed bikeways. While off-street bikeways are classified as Class I (Bike Paths or Bike Trails), on-street bikeways are classified as either Class II (Bike Lanes) or Class III (Bike Routes). At present, Bike Lanes exist along either side of both R Street and M Street.

3.3 LIST OF CHAPTER 3.0 FIGURES AND TABLES

- Figure 3-1: Study Intersection Geometrics and Traffic Control
- Table 3-A: Roadway Segment Classification

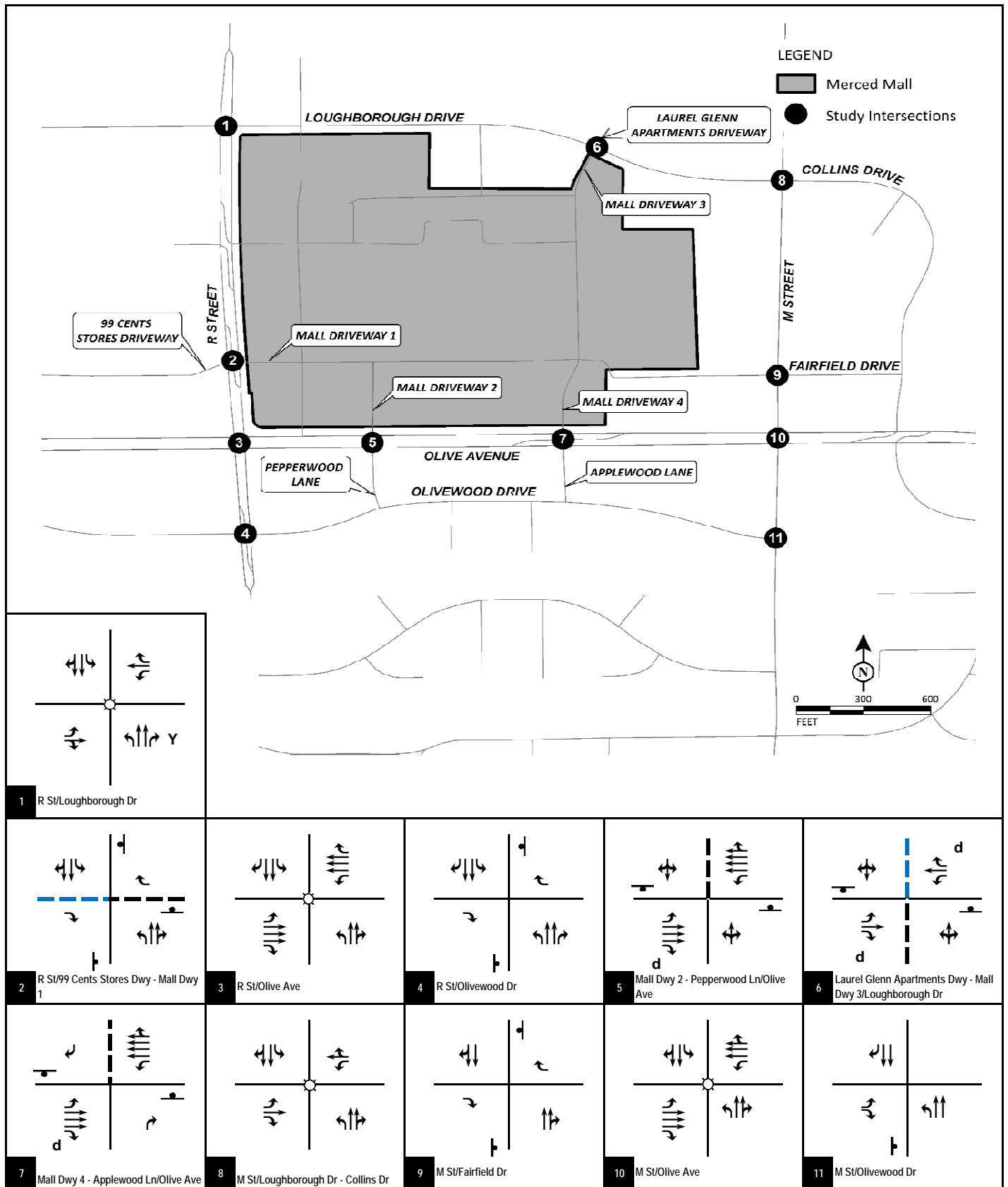


FIGURE 3-1



Legend

- Signal
- Merced Mall Driveway
- Stop Sign
- Other Driveway
- d Defacto Right Turn
- Y Yield

Merced Mall Expansion and Redevelopment Project
 Traffic Impact Analysis
 Study Intersection Geometrics and Traffic Control

Table 3-A - Roadway Segment Classification

Roadway	#	Segment	Existing Condition Number of Lanes	Functional Classification ¹
Olivewood Drive	1	Olivewood Drive, between Meadows Avenue and R Street	2	2-Lane Local Street
	2	Olivewood Drive, between R Street and M Street	2	2-Lane Local Street
R Street	3	R Street, between Loughborough Drive and Olive Avenue	4	4-Lane Minor Arterial
Loughborough Drive	4	Loughborough Drive, between R Street and M Street	2	2-Lane Collector Street
Olive Avenue	5	Olive Avenue, between R Street and M Street	7	7-Lane Divided Arterial
M Street	6	M Street, between Loughborough Drive/Collins Drive and Olive Avenue	4	4-Lane Minor Arterial

Notes:

¹Functional Classification obtained from the *Merced Vision 2030 General Plan*, dated January 2012.

4.0 TRAFFIC VOLUMES WITHOUT PROJECT SCENARIOS

4.1 EXISTING TRAFFIC VOLUMES

Existing roadway and intersection traffic volumes are based on counts collected by National Data and Surveying Services. Daily tube counts were collected for roadway segments while a.m. and p.m. peak hour turning movement counts were collected at study intersections. All counts were conducted on Tuesday, June 5, 2018, when elementary, middle, and high schools were in session. There were no adverse weather conditions, construction activities, or accidents/incidents that would have altered the traffic conditions or volumes in the project vicinity during the day of the counts. Detailed count sheets are contained in Appendix A.

Figure 4-1 illustrates existing peak hour traffic volumes at study intersections. Table 4-A summarizes the existing daily traffic volumes.

4.2 CUMULATIVE (2023) WITHOUT PROJECT TRAFFIC VOLUMES

According to the project applicant, the first phase of the project will be open by the year 2021, while the second phase will be open by the year 2023. To present a cumulative (2023) traffic condition, a regional ambient growth rate of 1 percent per annum was identified by City staff and traffic volumes from approved/pending projects were developed, both of which were added to the existing traffic counts.

City Planning staff provided information for cumulative projects in the vicinity of the proposed project. Table 4-B lists the cumulative projects included in this analysis. Figure 4-2 illustrates the cumulative project locations. The trip generation for cumulative projects was developed using rates from the Institute of Transportation Engineers (ITE).¹ As shown in Table 4-B, cumulative projects are expected to generate 3,399 daily trips, with 237 trips occurring during the a.m. peak hour and 277 trips occurring during the p.m. peak hour. Project trips for these cumulative projects were assigned to the roadway network based on their location in relation to surrounding land uses and regional arterials. Figure 4-3 illustrates peak hour cumulative project trips at study area intersections. Figure 4-4 illustrates peak hour traffic volumes at study intersections under cumulative without project conditions. Table 4-C summarizes the cumulative without project daily volumes for study area roadway segments.

Detailed volume development worksheets are included in Appendix B.

4.3 LIST OF CHAPTER 4.0 FIGURES AND TABLES

- Figure 4-1: Existing Peak Hour Traffic Volumes
- Figure 4-2: Cumulative Project Locations
- Figure 4-3: Cumulative Project Trips
- Figure 4-4: Cumulative (2023) without Project Peak Hour Traffic Volumes

¹ Institute of Transportation Engineers (ITE), September 2017. *Trip Generation Manual*, 10th Edition.

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- Table 4-A: Existing Daily Traffic Volumes
 - Table 4-B: Cumulative Projects Trip Generation
 - Table 4-C: Cumulative (2023) Daily Traffic Volumes

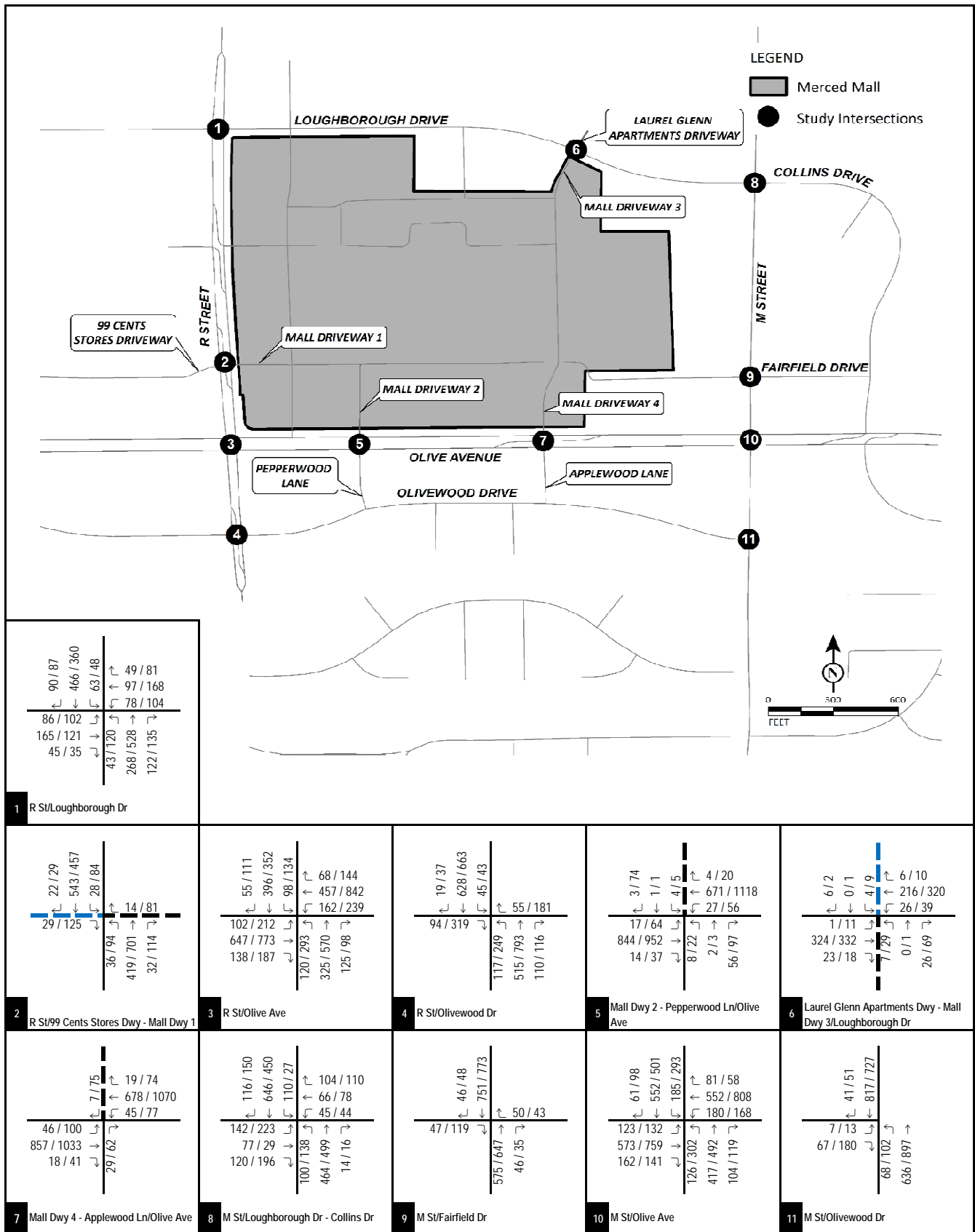


FIGURE 4-1



XXXX / YYYY

AM / PM Peak Hour Traffic Volumes

---- Merced Mall Driveway

----- Other Driveway

Merced Mall Expansion and Redevelopment Project
 Traffic Impact Analysis
 Existing Peak Hour Traffic Volumes

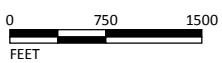


FIGURE 4-2

LSA

LEGEND

- Merced Mall
- Cumulative Project



SOURCE: Bing Aerial, 2017; ESRI Streetmap, 2013.

I:\MED1801\Reports\Traffic\fig4-2_CumProjects.mxd (8/3/2018)

Merced Mall Expansion and Redevelopment Project
Traffic Impact Analysis
Cumulative Project Locations

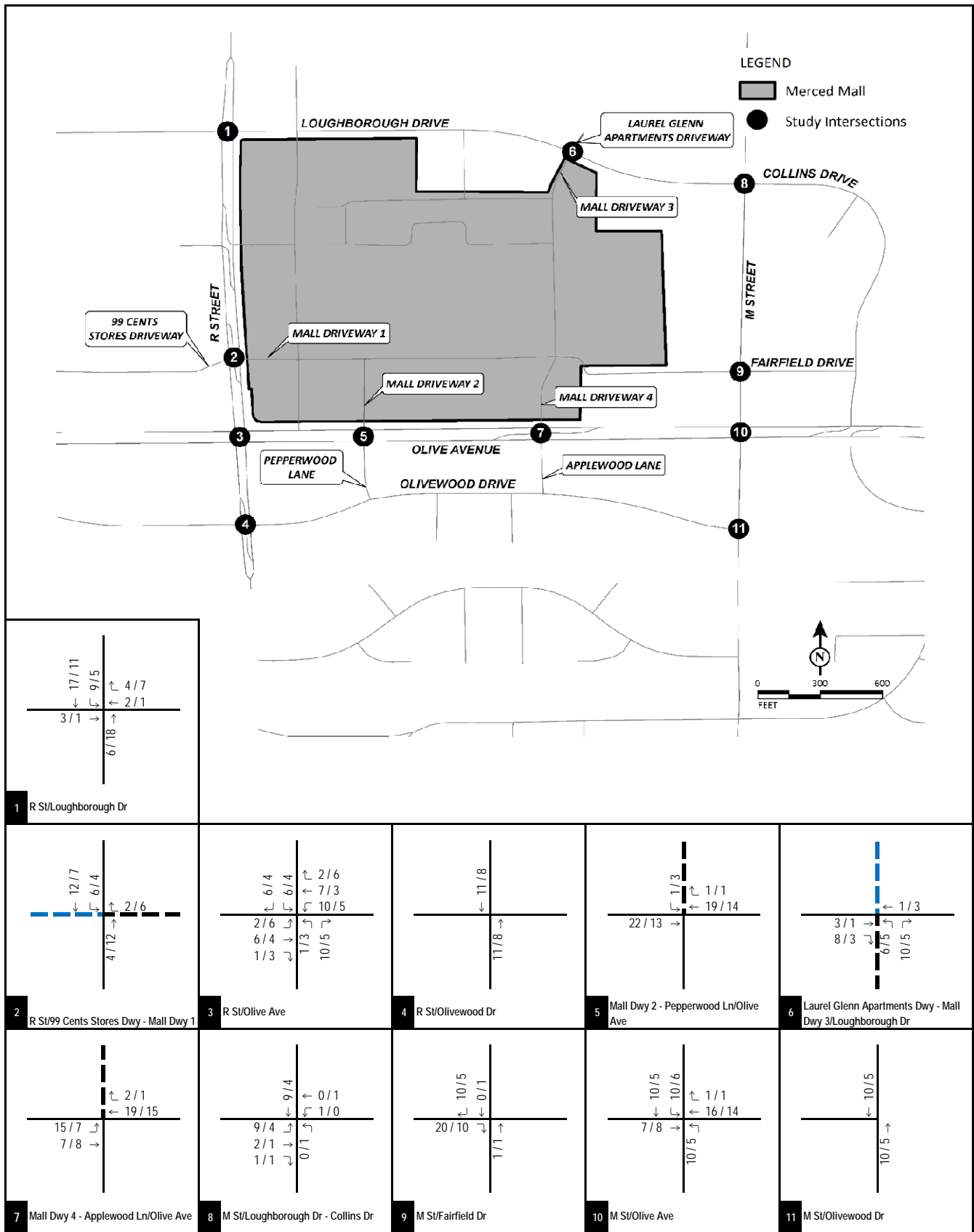


FIGURE 4-3

LSA

XX / YY

AM / PM Peak Hour Traffic Volumes

---- Merced Mall Driveway

----- Other Driveway

Merced Mall Expansion and Redevelopment Project
Traffic Impact Analysis
Cumulative Project Trips

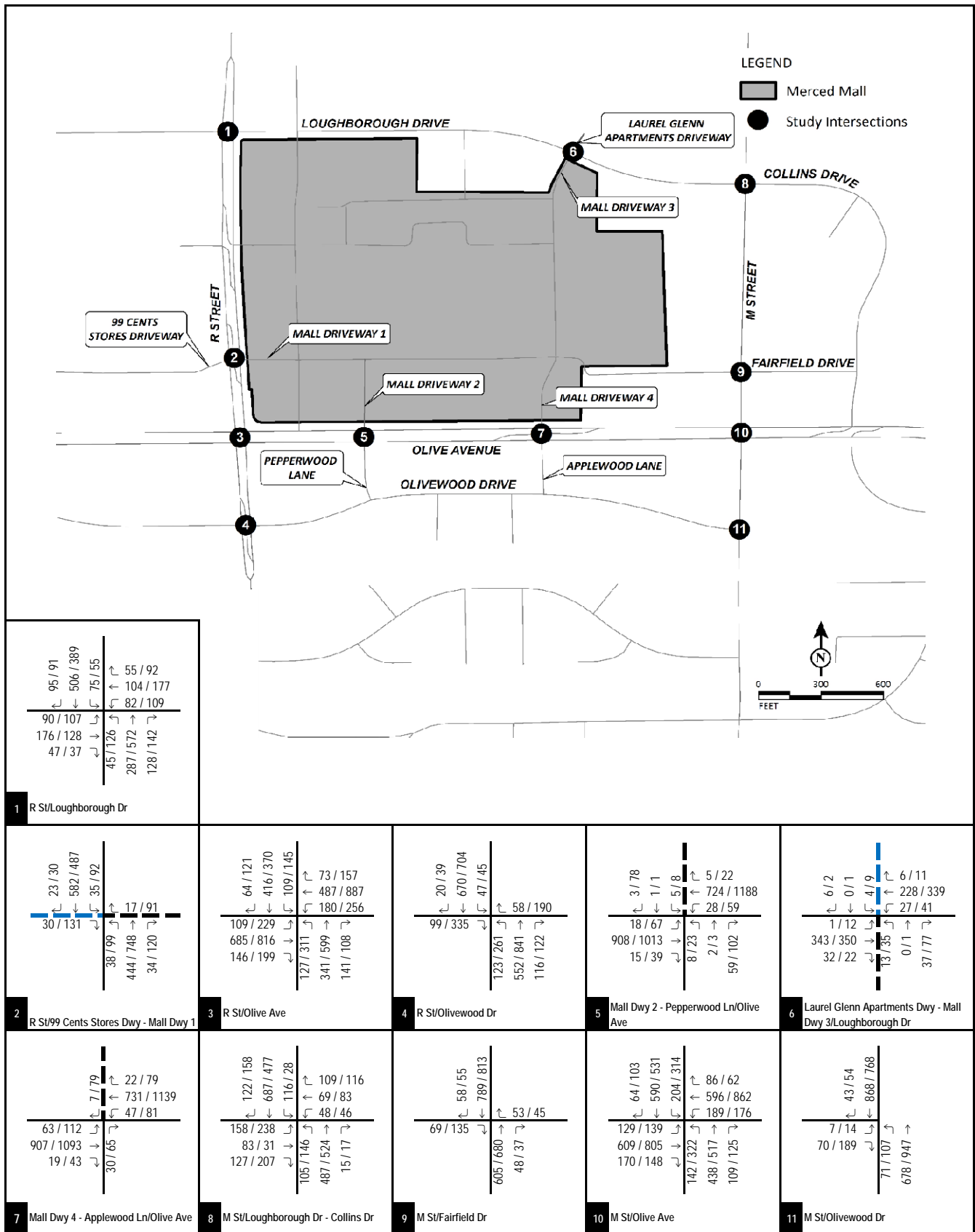


FIGURE 4-4



XXXX / YYYY

AM / PM Peak Hour Traffic Volumes

---- Merced Mall Driveway

----- Other Driveway

Merced Mall Expansion and Redevelopment Project
Traffic Impact Analysis

Cumulative (2023) without Project Peak Hour Traffic Volumes

Table 4-A - Existing Daily Traffic Volumes

Roadway	#	Segment	Existing ADT
Olivewood Drive R Street Loughborough Drive Olive Avenue M Street	1	Olivewood Drive, between Meadows Avenue and R Street	6,216
	2	Olivewood Drive, between R Street and M Street	3,640
	3	R Street, between Loughborough Drive and Olive Avenue	18,843
	4	Loughborough Drive, between R Street and M Street	8,377
	5	Olive Avenue, between R Street and M Street	28,460
	6	M Street, between Loughborough Drive/Collins Drive and Olive Avenue	18,226

Table 4-B - Cumulative Projects Trip Generation

Project	Units	A.M. Peak Hour			P.M. Peak Hour			Daily
		In	Out	Total	In	Out	Total	
1. Bianchi/Norcal Cajun Annexation	42.00 TSF							
Trips/Unit ¹		0.58	0.36	0.94	1.83	1.98	3.81	37.75
Trip Generation		24	15	39	77	83	160	1,586
Pass-by Trips ²		0	0	0	(26)	(28)	(54)	(539)
Net Trip Generation		24	15	39	51	55	106	1,047
2. Shadow Creek at Compass Point (Remaining Lots)	20 DU							
Trips/Unit ³		0.19	0.55	0.74	0.62	0.37	0.99	9.44
Trip Generation		4	11	15	12	7	19	189
3. Compass Pointe II Apartments	136 DU							
Trips/Unit ⁴		0.11	0.35	0.46	0.35	0.21	0.56	7.32
Trip Generation		15	48	63	48	29	77	996
4. Starbucks	2.20 TSF							
Trips/Unit ⁵		45.38	43.61	88.99	21.69	21.69	43.38	820.38
Trip Generation		100	96	196	48	48	96	1,805
Pass-by Trips ⁶		(49)	(47)	(96)	(24)	(24)	(48)	(893)
Net Trip Generation		51	49	100	24	24	48	912
5. Campus Vista Unit 2 (Remaining Lots)	27 DU							
Trips/Unit ³		0.19	0.55	0.74	0.62	0.37	0.99	9.44
Trip Generation		5	15	20	17	10	27	255
Total Trip Generation		99	138	237	152	125	277	3,399

Notes:

TSF = Thousand Square Feet; DU = Dwelling Units

¹ Rates based on the Institute of Transportation Engineers (ITE) *Trip Generation Manual* (10th edition) for Land Use 820 – “Shopping Center”, Setting/Location - “General Urban/Suburban.”

² Pass-by rates from the ITE *Trip Generation Handbook* (3rd Edition) for Land Use 820 - “Shopping Center.” A pass-by rate of 34% was used for the p.m. peak hour. No a.m. peak hour and daily pass-by rates are provided; therefore, the p.m. peak hour pass-by rate was used as the daily pass-by rate.

³ Rates based on the ITE *Trip Generation Manual* (10th Edition) for Land Use 210 – “Single-Family Detached Housing”, Setting/Location - “General Urban/Suburban.”

⁴ Rates based on the ITE *Trip Generation Manual* (10th Edition) for Land Use 220 – “Multifamily Housing (Low-Rise)”, Setting/Location - “General Urban/Suburban.”

⁵ Rates based on the ITE *Trip Generation Manual* (10th Edition) for Land Use 937 – “Coffee/Donut Shop with Drive-Through Window”, Setting/Location - “General Urban/Suburban.”

⁶ Pass-by rates for Land Use 937 – “Coffee/Donut Shop with Drive-Through Window” are not available in the ITE *Trip Generation Handbook* (3rd Edition). Hence, the pass-by rates for Land Use 934 - “Fast-Food Restaurant with Drive-Through Window” were used. A pass-by rate of 49% was used for the a.m. peak hour and a pass-by rate of 50% was used for the p.m. peak hour. No daily pass-by rates are provided; therefore, an average of the a.m. and p.m. peak hour pass-by rates was used as the daily pass-by rate.

Table 4-C - Cumulative (2023) Daily Traffic Volumes

Roadway	#	Segment	Year 2023 Background Volumes	Cumulative Project Trips	Cumulative Without Project
Olivewood Drive	1	Olivewood Drive, between Meadows Avenue and R Street	6,527	0	6,527
	2	Olivewood Drive, between R Street and M Street	3,822	0	3,822
R Street	3	R Street, between Loughborough Drive and Olive Avenue	19,785	356	20,141
Loughborough Drive	4	Loughborough Drive, between R Street and M Street	8,796	212	9,008
Olive Avenue	5	Olive Avenue, between R Street and M Street	29,883	443	30,326
M Street	6	M Street, between Loughborough Drive/Collins Drive and Olive Avenue	19,137	194	19,331

5.0 PROJECT TRAFFIC

5.1 PROJECT TRIP GENERATION

The trip generation for the proposed project was developed using ITE rates for Land Uses 820 - "Shopping Center" and 445 - "Multiplex Movie Theater."¹

Since the project is a mixed-use development, it is estimated that a certain percentage of trips between the land uses will be made within the site and these internal trips do not utilize the major street system. The internal trips can be made either by walking or by vehicles using internal roadways without using external streets. The internal capture rates have been estimated using the Internal Trip Capture Estimation Tool developed by the National Cooperative Highway Research Program (NCHRP).² The step-by-step estimation procedure has been illustrated in the spreadsheets provided in Appendix C. The internal capture rate estimated for each land use has been applied to its respective trip generation to determine the number of internal trips. Further, the internal trips have been subtracted from the trip generation to establish the total external trips for each land use.

As for Alternative II, trip generation was developed for the existing on-site uses to be demolished using ITE rates for Land Uses 820 - "Shopping Center" and 444 - "Movie Theater."³ As shown in Table 5-B, the demolished uses generate 2,461 daily trips, with 24 trips occurring during the a.m. peak hour and 191 trips occurring during the p.m. peak hour. After adjusting these trips, the proposed project is anticipated to generate 2,431 net daily trips, with 23 trips occurring during the a.m. peak hour and 176 trips occurring during the p.m. peak hour.

5.2 PROJECT TRIP DISTRIBUTION AND ASSIGNMENT

The distribution of project trips was developed based on the regional roadway network and the locations of residential, employment, and commercial centers in relation to the proposed project. Because the location of the retail component of the project is different from that of the theater, whose location also varies in each alternative, separate trip distributions were considered for the retail and the theater (in each alternative). However, a similar regional distribution was followed in each case. Project trips were distributed 42 percent to the north, 30 percent to the south, 12 percent to the east, and 16 percent to the west. Figures 5-1, 5-2, and 5-3 illustrate the trip distributions for the retail and the theater under Alternatives I and II, respectively. Trip assignment for project trips is the product of the project trip generation and the trip distribution percentages. Figures 5-4, 5-5, and 5-6 illustrate the trip assignments for the retail and the theater under Alternatives I and II, respectively. Figures 5-7 and 5-8 illustrate the total trip assignments for Alternatives I and II, respectively.

5.3 LIST OF CHAPTER 5.0 FIGURES AND TABLES

- Figure 5-1: Project Trip Distribution—Retail

¹ Institute of Transportation Engineers (ITE), September 2017. *Trip Generation Manual*, 10th Edition.

² Transportation Research Board. *National Cooperative Highway Research Program Report 684: Enhancing Internal Trip Capture Estimation for Mixed-Use Developments*.

³ Institute of Transportation Engineers (ITE), September 2017. *Trip Generation Manual*, 10th Edition.

-
- Figure 5-2: Project Trip Distribution–Theater (Alternative I)
 - Figure 5-3: Project Trip Distribution–Theater (Alternative II)
 - Figure 5-4: Project Trip Assignment–Retail
 - Figure 5-5: Project Trip Assignment–Theater (Alternative I)
 - Figure 5-6: Project Trip Assignment–Theater (Alternative II)
 - Figure 5-7: Phases I and II Total Project Trip Assignment (Alternative I)
 - Figure 5-8: Phases I and II Total Project Trip Assignment (Alternative II)
 - Table 5-A: Project Trip Generation (Alternative I)
 - Table 5-B: Project Trip Generation (Alternative II)

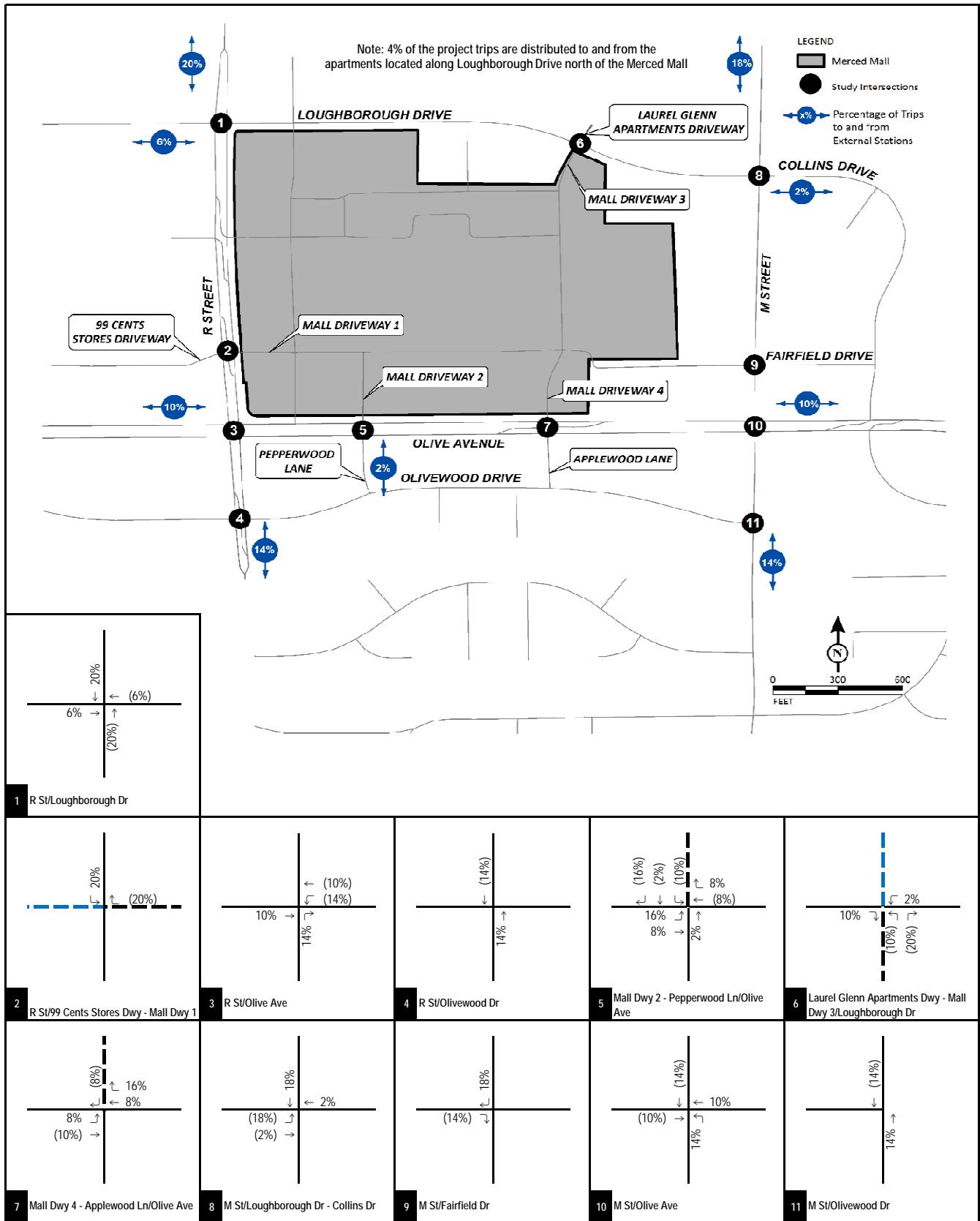


FIGURE 5-1



XX% (YY%)

Inbound (Outbound) Trip Distribution

---- Merced Mall Driveway

---- Other Driveway

Merced Mall Expansion and Redevelopment Project
 Traffic Impact Analysis
 Project Trip Distribution - Retail

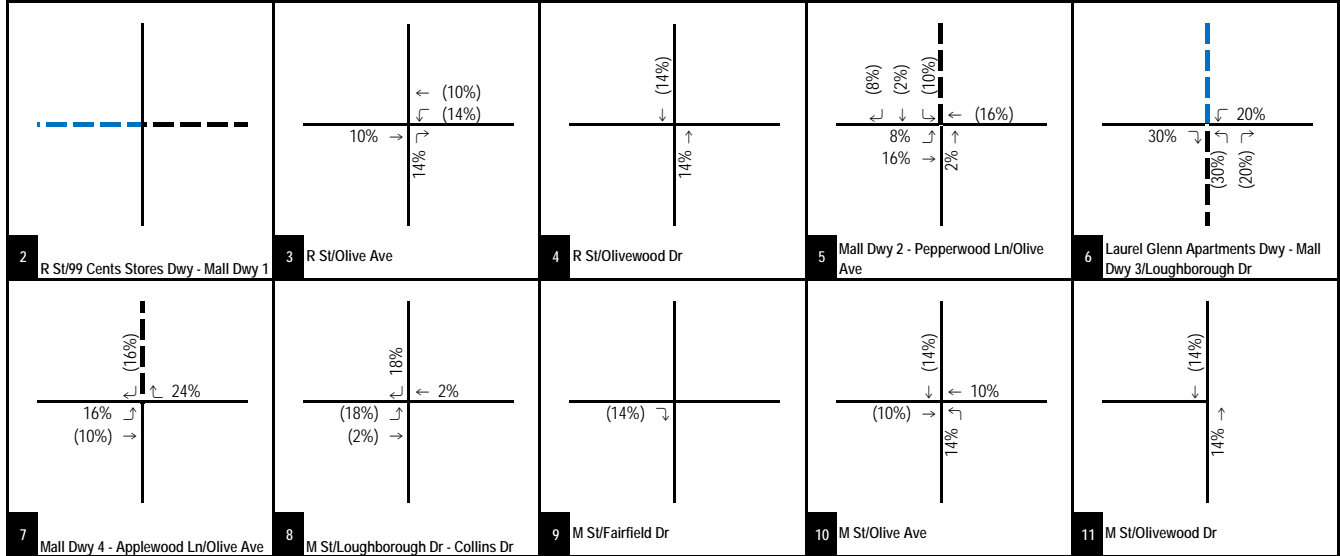
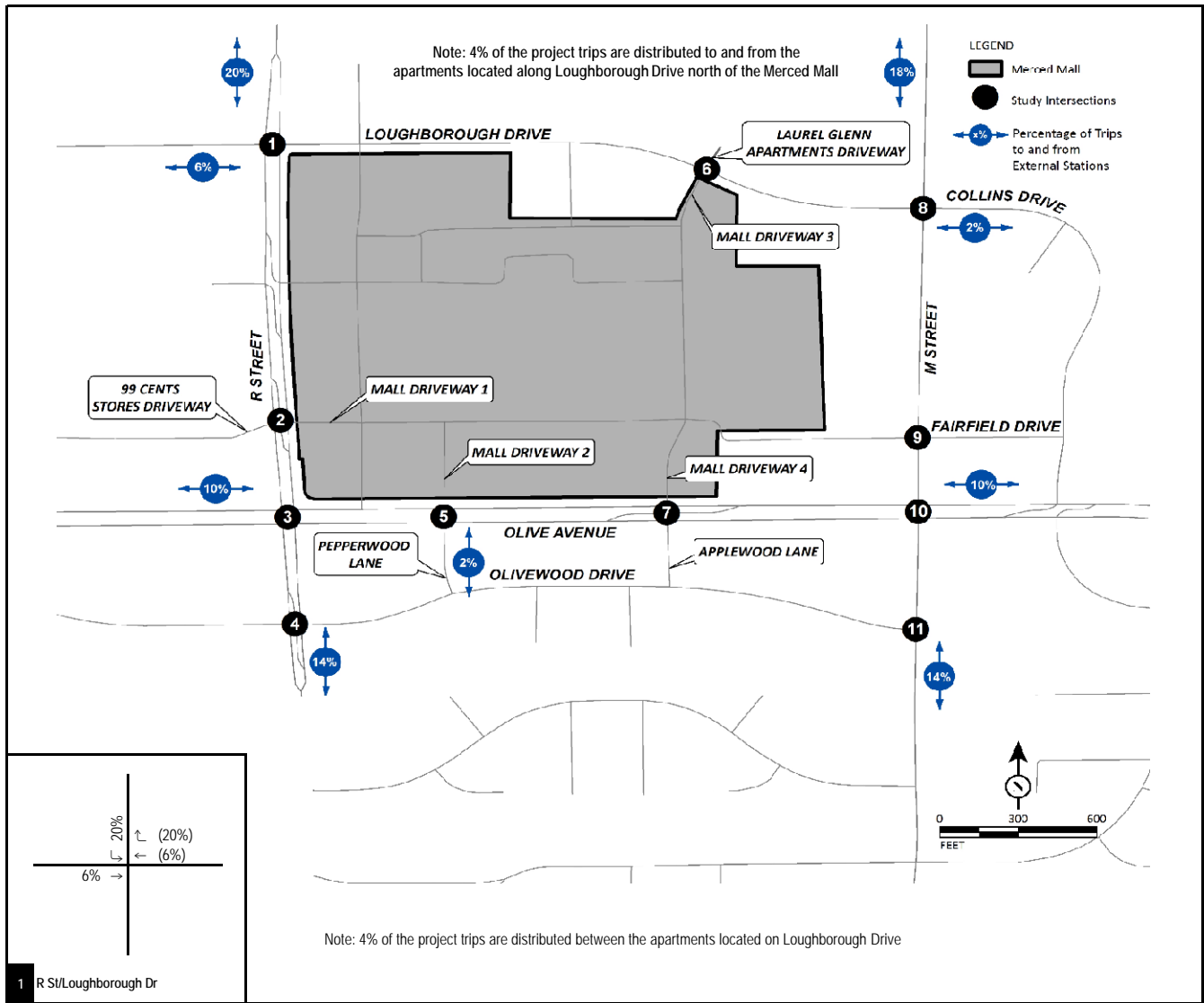


FIGURE 5-2

LSA

XX% (YY%)

Inbound (Outbound) Trip Distribution

---- Merced Mall Driveway

---- Other Driveway

Merced Mall Expansion and Redevelopment Project
 Traffic Impact Analysis
 Project Trip Distribution - Theater (Alternative I)

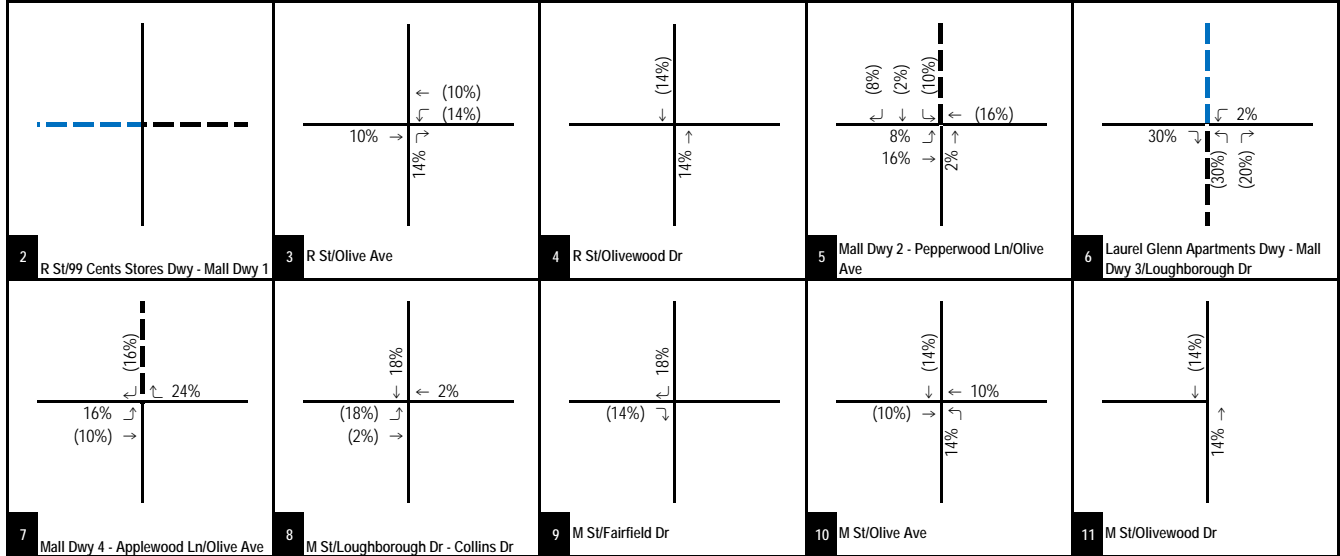
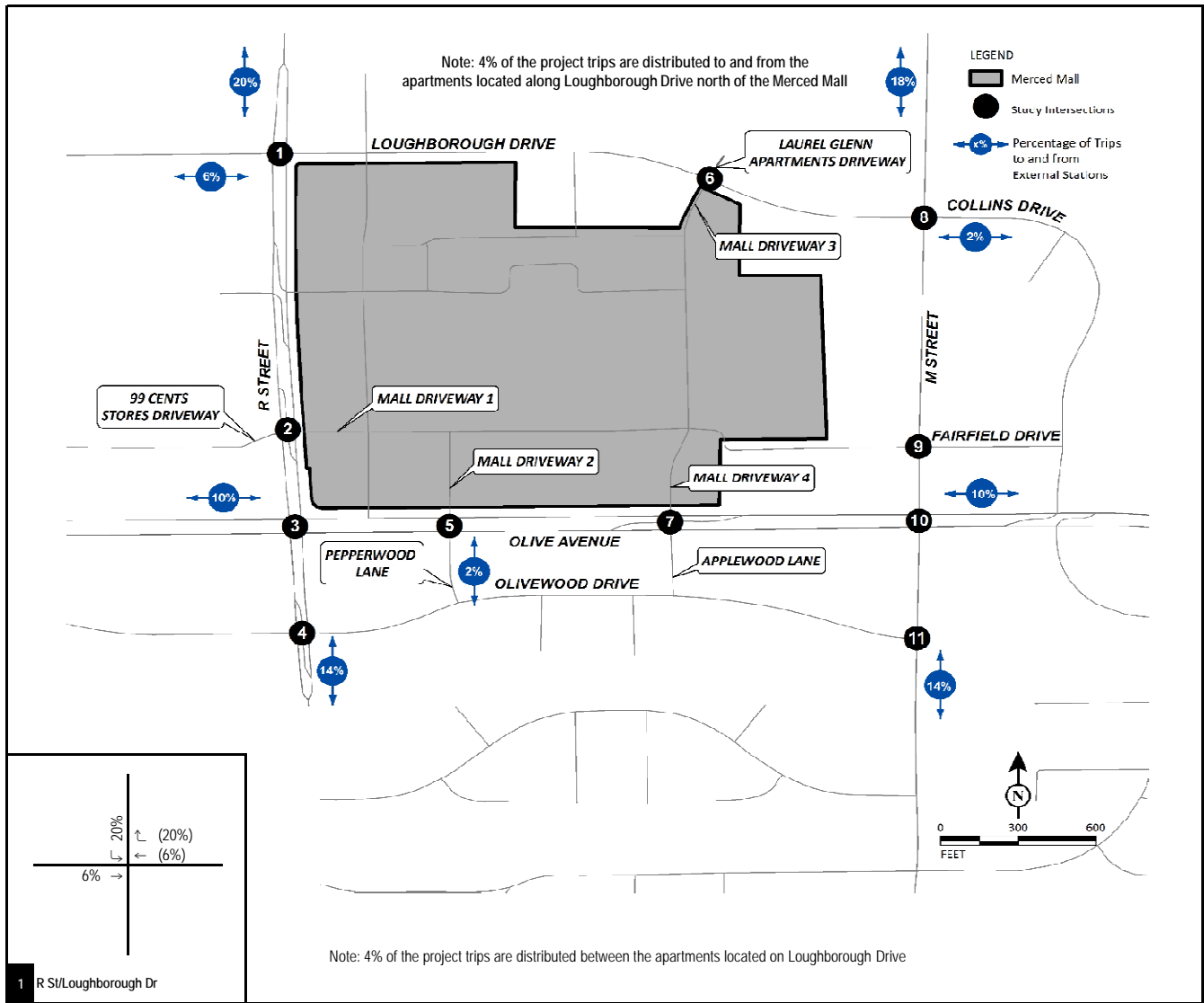


FIGURE 5-3

LSA

XX% (YY%)

Inbound (Outbound) Trip Distribution

---- Merced Mall Driveway

---- Other Driveway

Merced Mall Expansion and Redevelopment Project
 Traffic Impact Analysis
 Project Trip Distribution - Theater (Alternative II)

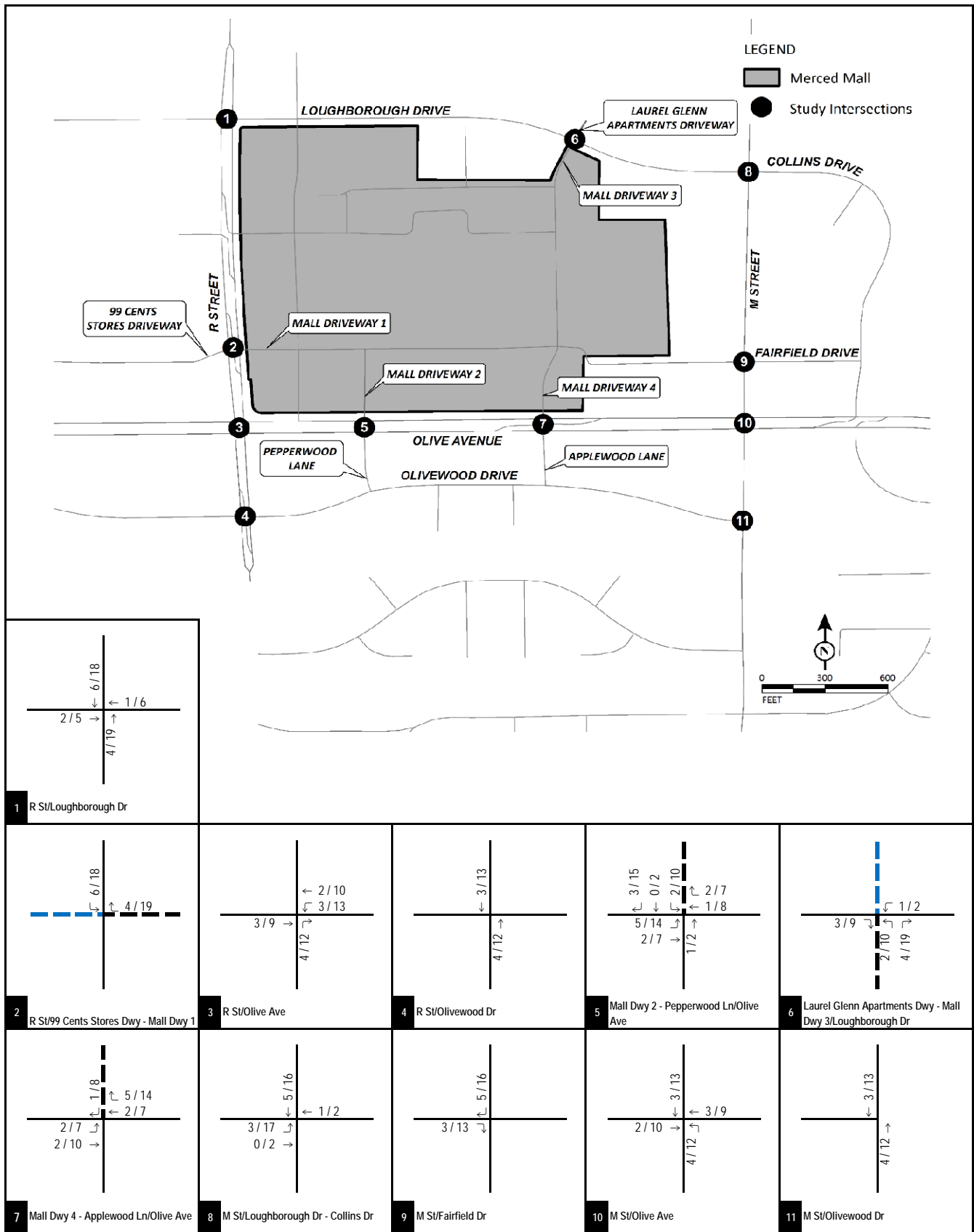


FIGURE 5-4

LSA

XX / YY

AM / PM Peak Hour Traffic Volumes

---- Merced Mall Driveway

----- Other Driveway

Merced Mall Expansion and Redevelopment Project
 Traffic Impact Analysis
 Project Trip Assignment - Retail

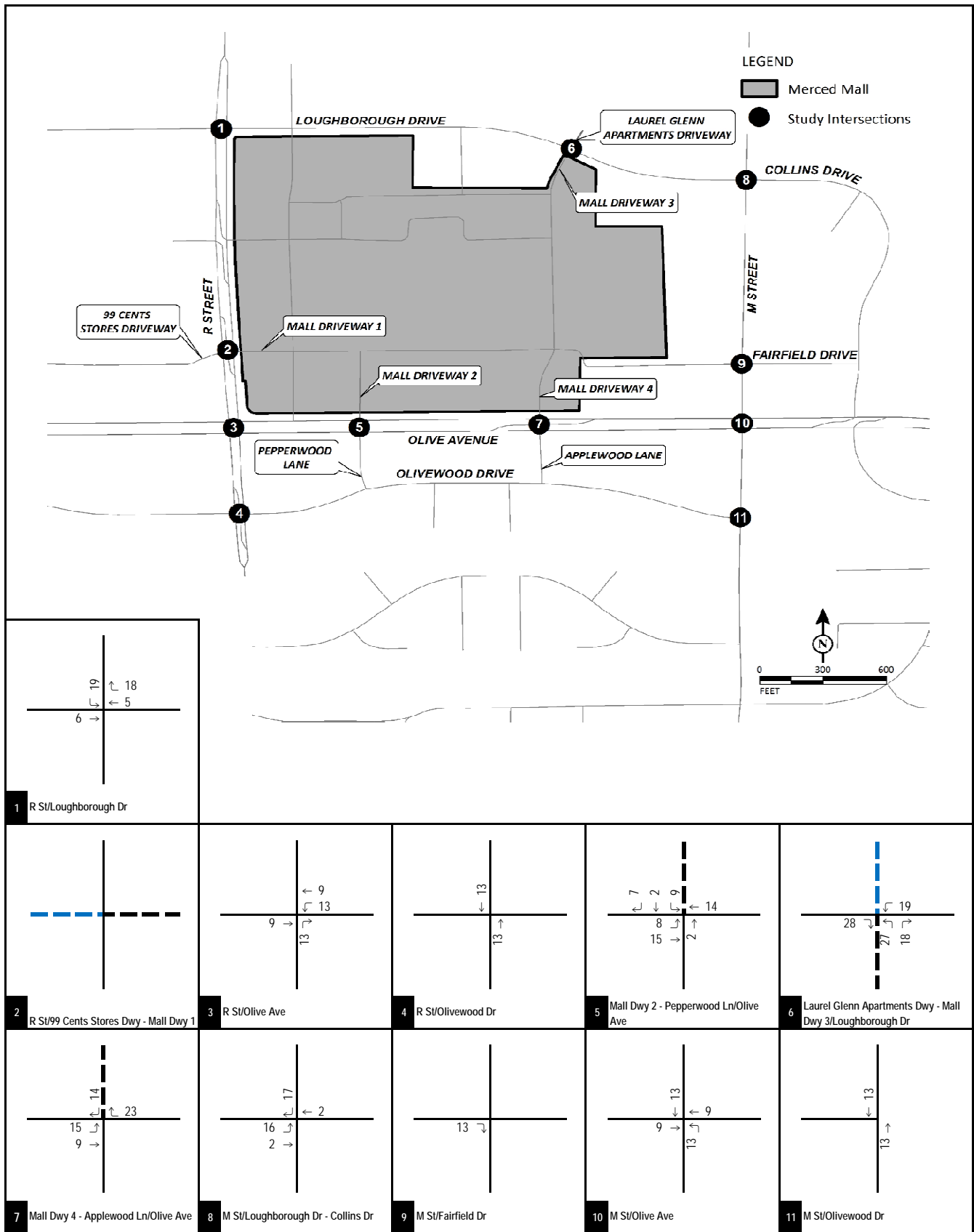


FIGURE 5-5

LSA

XX

PM Peak Hour Traffic Volumes

---- Merced Mall Driveway

..... Other Driveway

Note: Theater does not have AM Peak Hour Trips

Merced Mall Expansion and Redevelopment Project
Traffic Impact Analysis

Project Trip Assignment - Theater (Alternative I)

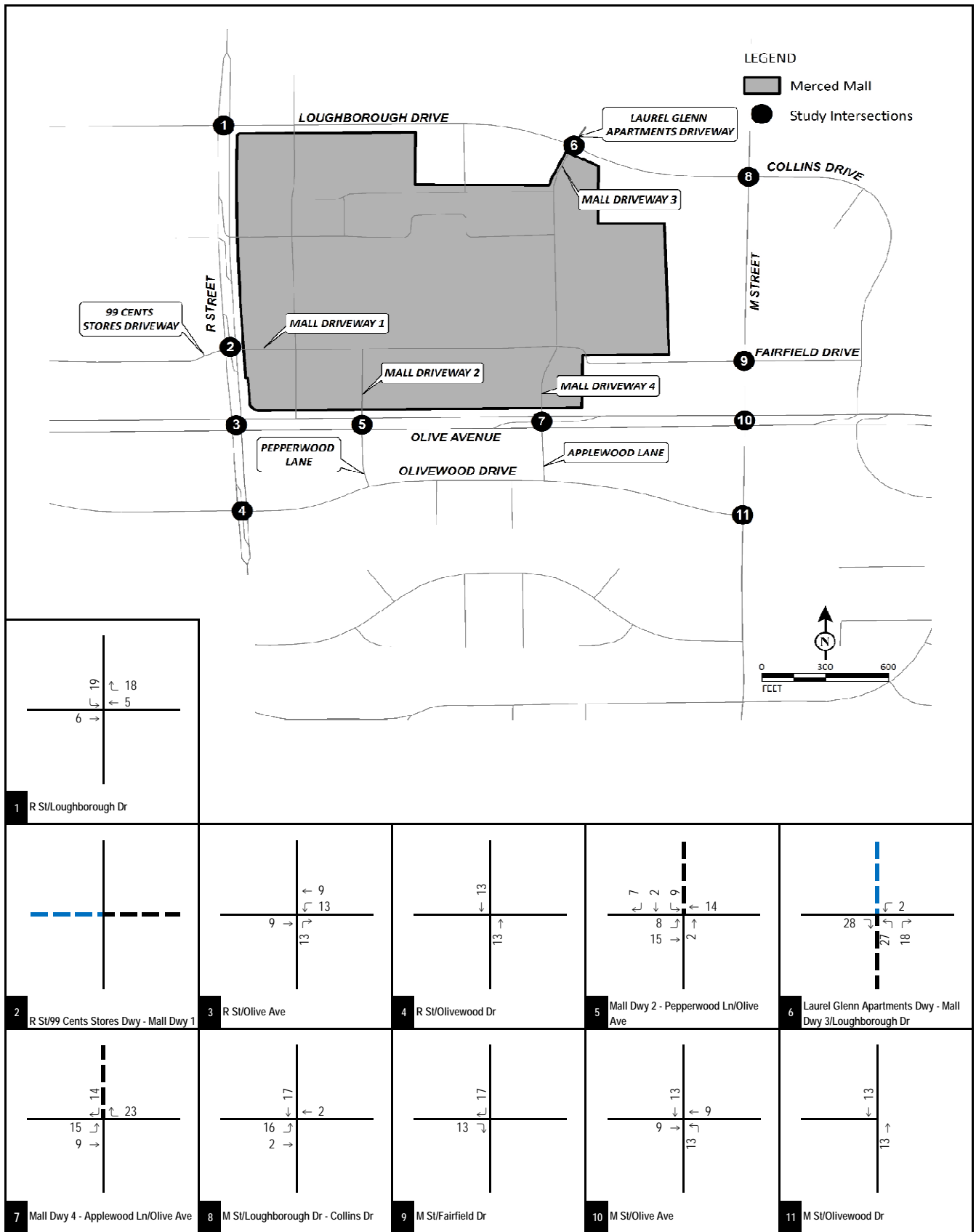


FIGURE 5-6

LSA

XX

PM Peak Hour Traffic Volumes

---- Merced Mall Driveway

----- Other Driveway

Note: Theater does not have AM Peak Hour Trips

Merced Mall Expansion and Redevelopment Project
Traffic Impact Analysis
Project Trip Assignment - Theater (Alternative II)

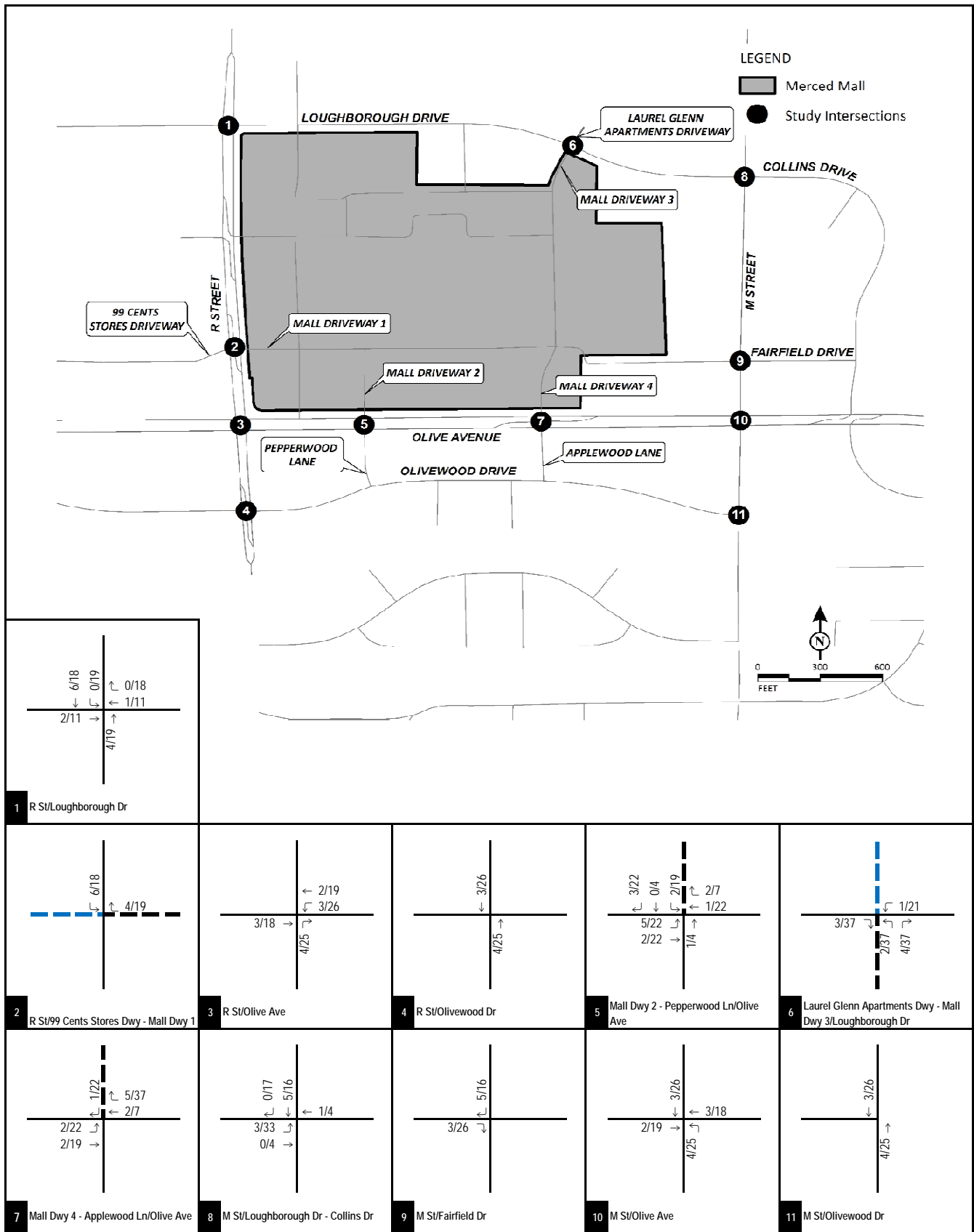


FIGURE 5-7

LSA

XX/YY

AM/PM Peak Hour Traffic Volumes

---- Merced Mall Driveway

----- Other Driveway

Merced Mall Expansion and Redevelopment Project
Traffic Impact Analysis

Phases I and II Total Project Trip Assignment (Alternative I)

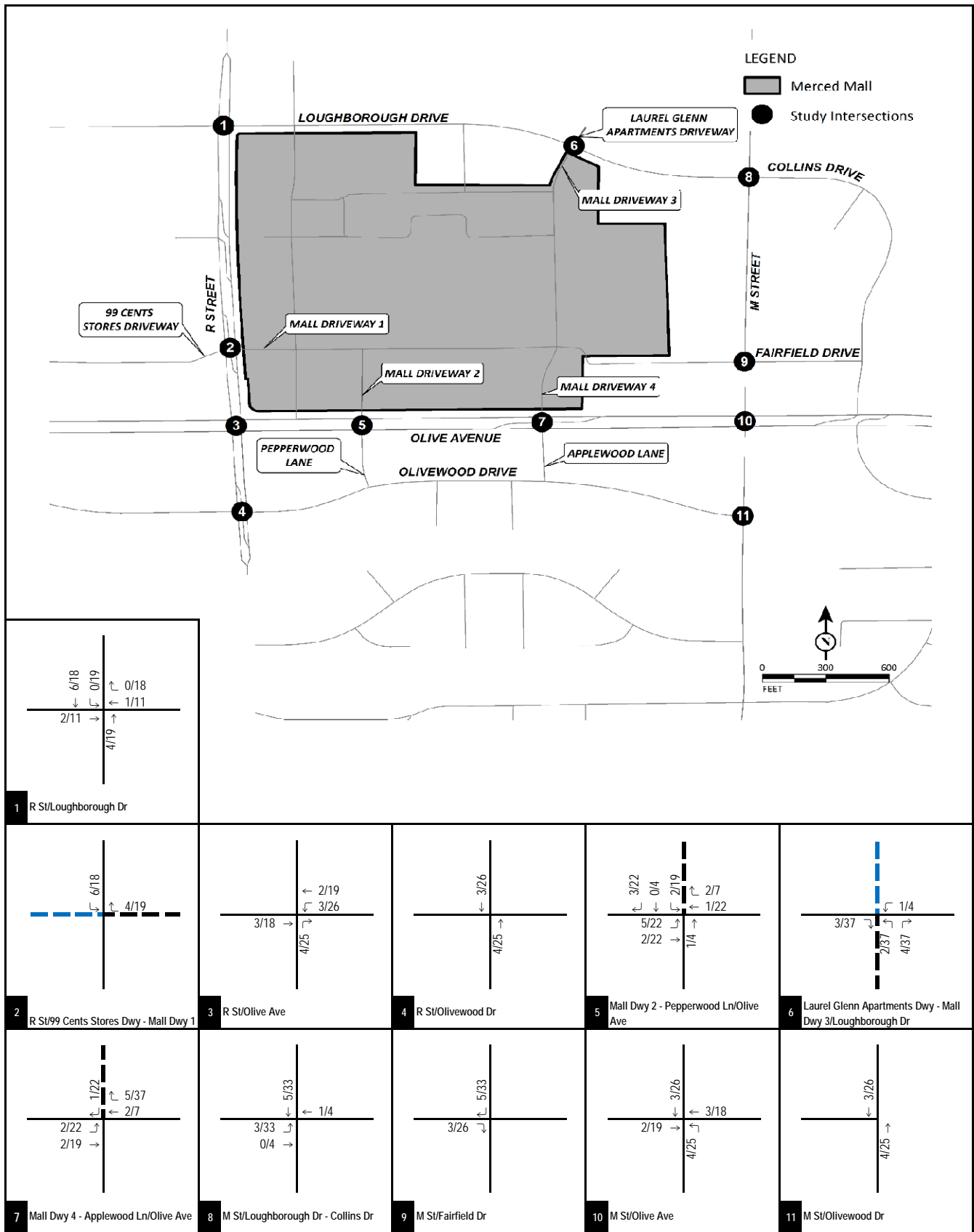


FIGURE 5-8

LSA

XX/YY

AM/PM Peak Hour Traffic Volumes

---- Merced Mall Driveway

----- Other Driveway

Merced Mall Expansion and Redevelopment Project
Traffic Impact Analysis

Phases I and II Total Project Trip Assignment (Alternative II)

Table 5-A - Project Trip Generation (Alternative I)

Land Use	Units	A.M. Peak Hour			P.M. Peak Hour			Daily
		In	Out	Total	In	Out	Total	
Shopping Center	50.00 TSF							
Trips/Unit ¹		0.58	0.36	0.94	1.83	1.98	3.81	37.75
Trip Generation		29	18	47	92	99	191	1,888
Internal Capture ²		0	0	0	(4)	(4)	(8)	(38)
Total External Trips		29	18	47	88	95	183	1,850
Multiplex Movie Theater	14 Screens							
Trips/Unit ³		0.00	0.00	0.00	7.00	6.73	13.73	220.00
Trip Generation		0	0	0	98	94	192	3,080
Internal Capture ²		0	0	0	(4)	(4)	(8)	(38)
Total External Trips		0	0	0	94	90	184	3,042
Total Trip Generation		29	18	47	182	185	367	4,892

Note:

TSF = Thousand Square Feet

¹ Rates from the Institute of Transportation Engineers (ITE) *Trip Generation Manual* (10th Edition), Land Use 820 - "Shopping Center", Setting/Location - "General Urban/Suburban."

² Internal capture rates obtained using the National Cooperative Highway Research Program (NCHRP 8-51) Internal Trip Capture Estimation Tool.

³ Rates from the ITE *Trip Generation Manual* (10th Edition), Land Use 445 - "Multiplex Movie Theater", Setting/Location - "General Urban/Suburban." Since daily rates were not available for this land use, the daily rates for Land Use 444 - "Movie Theater" were used.

Table 5-B - Project Trip Generation (Alternative II)

Land Use	Units	A.M. Peak Hour			P.M. Peak Hour			Daily
		In	Out	Total	In	Out	Total	
Proposed Project								
Shopping Center	50.00 TSF							
Trips/Unit ¹		0.58	0.36	0.94	1.83	1.98	3.81	37.75
Trip Generation		29	18	47	92	99	191	1,888
Internal Capture ²		0	0	0	(4)	(4)	(8)	(38)
Total External Trips		29	18	47	88	95	183	1,850
Multiplex Movie Theater	14 Screens							
Trips/Unit ³		0.00	0.00	0.00	7.00	6.73	13.73	220.00
Trip Generation		0	0	0	98	94	192	3,080
Internal Capture ²		0	0	0	(4)	(4)	(8)	(38)
Total External Trips		0	0	0	94	90	184	3,042
Total Trip Generation (Proposed Project)		29	18	47	182	185	367	4,892
Existing Uses (to Demolished to Build the New Movie Theater)								
Shopping Center	25.42 TSF							
Trips/Unit ¹		0.58	0.36	0.94	1.83	1.98	3.81	37.75
Trip Generation		15	9	24	47	50	97	959
Internal Capture ²		0	0	0	(2)	(2)	(4)	(19)
Total External Trips		15	9	24	45	48	93	940
Movie Theater	7 Screens							
Trips/Unit ⁴		0.00	0.00	0.00	6.42	8.18	14.60	220.00
Trip Generation		0	0	0	45	57	102	1,540
Internal Capture ²		0	0	0	(2)	(2)	(4)	(19)
Total External Trips		0	0	0	43	55	98	1,521
Total Trip Generation (Existing Uses)		15	9	24	88	103	191	2,461
Net Trip Generation (Proposed Project - Existing Uses)		14	9	23	94	82	176	2,431

Note:

TSF = Thousand Square Feet

¹ Rates from the Institute of Transportation Engineers (ITE) *Trip Generation Manual* (10th Edition), Land Use 820 - "Shopping Center", Setting/Location - "General Urban/Suburban."

² Internal capture rates obtained using the National Cooperative Highway Research Program (NCHRP 8-51) Internal Trip Capture Estimation Tool.

³ Rates from the ITE *Trip Generation Manual* (10th Edition), Land Use 445 - "Multiplex Movie Theater", Setting/Location - "General Urban/Suburban." Since daily rates were not available for this land use, the daily rates for Land Use 444 - "Movie Theater" were used.

⁴ Rates from the ITE *Trip Generation Manual* (10th Edition), Land Use 444 - "Movie Theater", Setting/Location - "General Urban/Suburban."

6.0 TRAFFIC VOLUMES WITH PROJECT SCENARIOS

Existing with project traffic volumes (for Phase I and Phases I and II under Alternative I) were developed by adding corresponding project traffic to the respective without project scenarios. Figure 6-1 illustrates existing with project Phase I peak hour traffic volumes at study intersections. Figure 6-2 illustrates existing with project Phases I and II peak hour traffic volumes at study intersections for Alternative I. Table 6-A illustrates the existing with project daily traffic volumes for Alternative I.

As for Alternative II, a trip distribution and assignment were developed for the existing on-site uses to be demolished. The assignment was carried out following a similar distribution as that for the proposed theater in the alternative. Figure 6-3 illustrates the trip assignment for the demolished uses at the study intersections. These trips were then subtracted from the existing counts and the project traffic for the full project under Alternative II was added to obtain the existing with project traffic volumes for Phases I and II for this alternative. Figure 6-4 illustrates existing with project Phases I and II peak hour traffic volumes at study intersections for Alternative II. Table 6-B illustrates the existing with project daily traffic volumes for Alternative II.

For Alternative I, cumulative with project traffic volumes (for Phases I and II) were developed by adding corresponding project traffic to the without project scenario. For Alternative II, cumulative with project traffic volumes (for Phases I and II) were developed by adding corresponding project traffic to the without project scenario after making necessary adjustments for the traffic from the demolished uses. Figure 6-5 illustrates cumulative with project Phases I and II peak hour traffic volumes at study intersections for Alternative I. Table 6-C illustrates the cumulative with project daily traffic volumes for Alternative I. Figure 6-6 illustrates cumulative with project Phases I and II peak hour traffic volumes at study intersections for Alternative II. Table 6-D illustrates the cumulative with project daily traffic volumes for Alternative II.

Detailed volume development worksheets are included in Appendix B.

6.1 LIST OF CHAPTER 6.0 FIGURES AND TABLES

- Figure 6-1: Existing with Project Phase I Peak Hour Traffic Volumes
- Figure 6-2: Existing with Project Phases I and II Peak Hour Traffic Volumes (Alternative I)
- Figure 6-3: Trip Assignment for Demolished Uses
- Figure 6-4: Existing with Project Phases I and II Peak Hour Traffic Volumes (Alternative II)
- Figure 6-5: Cumulative (2023) with Project Phases I and II Peak Hour Traffic Volumes (Alternative I)
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- Table 6-A: Existing with Project Daily Traffic Volumes (Alternative I)
- Table 6-B: Existing with Project Daily Traffic Volumes (Alternative II)

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- Table 6-C: Cumulative (2023) with Project Daily Traffic Volumes (Alternative I)
 - Table 6-D: Cumulative (2023) with Project Daily Traffic Volumes (Alternative II)

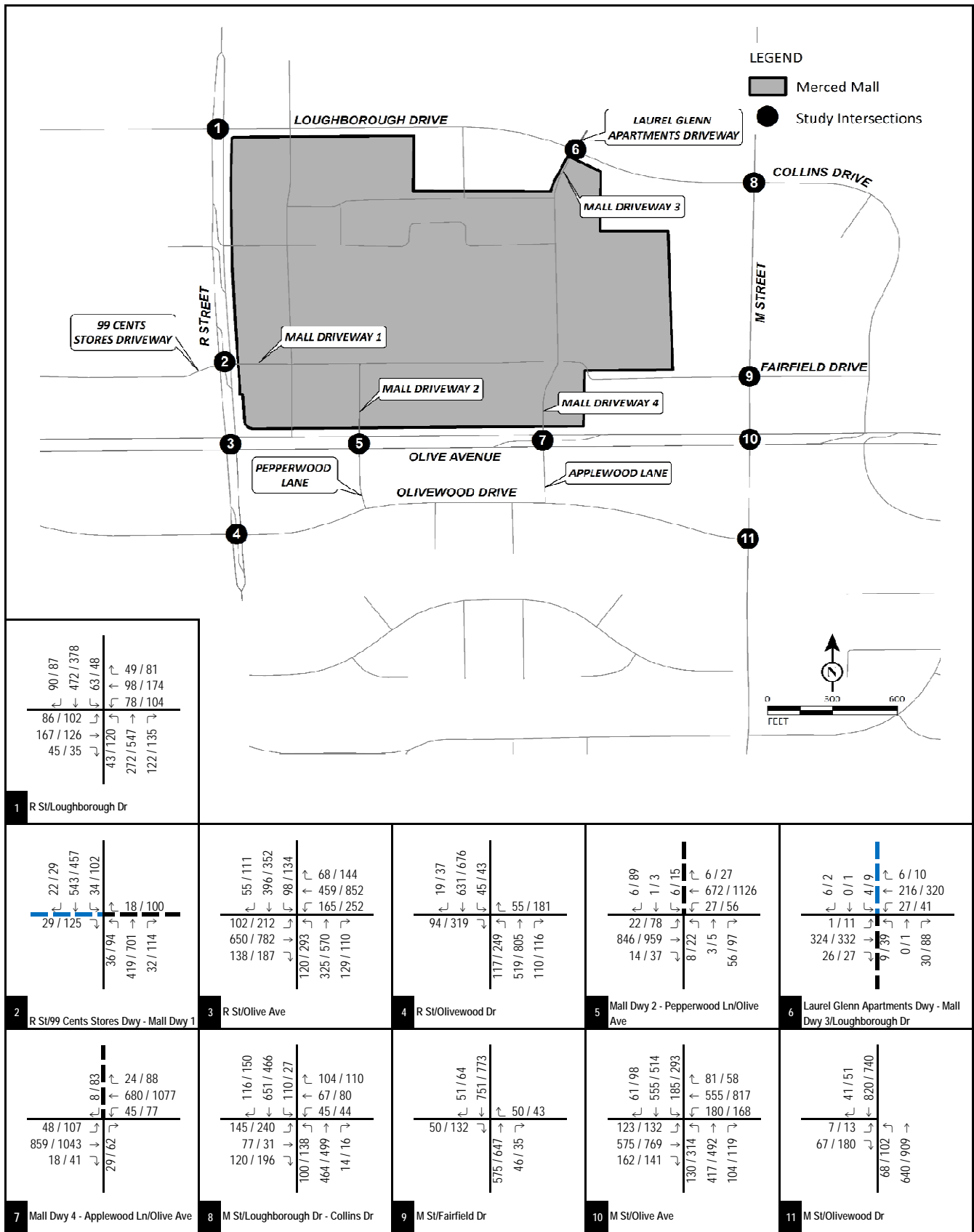


FIGURE 6-1



XXXX / YYYY

AM / PM Peak Hour Traffic Volumes

---- Merced Mall Driveway

----- Other Driveway

Merced Mall Expansion and Redevelopment Project
Traffic Impact Analysis

Existing with Project Phase I Peak Hour Traffic Volumes

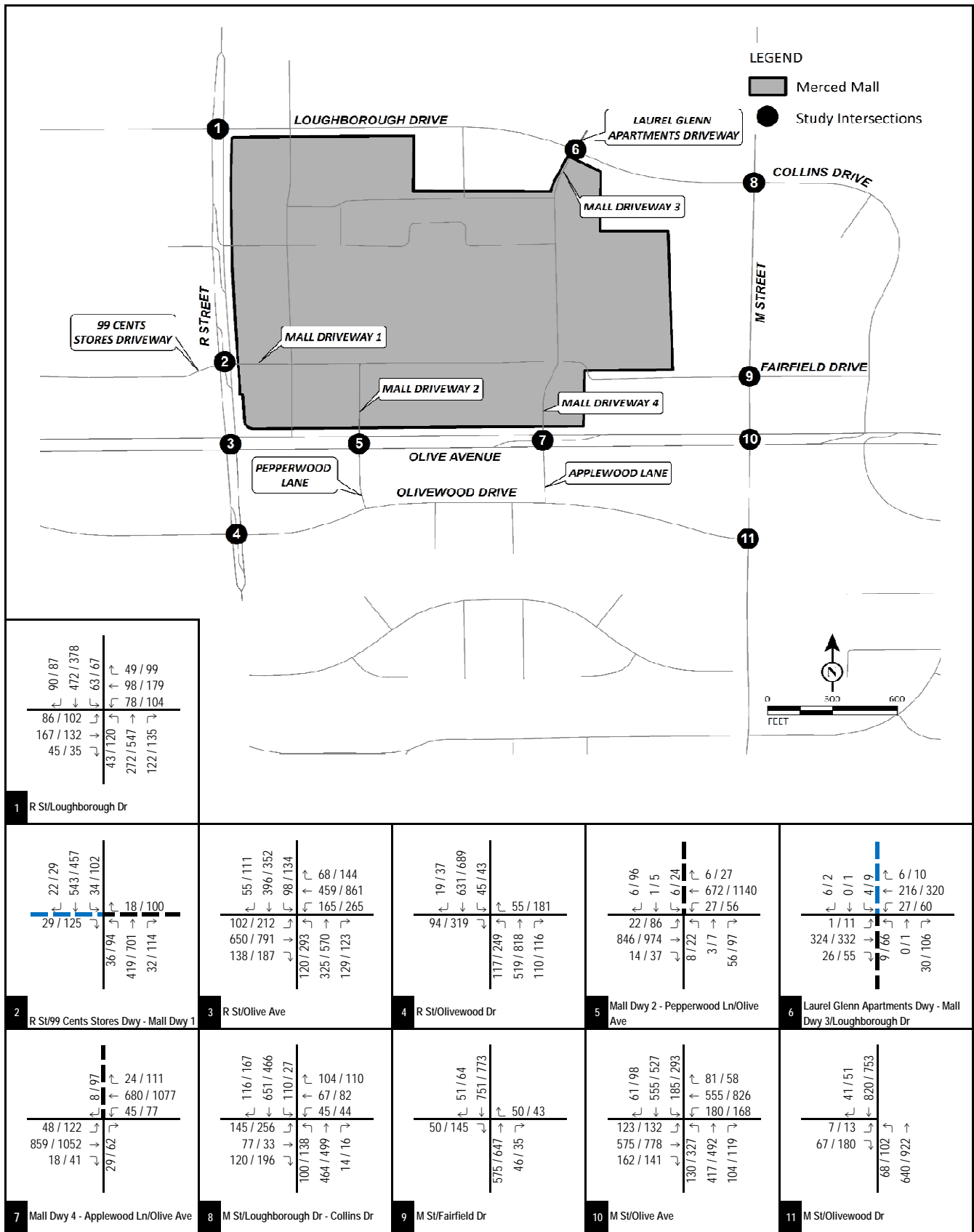


FIGURE 6-2



XXXX / YYYY

AM / PM Peak Hour Traffic Volumes

---- Merced Mall Driveway

----- Other Driveway

Existing with Project Phases I and II Peak Hour Traffic Volumes (Alternative I)

Merced Mall Expansion and Redevelopment Project
Traffic Impact Analysis

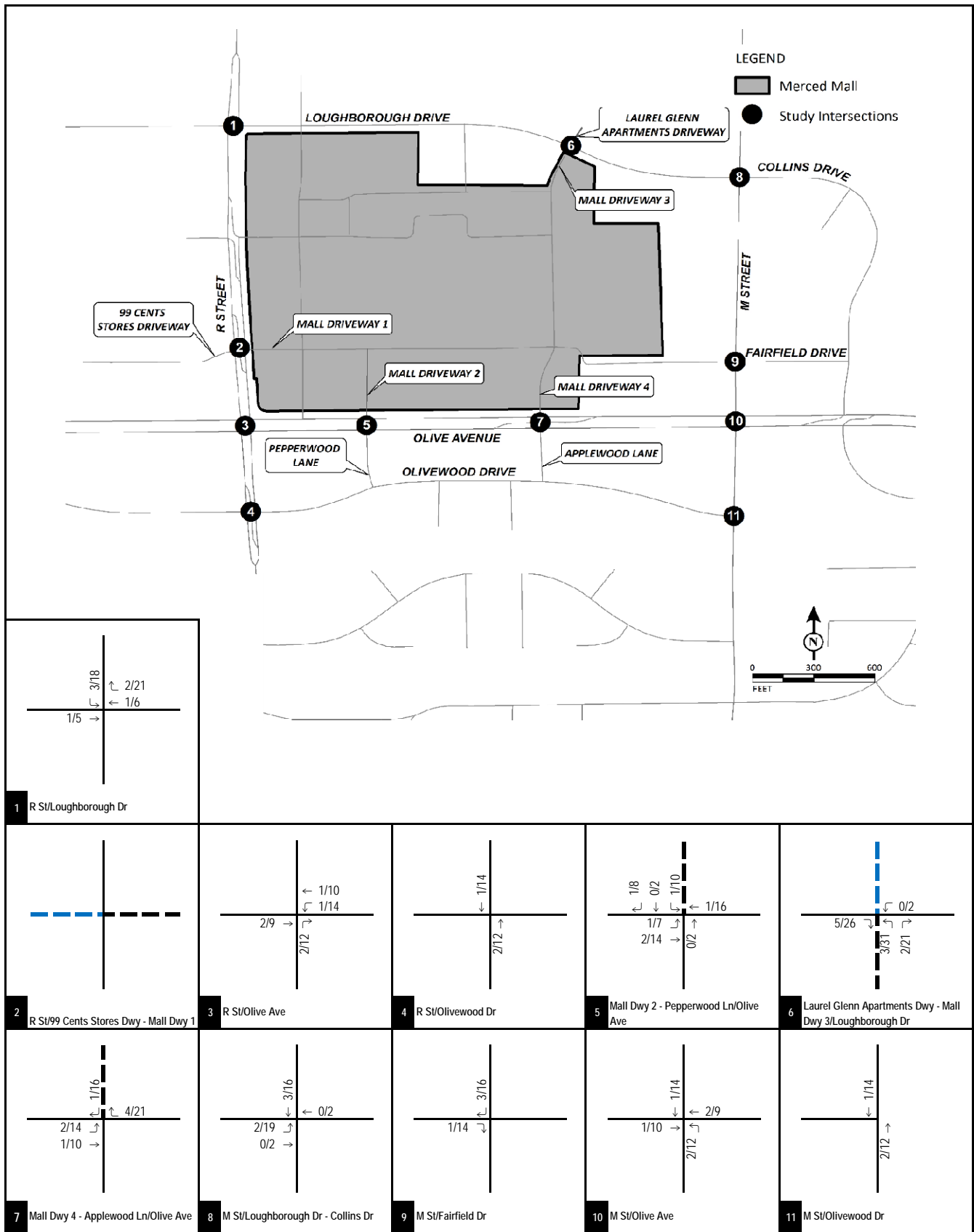


FIGURE 6-3

LSA

XX/YY

AM/PM Peak Hour Traffic Volumes

---- Merced Mall Driveway

----- Other Driveway

Merced Mall Expansion and Redevelopment Project
Traffic Impact Analysis

Trip Assignment for Demolished Uses

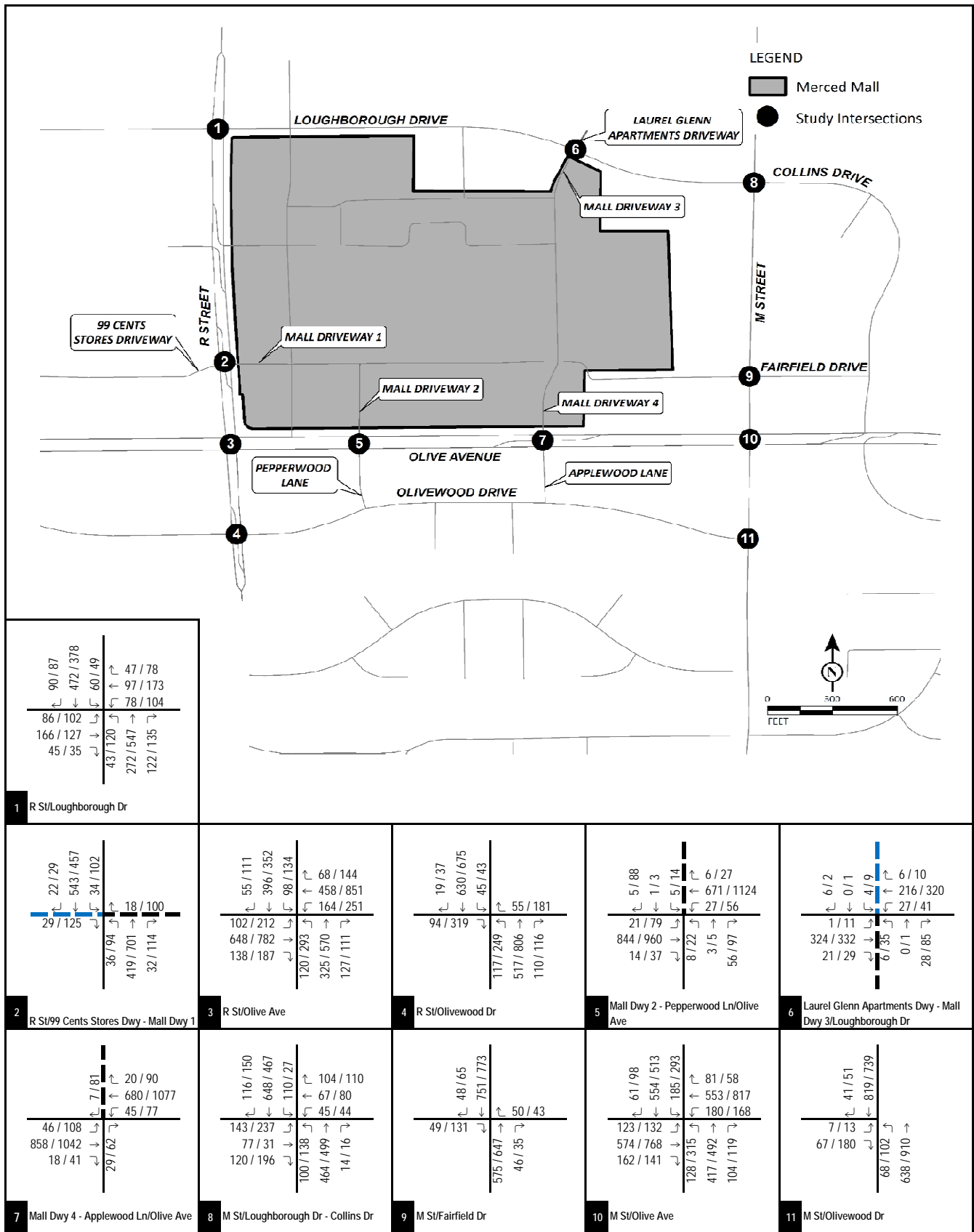


FIGURE 6-4



XXXX / YYYY

AM / PM Peak Hour Traffic Volumes

---- Merced Mall Driveway

----- Other Driveway

Existing with Project Phases I and II Peak Hour Traffic Volumes (Alternative II)

Merced Mall Expansion and Redevelopment Project
Traffic Impact Analysis

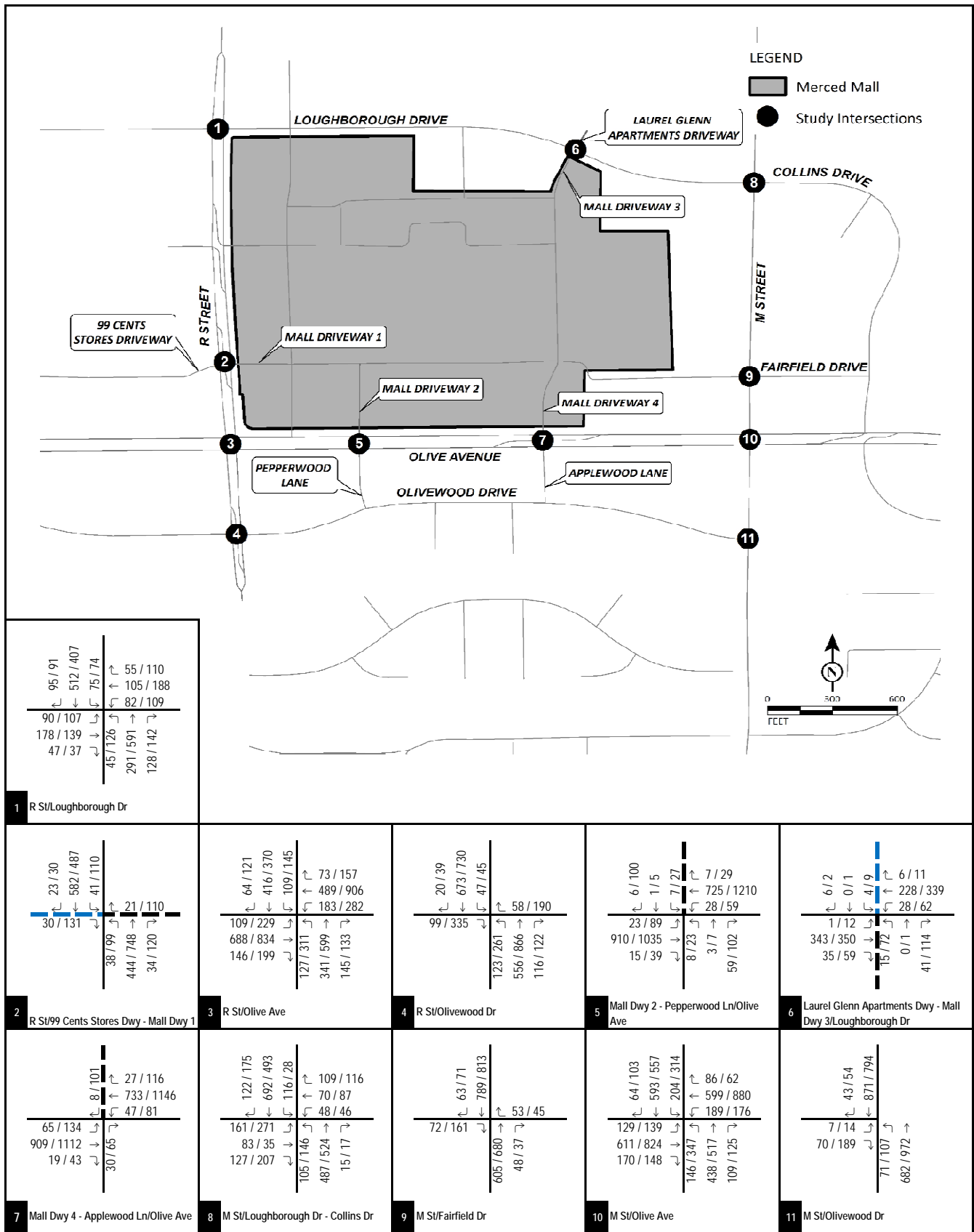


FIGURE 6-5



XXXX / YYYY

AM / PM Peak Hour Traffic Volumes

---- Merced Mall Driveway

----- Other Driveway

Cumulative (2023) with Project Phases I and II Peak Hour Traffic Volumes (Alternative I)

Merced Mall Expansion and Redevelopment Project
Traffic Impact Analysis

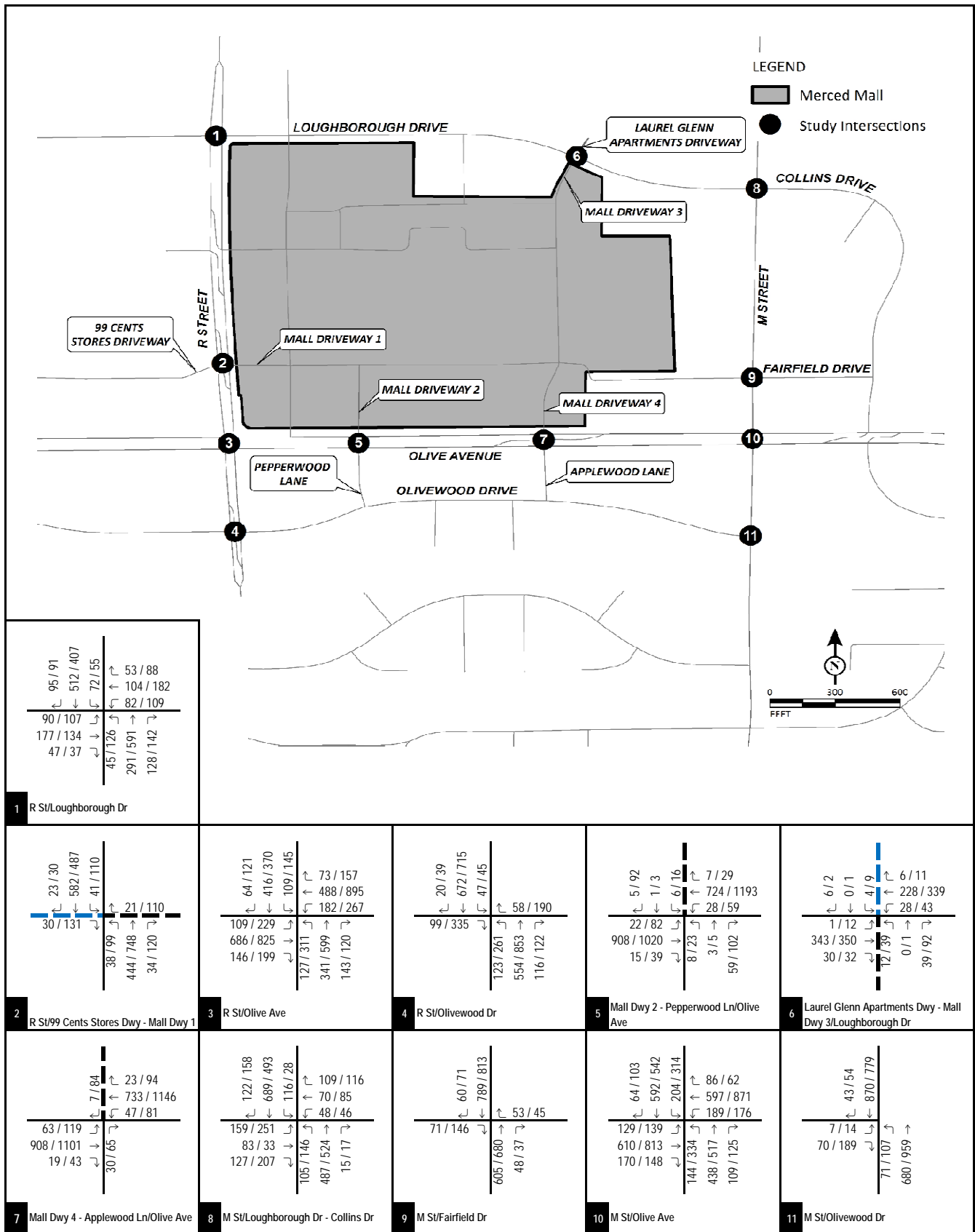


FIGURE 6-6



XXXX / YYYY

AM / PM Peak Hour Traffic Volumes

---- Merced Mall Driveway

----- Other Driveway

Cumulative (2023) with Project Phases I and II Peak Hour Traffic Volumes (Alternative II)

Merced Mall Expansion and Redevelopment Project
Traffic Impact Analysis

Table 6-A - Existing with Project Daily Traffic Volumes (Alternative I)

Roadway	#	Segment	Existing ADT	Phase I Project Trips	Existing With Project Phase I ADT	Phase II Project Trips	Existing With Project Phases I + II ADT
Olivewood Drive	1	Olivewood Drive, between Meadows Avenue and R Street	6,216	0	6,216	0	6,216
	2	Olivewood Drive, between R Street and M Street	3,640	0	3,640	0	3,640
R Street	3	R Street, between Loughborough Drive and Olive Avenue	18,843	370	19,213	0	19,213
Loughborough Drive	4	Loughborough Drive, between R Street and M Street	8,377	205	8,582	912	9,494
Olive Avenue	5	Olive Avenue, between R Street and M Street	28,460	446	28,906	730	29,636
M Street	6	M Street, between Loughborough Drive/Collins Drive and Olive Avenue	18,226	167	18,393	213	18,606

Table 6-B - Existing with Project Daily Traffic Volumes (Alternative II)

Roadway	#	Segment	Existing ADT	Phase I Project Trips	Existing With Project Phase I ADT	Phase II Project Trips	Demolished Uses Trip Adjustment	Existing With Project Phases I + II ADT
Olivewood Drive	1	Olivewood Drive, between Meadows Avenue and R Street	6,216	0	6,216	0	0	6,216
	2	Olivewood Drive, between R Street and M Street	3,640	0	3,640	0	0	3,640
R Street	3	R Street, between Loughborough Drive and Olive Avenue	18,843	370	19,213	0	0	19,213
Loughborough Drive	4	Loughborough Drive, between R Street and M Street	8,377	205	8,582	912	(271)	9,223
Olive Avenue	5	Olive Avenue, between R Street and M Street	28,460	446	28,906	730	(418)	29,218
M Street	6	M Street, between Loughborough Drive/Collins Drive and Olive Avenue	18,226	167	18,393	274	(172)	18,495

Table 6-C - Cumulative (2023) with Project Daily Traffic Volumes (Alternative I)

Roadway	#	Segment	Cumulative Without Project	Phases I + II Project Trips	Cumulative With Project Phases I + II
Olivewood Drive	1	Olivewood Drive, between Meadows Avenue and R Street	6,527	0	6,527
	2	Olivewood Drive, between R Street and M Street	3,822	0	3,822
R Street	3	R Street, between Loughborough Drive and Olive Avenue	20,141	370	20,511
Loughborough Drive	4	Loughborough Drive, between R Street and M Street	9,008	1,117	10,125
Olive Avenue	5	Olive Avenue, between R Street and M Street	30,326	1,176	31,502
M Street	6	M Street, between Loughborough Drive/Collins Drive and Olive Avenue	19,331	380	19,711

Table 6-D - Cumulative (2023) with Project Daily Traffic Volumes (Alternative II)

Roadway	#	Segment	Cumulative Without Project	Demolished Uses Trip Adjustment	Phases I + II Project Trips	Cumulative With Project Phases I + II
Olivewood Drive	1	Olivewood Drive, between Meadows Avenue and R Street	6,527	0	0	6,527
	2	Olivewood Drive, between R Street and M Street	3,822	0	0	3,822
R Street	3	R Street, between Loughborough Drive and Olive Avenue	20,141	0	370	20,511
Loughborough Drive	4	Loughborough Drive, between R Street and M Street	9,008	(285)	1,117	9,840
Olive Avenue	5	Olive Avenue, between R Street and M Street	30,326	(439)	1,176	31,063
M Street	6	M Street, between Loughborough Drive/Collins Drive and Olive Avenue	19,331	(181)	441	19,592

7.0 INTERSECTION AND ROADWAY SEGMENT LEVELS OF SERVICE

7.1 EXISTING LEVELS OF SERVICE

Previously referenced Figure 3-1 illustrates existing geometrics and traffic control. An intersection LOS analysis was conducted for existing conditions using the methodologies previously discussed. Table 7-A summarizes the results of this analysis and shows that the intersection of Mall Driveway 2 – Pepperwood Lane/Olive Avenue operates at an unsatisfactory LOS in the p.m. peak hour under existing without project conditions. All other study intersections operate at a satisfactory LOS and there is no significant delay at any of the signalized intersections.

Action T-1.8.c of the General Plan¹ stated in the “Analysis Methodology” section of this report is intended for signalized intersections. The intersection of Mall Driveway 2–Pepperwood Lane/Olive Avenue is an unsignalized intersection. The unsatisfactory LOS at this intersection is a result of the delays on the stop-controlled minor street (Mall Driveway 2 and Pepperwood Lane) approaches. The traffic on the major street (Olive Avenue) is unobstructed and unaffected by changes to either minor street approach. The minor street contributes less than 10 percent of the total traffic at this intersection in the p.m. peak hour. The minor street traffic can be diverted to other routes such as R Street if the delay is excessive, which possibly occurs today. Because the major street has unimpeded through movements and low delays, the impact at the intersection of Mall Driveway 2 – Pepperwood Lane/Olive Avenue would not be considered a significant CEQA impact.

A roadway segment LOS analysis was conducted using the methodologies previously discussed. The levels of service were calculated using the criteria contained in the “Analysis Methodology” section of this report. Table 7-B summarizes the results of this analysis and shows that all roadway segments are currently operating at a satisfactory LOS under existing without project conditions.

Detailed Level of Service Worksheets are included in Appendix D.

7.2 EXISTING WITH PROJECT LEVELS OF SERVICE

Analysis of the existing with project scenario is provided for CEQA compliance to identify direct project impacts if the project were to be built and in operation today. This scenario does not include traffic from ambient growth or other cumulative projects.

An intersection level of service analysis was conducted for existing with project conditions (Phase I, and Phases I and II under both alternatives) to determine intersection performance. Tables 7-A and 7-C summarize the results of the analysis for existing with project Phase I and existing with project Phases I and II (for both alternatives), respectively. As shown in Tables 7-A and 7-C, the intersection of Mall Driveway 2–Pepperwood Lane/Olive Avenue is forecast to operate at an unsatisfactory LOS in the p.m. peak hour under all existing with project conditions. As stated above, since the major street has unimpeded through movements and low delays, the impact at this intersection would not be considered a significant CEQA impact. All other study intersections operate at a satisfactory LOS and no significant delay is forecast at any of the signalized intersections.

¹ City of Merced, January 2012. *Merced Vision 2030 General Plan*.

A roadway segment LOS analysis was conducted using the methodologies previously discussed. Tables 7-B and 7-D summarize the results of the analysis for existing with project Phase I and existing with project Phases I and II (for both alternatives), respectively. As shown in Tables 7-B and 7-D, all roadway segments are forecast to operate at a satisfactory LOS under existing with project conditions (Phase I, and Phases I and II under both alternatives).

Detailed LOS worksheets are included in Appendix D.

7.3 CUMULATIVE (2023) WITHOUT PROJECT LEVELS OF SERVICE

An intersection level of service analysis was conducted for cumulative without project conditions using the previously discussed methodologies. Table 7-E summarizes the results of this analysis and shows that the intersection of Mall Driveway 2–Pepperwood Lane/Olive Avenue is forecast to operate at an unsatisfactory LOS in the p.m. peak hour under all cumulative without project conditions. As stated above, since the major street has unimpeded through movements and low delays, the project contribution to the impact at this intersection would not be considered a significant CEQA impact. All other study intersections operate at a satisfactory LOS and no significant delay is forecast at any of the signalized intersections.

A roadway segment LOS analysis was conducted using the methodologies previously discussed. Table 7-F summarizes the results of the analysis and shows that all roadway segments are forecast to operate at a satisfactory LOS under cumulative without conditions.

Detailed LOS worksheets are included in Appendix D.

7.4 CUMULATIVE (2023) WITH PROJECT LEVELS OF SERVICE

An intersection level of service analysis was conducted for cumulative with project conditions (Phases I and II under both alternatives) using the previously discussed methodologies. Table 7-E summarizes the results of this analysis and shows that the intersection of Mall Driveway 2–Pepperwood Lane/Olive Avenue is forecast to operate at an unsatisfactory LOS in the p.m. peak hour under cumulative with project conditions (Phases I and II) for both alternatives. As stated above, since the major street has unimpeded through movements and low delays, the project contribution to the impact at this intersection would not be considered a significant CEQA impact. All other study intersections operate at a satisfactory LOS and no significant delay is forecast at any of the signalized intersections.

A roadway segment LOS analysis was conducted using the methodologies previously discussed. Table 7-F summarizes the results of the analysis and shows that all roadway segments are forecast to operate at a satisfactory LOS under cumulative with project conditions (Phases I and II under both alternatives).

Detailed LOS worksheets are included in Appendix D.

7.5 LIST OF CHAPTER 7.0 TABLES

- Table 7-A: Existing Intersection Levels of Service (Project Phase I)

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- Table 7-B: Existing Roadway Segment Levels of Service (Project Phase I)
 - Table 7-C: Existing Intersection Levels of Service (Project Alternatives I and II)
 - Table 7-D: Existing Roadway Segment Levels of Service (Project Alternatives I and II)
 - Table 7-E: Cumulative (2023) Intersection Levels of Service (Project Alternatives I and II)
 - Table 7-F: Cumulative (2023) Roadway Segment Levels of Service (Project Alternatives I and II)

Table 7-A - Existing Intersection Levels of Service (Project Phase I)

Intersection	Control	Without Project				With Project Phase I				Significant Impact
		A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour		
		Delay (sec.)	LOS	Delay (sec.)	LOS	Delay (sec.)	LOS	Delay (sec.)	LOS	
1 . R Street/Loughborough Drive	Signal	30.2	C	32.8	C	30.3	C	33.0	C	No
2 . R Street/99 Cents Stores Driveway - Mall Driveway 1	TWSC	9.2	A	10.1	B	9.2	A	10.2	B	No
3 . R Street/Olive Avenue	Signal	30.0	C	38.1	D	30.1	C	38.5	D	No
4 . R Street/Olivewood Drive	TWSC	10.8	B	13.9	B	10.9	B	14.0	B	No
5 . Mall Driveway 2 - Pepperwood Lane/Olive Avenue	TWSC	27.2	D	63.5	F	25.3	D	>100	F	No
6 . Laurel Glenn Apartments Driveway - Mall Driveway 3/Loughborough Drive	TWSC	12.7	B	18.3	C	12.8	B	19.2	C	No
7 . Mall Driveway 4 - Applewood Lane/Olive Avenue	TWSC	10.5	B	12.4	B	10.5	B	12.7	B	No
8 . M Street/Loughborough Drive - Collins Drive	Signal	25.3	C	28.0	C	25.6	C	29.0	C	No
9 . M Street/Fairfield Drive	TWSC	11.9	B	11.3	B	11.9	B	11.3	B	No
10 . M Street/Olive Avenue	Signal	37.1	D	42.8	D	37.2	D	43.7	D	No
11 . M Street/Olivewood Drive	OWSC	26.0	D	27.8	D	26.4	D	28.9	D	No

Notes:

OWSC = One-Way Stop Control; TWSC = Two-Way Stop Control

Delay = Average control delay in seconds (For OWSC and TWSC intersections, reported delay is for worst-case movement).

LOS = Level of Service

For intersections 5 and 7, Synchro did not report an LOS, as HCM 6 does not recognize more than three through lanes on major street approaches for TWSC. Hence, these two intersections were analyzed using Traffix, using HCM 2000 methodologies.

For the intersection of Mall Driveway 2- Pepperwood Lane/Olive Avenue, the unsatisfactory LOS is a result of the delays on the stop-controlled minor street (Mall Driveway 2 and Pepperwood Lane) approaches. The minor streets contribute less than 10 percent of the total traffic at the intersection in the p.m. peak hour. The minor street traffic can be diverted to other routes such as R Street if the delay is excessive, which possibly occurs today. Since the major street (Olive Avenue) has unimpeded through movements and low delays, the impact at this intersection is not considered a significant CEQA impact.

Table 7-B - Existing Roadway Segment Levels of Service (Project Phase I)

Roadway	#	Segment	Existing Condition Number of Lanes	Functional Classification ¹	Roadway Capacity ²	Without Project Conditions		With Project Phase I Conditions	
						Daily Volume	LOS	Daily Volume	LOS
Olivewood Drive	1	Olivewood Drive, between Meadows Avenue and R Street	2	2-Lane Local Street	13,200	6,220	D	6,220	D
	2	Olivewood Drive, between R Street and M Street	2	2-Lane Local Street	13,200	3,640	C	3,640	C
R Street	3	R Street, between Loughborough Drive and Olive Avenue	4	4-Lane Minor Arterial	35,400	18,850	C	19,220	C
Loughborough Drive	4	Loughborough Drive, between R Street and M Street	2	2-Lane Collector Street	13,200	8,380	D	8,590	D
Olive Avenue	5	Olive Avenue, between R Street and M Street	7	7-Lane Divided Arterial	62,100	28,460	C	28,910	C
M Street	6	M Street, between Loughborough Drive/Collins Drive and Olive Avenue	4	4-Lane Minor Arterial	35,400	18,230	C	18,400	C

Notes:

LOS = Level of Service

¹Functional Classification obtained from the Merced Vision 2030 General Plan, dated January 2012.

²Roadway Capacity obtained from the Merced Vision 2030 General Plan, dated January 2012; since no capacities were available for Local Streets, the capacities for Collectors were used instead. For both Minor and Divided Arterials, capacities for Arterials were used since capacities for these two functional classifications are not available.

Table 7-C - Existing Intersection Levels of Service (Project Alternatives I and II)

Intersection	Control	Without Project				With Project Phases I+II (Alternative I)				With Project Phases I+II (Alternative II)				Significant Impact
		A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour		
		Delay (sec.)	LOS	Delay (sec.)	LOS	Delay (sec.)	LOS	Delay (sec.)	LOS	Delay (sec.)	LOS	Delay (sec.)	LOS	
1 . R Street/Loughborough Drive	Signal	30.2	C	32.8	C	30.3	C	32.8	C	30.7	C	31.7	C	No
2 . R Street/99 Cents Stores Driveway - Mall Driveway 1	TWSC	9.2	A	10.1	B	9.2	A	10.2	B	9.2	A	10.2	B	No
3 . R Street/Olive Avenue	Signal	30.0	C	38.1	D	30.1	C	38.9	D	28.9	C	35.3	D	No
4 . R Street/Olivewood Drive	TWSC	10.8	B	13.9	B	10.9	B	14.1	B	10.9	B	14.0	B	No
5 . Mall Driveway 2 - Pepperwood Lane/Olive Avenue	TWSC	27.2	D	63.5	F	25.3	D	>100	F	25.4	D	>100	F	No
6 . Laurel Glenn Apartments Driveway - Mall Driveway 3/Loughborough Drive	TWSC	12.7	B	18.3	C	12.8	B	22.0	C	12.8	B	19.5	C	No
7 . Mall Driveway 4 - Applewood Lane/Olive Avenue	TWSC	10.5	B	12.4	B	10.5	B	13.2	B	10.5	B	12.7	B	No
8 . M Street/Loughborough Drive - Collins Drive	Signal	25.3	C	28.0	C	25.6	C	29.9	C	34.4	C	37.2	D	No
9 . M Street/Fairfield Drive	TWSC	11.9	B	11.3	B	11.9	B	11.3	B	11.9	B	11.3	B	No
10 . M Street/Olive Avenue	Signal	37.1	D	42.8	D	37.2	D	43.9	D	37.0	D	40.1	D	No
11 . M Street/Olivewood Drive	OWSC	26.0	D	27.8	D	26.4	D	30.0	D	26.2	D	29.2	D	No

Notes:

OWSC = One-Way Stop Control; TWSC = Two-Way Stop Control

Delay = Average control delay in seconds (For OWSC and TWSC intersections, reported delay is for worst-case movement).

LOS = Level of Service

For intersections 5 and 7, Synchro did not report an LOS, as HCM 6 does not recognize more than three through lanes on major street approaches for TWSC. Hence, these two intersections were analyzed using Traffix, using HCM 2000 methodologies.

For the intersection of Mall Driveway 2 - Pepperwood Lane/Olive Avenue, the unsatisfactory LOS is a result of the delays on the stop-controlled minor street (Mall Driveway 2 and Pepperwood Lane) approaches. The minor streets contribute less than 10 percent of the total traffic at the intersection in the p.m. peak hour. The minor street traffic can be diverted to other routes such as R Street if the delay is excessive, which possibly occurs today. Since the major street (Olive Avenue) has unimpeded through movements and low delays, the impact at this intersection is not considered a significant CEQA impact.

Table 7-D - Existing Roadway Segment Levels of Service (Project Alternatives I and II)

Roadway	#	Segment	Existing Condition Number of Lanes	Functional Classification ¹	Roadway Capacity ²	With Project Phase I Conditions		With Project Phases I + II Conditions - Alternative I		With Project Phases I + II Conditions - Alternative II	
						Daily Volume	LOS	Daily Volume	LOS	Daily Volume	LOS
						Olivewood Drive	1	Olivewood Drive, between Meadows Avenue and R Street	2	2-Lane Local Street	13,200
	2	Olivewood Drive, between R Street and M Street	2	2-Lane Local Street	13,200	3,640	C	3,640	C	3,640	C
R Street	3	R Street, between Loughborough Drive and Olive Avenue	4	4-Lane Minor Arterial	35,400	19,220	C	19,220	C	19,220	C
Loughborough Drive	4	Loughborough Drive, between R Street and M Street	2	2-Lane Collector Street	13,200	8,590	D	9,500	D	9,230	D
Olive Avenue	5	Olive Avenue, between R Street and M Street	7	7-Lane Divided Arterial	62,100	28,910	C	29,640	C	29,220	C
M Street	6	M Street, between Loughborough Drive/Collins Drive and Olive Avenue	4	4-Lane Minor Arterial	35,400	18,400	C	18,610	C	18,500	C

Notes:

LOS = Level of Service

¹Functional Classification obtained from the Merced Vision 2030 General Plan, dated January 2012.

²Roadway Capacity obtained from the Merced Vision 2030 General Plan, dated January 2012; since no capacities were available for Local Streets, the capacities for Collectors were used instead. For both Minor and Divided Arterials, capacities for Arterials were used since capacities for these two functional classifications are not available.

Table 7-E - Cumulative Intersection Levels of Service (Project Alternatives I and II)

Intersection	Control	Without Project				With Project Phases I+II (Alternative I)				With Project Phases I+II (Alternative II)				Significant Impact
		A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour		
		Delay (sec.)	LOS	Delay (sec.)	LOS	Delay (sec.)	LOS	Delay (sec.)	LOS	Delay (sec.)	LOS	Delay (sec.)	LOS	
1 . R Street/Loughborough Drive	Signal	30.7	C	33.0	C	30.8	C	33.0	C	31.5	C	31.7	C	No
2 . R Street/99 Cents Stores Driveway - Mall Driveway 1	TWSC	9.2	A	10.1	B	9.2	A	10.3	B	9.2	A	10.3	B	No
3 . R Street/Olive Avenue	Signal	30.7	C	39.6	D	30.8	C	40.3	D	30.0	C	37.2	D	No
4 . R Street/Olivewood Drive	TWSC	11.1	B	14.6	B	11.1	B	14.9	B	11.1	B	14.7	B	No
5 . Mall Driveway 2 - Pepperwood Lane/Olive Avenue	TWSC	32.6	D	>100	F	30.4	D	>100	F	30.5	D	>100	F	No
6 . Laurel Glenn Apartments Driveway - Mall Driveway 3/Loughborough Drive	TWSC	13.7	B	20.0	C	13.9	B	24.4	C	13.6	B	20.9	C	No
7 . Mall Driveway 4 - Applewood Lane/Olive Avenue	TWSC	10.7	B	13.2	B	10.7	B	14.2	B	10.7	B	13.6	B	No
8 . M Street/Loughborough Drive - Collins Drive	Signal	27.7	C	28.1	C	28.0	C	30.0	C	36.9	D	37.3	D	No
9 . M Street/Fairfield Drive	TWSC	12.2	B	11.4	B	12.2	B	11.4	B	12.2	B	11.4	B	No
10 . M Street/Olive Avenue	Signal	38.4	D	44.8	D	38.6	D	47.2	D	38.9	D	43.3	D	No
11 . M Street/Olivewood Drive	OWSC	28.4	D	30.2	D	28.6	D	32.9	D	28.6	D	31.3	D	No

Notes:

OWSC = One-Way Stop Control; TWSC = Two-Way Stop Control

Delay = Average control delay in seconds (For OWSC and TWSC intersections, reported delay is for worst-case movement).

LOS = Level of Service

For intersections 5 and 7, Synchro did not report an LOS, as HCM 6 does not recognize more than three through lanes on major street approaches for TWSC. Hence, these two intersections were analyzed using Traffix, using HCM 2000 methodologies.

For the intersection of Mall Driveway 2- Pepperwood Lane/Olive Avenue, the unsatisfactory LOS is a result of the delays on the stop-controlled minor street (Mall Driveway 2 and Pepperwood Lane) approaches. The minor streets contribute less than 10 percent of the total traffic at the intersection in the p.m. peak hour. The minor street traffic can be diverted to other routes such as R Street if the delay is excessive, which possibly occurs today. Since the major street (Olive Avenue) has unimpeded through movements and low delays, the impact at this intersection is not considered a significant CEQA impact.

Table 7-F - Cumulative (2023) Roadway Segment Levels of Service (Project Alternatives I and II)

Roadway	#	Segment	Existing Condition Number of Lanes	Functional Classification ¹	Roadway Capacity ²	With Project Phases I + II Conditions - Alternative I		With Project Phases I + II Conditions - Alternative II	
						Daily Volume	LOS	Daily Volume	LOS
Olivewood Drive	1	Olivewood Drive, between Meadows Avenue and R Street	2	2-Lane Local Street	13,200	6,530	D	6,530	D
	2	Olivewood Drive, between R Street and M Street	2	2-Lane Local Street	13,200	3,830	C	3,830	C
R Street	3	R Street, between Loughborough Drive and Olive Avenue	4	4-Lane Minor Arterial	35,400	20,520	C	20,520	C
Loughborough Drive	4	Loughborough Drive, between R Street and M Street	2	2-Lane Collector Street	13,200	10,130	D	9,850	D
Olive Avenue	5	Olive Avenue, between R Street and M Street	7	7-Lane Divided Arterial	62,100	31,510	C	31,070	C
M Street	6	M Street, between Loughborough Drive/Collins Drive and Olive Avenue	4	4-Lane Minor Arterial	35,400	19,720	C	19,600	C

Notes:

LOS = Level of Service

¹Functional Classification obtained from the Merced Vision 2030 General Plan, dated January 2012.

²Roadway Capacity obtained from the Merced Vision 2030 General Plan, dated January 2012; since no capacities were available for Local Streets, the capacities for Collectors were used instead. For both Minor and Divided Arterials, capacities for Arterials were used since capacities for these two functional classifications are not available.

8.0 VMT EVALUATION

8.1 BACKGROUND

Senate Bill (SB) 743 (Steinberg 2013) was approved by Governor Brown on September 27, 2013. SB 743 created a path to revise the definition of transportation impacts according to CEQA. As the guidelines are proposed today, CEQA transportation impacts are determined using LOS of intersections and roadways, which is a measure of congestion. The intent of SB 743 is to align CEQA transportation study methodology with and promote the statewide goals and policies for reducing vehicle miles traveled (VMT) and greenhouse gases (GHG). Three objectives of SB 743 related to development are to reduce GHG, diversify land uses, and focus on creating a multimodal environment. It is hoped that this will spur infill development.

The *Technical Advisory on Evaluating Transportation Impacts in CEQA* (Technical Advisory; dated April 2018), circulated by the Governor’s Office of Planning and Research (OPR), acknowledges that lead agencies should set criteria and thresholds for VMT and transportation impacts. However, the Technical Advisory provides guidance below to residential, office, and retail uses, citing these as the most common land uses. Beyond these three land uses, there is no guidance provided for any other land use type.

Land Use	Significance Threshold
Residential	15% below existing regional or city VMT per capita
Office	15% below existing regional VMT per employee
Retail	Net increase in total VMT

Figure 1: Source: Office of Planning and Research. 2018. *Technical Advisory on Evaluating Transportation Impacts in CEQA*. April.

Figure 2: VMT = vehicle miles traveled

The Technical Advisory also notes that land uses may have a less-than-significant impact if located within low VMT areas of a region. Screening maps are suggested for this determination.

8.2 EVALUATION

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

The definition of the region is left to the discretion of the practitioner or the lead agency. The Technical Advisory suggests that, generally, lead agencies should analyze the effects of a retail project by assessing the change in total VMT because retail projects typically re-route travel from other retail destinations. By adding retail opportunities and improving retail destination proximity, local-serving retail development tends to shorten trips and reduce VMT.

Generally, retail development larger than 50,000 sf could be considered regional serving, but other factors, including but not limited to the following, should also be considered:

- Service Area – The Merced Mall serves the area residents and surrounding neighborhoods. Although the occasional visitor may originate from outside the Merced vicinity, it is unlikely that the project would attract regular customers from other cities (such as Modesto, Turlock, or Fresno) that already have similar retail opportunities.
- Existing Use – The Merced Mall (and a 7-screen movie theater) currently exists and already generates customer demand. Although the proposed project would renovate and provide additional use on site (i.e., ranging from 24,580 sf to 50,000 sf of retail use and 7 to 14 movie screens), the project could be considered an amenity to the existing mall.

As the project is within a defined service area and the project is a modest expansion of an existing use serving an expanding population, it is likely that the project would not add VMT per capita or service population to the region.

In the near future, the City may wish to coordinate with the regional agency (MCAG) and develop criteria and thresholds that balance the direction from OPR and the goals of SB 743 with the vision for Merced and economic development, affordable housing, access to goods and services, and overall quality of life.

9.0 SUMMARY AND CONCLUSIONS

The proposed Merced Mall Expansion and Redevelopment Project includes an increase of the leasable retail area on the project site by 50,000 square feet in Phase I and the development of an at-grade 72,000-square foot new movie theater at one of two possible on-site locations in Phase II. In Alternative I, the theater would be added to an existing shopping center building. In Alternative II, the theater would be added by demolishing an existing theater and two retail stores located along the eastern boundary of the project site. When complete, the proposed project is forecast to generate a total of 4,892 daily trips with 47 trips occurring in the a.m. peak hour and 367 trips occurring in the p.m. peak hour. However, for Alternative II, adjustments were made for the trips generated by the existing uses. As such, under this alternative, the project is anticipated to generate 2,431 net daily trips, with 23 trips occurring during the a.m. peak hour and 176 trips occurring during the p.m. peak hour.

The TIA included analysis of 11 intersections and six roadway segments adjacent to the project site. Seven conditions were examined in the TIA: existing, existing plus project Phase I, existing plus project Phases I and II Alternative I, existing plus project Phases I and II Alternative II, cumulative, cumulative plus project Phases I and II Alternative I, and cumulative plus project Phases I and II Alternative II. The study intersection of Mall Driveway 2–Pepperwood Lane/Olive Avenue is forecast to operate at an unsatisfactory LOS in all scenarios. However, since the major street (Olive Avenue) at this intersection has unimpeded through movements and low delays, the impact at this intersection would not be considered a significant CEQA impact. All other study intersections are forecast to operate at a satisfactory LOS in all scenarios and no significant delay is forecast at any of the signalized intersections. Therefore, no mitigation measures are required.

Based on the existing mall location and its defined service area, it is likely that the project would not add VMT per capita to the region. The City could coordinate with MCAG on the future development of VMT criteria and thresholds that balance the visions and goals of both Merced and SB 743.

APPENDIX A:

TRAFFIC COUNT SHEETS

National Data & Surveying Services

Intersection Turning Movement Count

Location: R St & Loughborough Dr
 City: Merced
 Control: Signalized

Project ID: 18-07228-002
 Date: 6/5/2018

Total

NS/EW Streets:	R St				R St				Loughborough Dr				Loughborough Dr					
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL	
	1 NL	2 NT	1 NR	0 NU	1 SL	2 ST	0 SR	0 SU	1 EL	1 ET	0 ER	0 EU	1 WL	1 WT	1 WR	0 WU		
7:00 AM	3	41	7	3	3	56	8	0	17	17	6	0	6	10	13	0	190	
7:15 AM	1	56	9	0	11	94	28	0	40	25	7	0	16	24	10	0	321	
7:30 AM	4	62	33	2	15	130	29	0	31	43	11	0	28	24	10	0	422	
7:45 AM	7	74	37	3	21	130	18	2	21	62	19	0	16	27	16	0	453	
8:00 AM	13	60	16	3	14	100	18	1	15	34	3	0	17	23	12	0	329	
8:15 AM	8	68	34	2	7	106	25	3	19	26	12	0	17	23	11	0	361	
8:30 AM	10	59	22	2	14	85	15	0	21	23	8	0	25	29	9	0	322	
8:45 AM	5	69	26	3	19	88	15	2	18	22	15	0	16	15	18	0	331	
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL	
	51	489	184	18	104	789	156	8	182	252	81	0	141	175	99	0	2729	
APPROACH %'s :	6.87%	65.90%	24.80%	2.43%	9.84%	74.65%	14.76%	0.76%	35.34%	48.93%	15.73%	0.00%	33.98%	42.17%	23.86%	0.00%		
PEAK HR :	07:30 AM - 08:30 AM																	
PEAK HR VOL :	32	264	120	10	57	466	90	6	86	165	45	0	78	97	49	0	1565	
PEAK HR FACTOR :	0.615	0.892	0.811	0.833	0.679	0.896	0.776	0.500	0.694	0.665	0.592	0.000	0.696	0.898	0.766	0.000	0.864	
	0.880				0.889				0.725				0.903					
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL	
	1 NL	2 NT	1 NR	0 NU	1 SL	2 ST	0 SR	0 SU	1 EL	1 ET	0 ER	0 EU	1 WL	1 WT	1 WR	0 WU		
4:00 PM	21	109	32	6	10	94	28	0	24	20	14	0	36	38	22	0	454	
4:15 PM	23	94	24	5	13	95	19	1	24	30	13	0	19	30	18	0	408	
4:30 PM	26	109	41	7	14	87	20	3	22	30	11	0	20	45	11	0	446	
4:45 PM	21	130	27	6	8	78	18	0	32	34	6	0	21	32	19	0	432	
5:00 PM	17	147	25	10	13	93	24	0	24	33	14	0	33	53	30	0	516	
5:15 PM	22	120	36	6	9	102	25	1	24	24	4	0	30	38	21	0	462	
5:30 PM	15	96	23	2	13	75	19	0	26	34	9	0	20	23	28	0	383	
5:45 PM	18	105	24	5	13	105	26	3	37	35	14	0	18	30	23	0	456	
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL	
	163	910	232	47	93	729	179	8	213	240	85	0	197	289	172	0	3557	
APPROACH %'s :	12.06%	67.31%	17.16%	3.48%	9.22%	72.25%	17.74%	0.79%	39.59%	44.61%	15.80%	0.00%	29.94%	43.92%	26.14%	0.00%		
PEAK HR :	04:30 PM - 05:30 PM																	
PEAK HR VOL :	86	506	129	29	44	360	87	4	102	121	35	0	104	168	81	0	1856	
PEAK HR FACTOR :	0.827	0.861	0.787	0.725	0.786	0.882	0.870	0.333	0.797	0.890	0.625	0.000	0.788	0.792	0.675	0.000	0.899	
	0.942				0.903				0.896				0.761					

National Data & Surveying Services

Intersection Turning Movement Count

Location: R St & Right-In/Right-out/Left-In Mall Dwy
 City: Merced
 Control: 1-Way Stop (WB)

Project ID: 18-07228-003
 Date: 6/5/2018

Total

NS/EW Streets:	R St				R St				Right-In/Right-out/Left-In Mall Dwy				Right-In/Right-out/Left-In Mall Dwy					
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND					
	1	2	0	0	1	2	0	0	0	1	0	0	0	1	0	0	TOTAL	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU		
	7:00 AM	1	48	5	2	0	64	3	3	0	0	7	0	0	0	1	0	134
	7:15 AM	2	63	3	0	6	110	1	0	0	0	2	0	0	0	4	0	191
	7:30 AM	3	104	10	0	5	150	4	1	0	0	9	0	0	0	3	0	289
	7:45 AM	6	114	7	1	3	163	6	1	0	0	8	0	0	0	5	0	314
	8:00 AM	9	100	8	2	1	103	4	6	0	0	8	0	0	0	4	0	245
	8:15 AM	13	101	7	2	3	127	8	8	0	0	4	0	0	0	2	0	275
	8:30 AM	8	91	7	2	4	104	12	6	0	0	18	0	0	0	9	0	261
8:45 AM	10	97	12	1	4	104	9	10	0	0	12	0	0	0	3	0	262	
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL	
APPROACH %'s :	52	718	59	10	26	925	47	35	0	0	68	0	0	0	31	0	1971	
	6.20%	85.58%	7.03%	1.19%	2.52%	89.55%	4.55%	3.39%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%		
PEAK HR :	07:30 AM - 08:30 AM																TOTAL	
PEAK HR VOL :	31	419	32	5	12	543	22	16	0	0	29	0	0	0	14	0	1123	
PEAK HR FACTOR :	0.596	0.919	0.800	0.625	0.600	0.833	0.688	0.500	0.000	0.000	0.806	0.000	0.000	0.000	0.700	0.000	0.894	
	0.951				0.857				0.806				0.700					
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND					
	1	2	0	0	1	2	0	0	0	1	0	0	0	1	0	0	TOTAL	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU		
	4:00 PM	12	146	23	0	9	127	13	6	0	0	32	0	0	0	19	0	387
	4:15 PM	8	135	32	1	11	121	14	9	0	0	24	0	0	0	11	0	366
	4:30 PM	21	181	27	2	13	112	6	10	0	0	35	0	0	0	20	0	427
	4:45 PM	26	158	35	0	8	93	4	17	0	0	30	0	0	0	17	0	388
	5:00 PM	21	187	34	5	10	135	6	11	0	0	33	0	0	0	23	0	465
	5:15 PM	14	175	18	5	9	117	13	6	0	0	27	0	0	0	21	0	405
	5:30 PM	15	123	24	1	9	92	8	12	0	0	29	0	0	0	10	0	323
5:45 PM	16	152	29	5	2	124	9	5	0	0	24	0	0	0	19	0	385	
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL	
APPROACH %'s :	133	1257	222	19	71	921	73	76	0	0	234	0	0	0	140	0	3146	
	8.15%	77.07%	13.61%	1.16%	6.22%	80.72%	6.40%	6.66%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%		
PEAK HR :	04:30 PM - 05:30 PM																TOTAL	
PEAK HR VOL :	82	701	114	12	40	457	29	44	0	0	125	0	0	0	81	0	1685	
PEAK HR FACTOR :	0.788	0.937	0.814	0.600	0.769	0.846	0.558	0.647	0.000	0.000	0.893	0.000	0.000	0.000	0.880	0.000	0.906	
	0.920				0.880				0.893				0.880					

National Data & Surveying Services

Intersection Turning Movement Count

Location: R St & Olive Ave
 City: Merced
 Control: Signalized

Project ID: 18-07228-004
 Date: 6/5/2018

Total

NS/EW Streets:	R St				R St				Olive Ave				Olive Ave				TOTAL
	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
AM	1	2	0	0	1	2	1	0	1	3	1	0	1	3	1	0	TOTAL
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
7:00 AM	14	32	9	0	19	41	11	0	13	80	5	3	30	78	9	0	344
7:15 AM	22	51	12	0	29	73	10	0	7	105	20	0	30	79	14	3	455
7:30 AM	24	79	31	0	24	106	15	1	26	130	34	2	33	106	13	1	625
7:45 AM	35	81	43	0	24	126	17	1	31	195	42	1	45	117	14	2	774
8:00 AM	35	76	24	0	23	84	7	0	23	157	29	1	47	114	24	2	646
8:15 AM	26	89	27	0	25	80	16	0	15	165	33	3	32	120	17	0	648
8:30 AM	42	78	15	0	38	70	24	0	16	105	26	5	20	107	21	2	569
8:45 AM	45	67	18	0	26	65	20	0	23	156	30	3	21	111	21	1	607
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	24.3%	55.3%	17.9%	0%	20.8%	64.5%	12.0%	2.2%	15.4%	10.9%	21.9%	1.8%	25.8%	8.3%	13.3%	1.1%	4668
APPROACH %'s :	24.92%	56.72%	18.36%	0.00%	21.33%	66.15%	12.31%	0.21%	10.38%	73.65%	14.76%	1.21%	20.91%	67.42%	10.78%	0.89%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	120	325	125	0	96	396	55	2	95	647	138	7	157	457	68	5	2693
PEAK HR FACTOR :	0.857	0.913	0.727	0.000	0.960	0.786	0.809	0.500	0.766	0.829	0.821	0.583	0.835	0.952	0.708	0.625	0.870
	0.896				0.817				0.824				0.918				
PM	1	2	0	0	1	2	1	0	1	3	1	0	1	3	1	0	TOTAL
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
4:00 PM	53	120	28	0	39	90	30	1	39	173	41	5	62	180	24	2	887
4:15 PM	75	109	21	0	39	71	27	1	35	208	42	4	59	190	28	4	913
4:30 PM	80	149	25	0	24	96	35	1	48	184	45	4	50	201	35	4	981
4:45 PM	87	135	25	0	40	72	17	0	51	228	54	6	50	218	43	6	1032
5:00 PM	53	141	26	0	33	90	31	1	54	183	49	7	61	246	38	1	1014
5:15 PM	73	145	22	0	31	94	28	4	37	178	39	5	64	177	28	3	928
5:30 PM	71	94	17	0	26	72	21	2	39	177	37	2	49	233	33	3	876
5:45 PM	56	115	31	0	24	89	35	2	46	164	52	4	50	198	37	1	904
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	54.8%	10.0%	19.5%	0.0%	25.6%	6.7%	22.4%	1.2%	34.9%	14.9%	35.9%	3.7%	44.5%	16.4%	26.6%	2.4%	7535
APPROACH %'s :	31.30%	57.57%	11.14%	0.00%	21.96%	57.80%	19.21%	1.03%	15.58%	66.74%	16.03%	1.65%	18.71%	69.09%	11.19%	1.01%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	293	570	98	0	128	352	111	6	190	773	187	22	225	842	144	14	3955
PEAK HR FACTOR :	0.842	0.956	0.942	0.000	0.800	0.917	0.793	0.375	0.880	0.848	0.866	0.786	0.879	0.856	0.837	0.583	0.958
	0.946				0.951				0.864				0.885				

National Data & Surveying Services

Intersection Turning Movement Count

Location: R St & Olivewood Dr
 City: Merced
 Control: 2-Way Stop (EB/WB)

Project ID: 18-07228-005
 Date: 6/5/2018

Total

NS/EW Streets:	R St				R St				Olivewood Dr				Olivewood Dr				TOTAL
	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
AM	1	2	1	0	1	2	1	0	0	1	0	0	0	1	0	0	TOTAL
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
7:00 AM	19	48	9	0	4	74	2	1	0	0	15	0	0	0	12	0	184
7:15 AM	14	73	6	0	4	105	3	0	0	0	18	0	0	0	6	0	229
7:30 AM	19	129	18	0	6	146	6	0	0	0	22	0	0	0	10	0	356
7:45 AM	32	157	33	0	15	209	4	0	0	0	29	0	0	0	12	0	491
8:00 AM	26	105	44	0	8	148	3	0	0	0	16	0	0	0	14	0	364
8:15 AM	40	124	15	0	15	125	6	1	0	0	27	0	0	0	19	0	372
8:30 AM	26	102	13	0	8	95	5	0	0	0	23	0	0	0	19	0	291
8:45 AM	40	118	14	0	10	101	7	1	0	0	23	0	0	0	20	0	334
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
	216	856	152	0	70	1003	36	3	0	0	173	0	0	0	112	0	2621
APPROACH %'s :	17.65%	69.93%	12.42%	0.00%	6.29%	90.20%	3.24%	0.27%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	117	515	110	0	44	628	19	1	0	0	94	0	0	0	55	0	1583
PEAK HR FACTOR :	0.731	0.820	0.625	0.000	0.733	0.751	0.792	0.250	0.000	0.000	0.810	0.000	0.000	0.000	0.724	0.000	0.806
	0.836				0.759				0.810				0.724				
PM	1	2	1	0	1	2	1	0	0	1	0	0	0	1	0	0	TOTAL
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
4:00 PM	53	166	27	0	10	173	10	0	0	0	72	0	0	0	31	0	542
4:15 PM	59	170	37	0	4	157	15	0	0	0	66	0	0	0	47	0	555
4:30 PM	60	195	28	0	19	152	4	0	0	0	80	0	0	0	41	0	579
4:45 PM	66	192	33	0	5	158	10	0	0	0	83	0	0	0	56	0	603
5:00 PM	67	215	23	0	10	180	15	0	0	0	69	0	0	0	45	0	624
5:15 PM	56	191	32	0	9	173	8	0	0	0	87	0	0	0	39	0	595
5:30 PM	51	158	8	0	3	156	10	2	0	0	84	0	0	0	29	0	501
5:45 PM	49	168	13	0	9	162	11	0	0	0	71	0	0	0	40	0	523
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
	461	1455	201	0	69	1311	83	2	0	0	612	0	0	0	328	0	4522
APPROACH %'s :	21.78%	68.73%	9.49%	0.00%	4.71%	89.49%	5.67%	0.14%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	249	793	116	0	43	663	37	0	0	0	319	0	0	0	181	0	2401
PEAK HR FACTOR :	0.929	0.922	0.879	0.000	0.566	0.921	0.617	0.000	0.000	0.000	0.917	0.000	0.000	0.000	0.808	0.000	0.962
	0.949				0.906				0.917				0.808				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Pepperwood Ln/Mall Dwy & Olive Ave
 City: Merced
 Control: 2-Way Stop (NB/SB)

Project ID: 18-07228-006
 Date: 6/5/2018

Total

NS/EW Streets:	Pepperwood Ln/Mall Dwy				Pepperwood Ln/Mall Dwy				Olive Ave				Olive Ave				TOTAL
	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
AM	0	1	0	0	0	1	0	0	1	3	0	0	1	4	0	0	TOTAL
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
7:00 AM	2	0	2	0	1	0	1	0	1	101	2	2	0	106	0	0	218
7:15 AM	0	0	4	0	0	0	1	0	0	143	4	3	2	125	0	0	282
7:30 AM	2	1	16	0	1	0	0	0	1	186	3	2	4	151	1	0	368
7:45 AM	4	0	14	0	2	0	1	0	5	253	3	1	5	165	1	1	455
8:00 AM	1	1	18	0	1	1	1	0	2	204	4	2	9	204	2	0	450
8:15 AM	1	0	8	0	0	0	1	0	3	201	4	1	8	151	0	0	378
8:30 AM	3	0	13	0	0	0	2	0	2	146	8	2	10	143	2	0	331
8:45 AM	3	0	11	0	0	0	1	0	2	189	5	1	12	142	1	1	368
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	16	2	86	0	5	1	8	0	16	1423	33	14	50	1187	7	2	2850
	15.38%	1.92%	82.69%	0.00%	35.71%	7.14%	57.14%	0.00%	1.08%	95.76%	2.22%	0.94%	4.01%	95.26%	0.56%	0.16%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	8	2	56	0	4	1	3	0	11	844	14	6	26	671	4	1	1651
PEAK HR FACTOR :	0.500	0.500	0.778	0.000	0.500	0.250	0.750	0.000	0.550	0.834	0.875	0.750	0.722	0.822	0.500	0.250	0.907
	0.825				0.667				0.835				0.816				
PM	0	1	0	0	0	1	0	0	1	3	0	0	1	4	0	0	TOTAL
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
4:00 PM	4	1	26	0	1	0	14	0	10	249	13	5	21	254	3	4	605
4:15 PM	0	0	35	0	2	0	21	0	10	255	12	2	13	243	2	6	601
4:30 PM	6	1	16	0	2	1	13	0	12	224	6	4	18	273	7	5	588
4:45 PM	5	1	25	0	1	0	18	0	11	269	22	3	9	279	6	5	654
5:00 PM	4	0	29	0	0	0	24	0	12	203	6	4	5	298	1	3	589
5:15 PM	7	1	27	0	2	0	19	0	12	256	3	6	7	268	6	4	618
5:30 PM	1	1	13	0	2	0	19	0	14	196	5	2	6	258	2	4	523
5:45 PM	2	1	7	0	2	1	14	0	8	186	4	4	4	267	1	1	502
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	29	6	178	0	12	2	142	0	89	1838	71	30	83	2140	28	32	4680
	13.62%	2.82%	83.57%	0.00%	7.69%	1.28%	91.03%	0.00%	4.39%	90.63%	3.50%	1.48%	3.64%	93.74%	1.23%	1.40%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	22	3	97	0	5	1	74	0	47	952	37	17	39	1118	20	17	2449
PEAK HR FACTOR :	0.786	0.750	0.836	0.000	0.625	0.250	0.771	0.000	0.979	0.885	0.420	0.708	0.542	0.938	0.714	0.850	0.936
	0.871				0.833				0.863				0.972				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Mall Dwy & Loughborough Dr
 City: Merced
 Control: 1-Way Stop (NB)

Project ID: 18-07228-008
 Date: 6/5/2018

Total

NS/EW Streets:	Mall Dwy				Mall Dwy				Loughborough Dr				Loughborough Dr				TOTAL
	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
AM	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	2	0	4	0	1	0	1	0	0	30	0	0	1	22	1	0	62
7:15 AM	1	0	2	0	1	0	1	0	2	32	1	0	1	45	1	0	87
7:30 AM	3	0	4	0	2	0	2	0	1	80	5	0	6	52	1	0	156
7:45 AM	0	0	9	0	0	0	2	0	0	112	12	0	11	58	4	0	208
8:00 AM	2	0	8	0	2	0	1	0	0	65	5	0	7	63	0	0	153
8:15 AM	2	0	5	0	0	0	1	0	0	67	1	0	2	43	1	0	122
8:30 AM	1	0	4	0	1	0	3	0	1	53	4	0	2	56	0	0	125
8:45 AM	3	0	5	0	0	0	2	0	1	69	2	0	7	50	0	0	139
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	25.45%	0.00%	74.55%	0.00%	35.00%	0.00%	65.00%	0.00%	0.92%	93.55%	5.52%	0.00%	8.53%	89.63%	1.84%	0.00%	1052
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	7	0	26	0	4	0	6	0	1	324	23	0	26	216	6	0	639
PEAK HR FACTOR :	0.583	0.000	0.722	0.000	0.500	0.000	0.750	0.000	0.250	0.723	0.479	0.000	0.591	0.857	0.375	0.000	0.768
	0.825				0.625				0.702				0.849				
PM	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	6	0	18	0	3	0	2	0	2	83	5	0	8	93	1	0	221
4:15 PM	6	1	24	0	0	0	0	0	5	77	3	0	6	49	0	0	171
4:30 PM	7	0	20	0	3	0	0	0	6	98	3	0	13	78	2	0	230
4:45 PM	7	0	15	0	2	0	2	0	2	72	6	1	9	65	1	0	182
5:00 PM	9	0	17	0	3	0	0	0	1	77	5	0	6	100	4	0	222
5:15 PM	6	1	17	0	1	1	0	0	1	85	4	0	11	77	3	0	207
5:30 PM	10	2	21	0	1	0	1	0	1	83	5	0	11	49	3	0	187
5:45 PM	6	0	18	0	1	0	3	0	4	73	5	0	5	64	2	0	181
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	27.01%	1.90%	71.09%	0.00%	60.87%	4.35%	34.78%	0.00%	3.11%	91.65%	5.09%	0.14%	10.45%	87.12%	2.42%	0.00%	1601
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	29	1	69	0	9	1	2	0	10	332	18	1	39	320	10	0	841
PEAK HR FACTOR :	0.806	0.250	0.863	0.000	0.750	0.250	0.250	0.000	0.417	0.847	0.750	0.250	0.750	0.800	0.625	0.000	0.914
	0.917				0.750				0.843				0.839				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Applewood Ln/RIROLI Mall Dwy & Olive Ave
 City: Merced
 Control: 2-Way Stop (NB/SB)

Project ID: 18-07228-007
 Date: 6/5/2018

Total

NS/EW Streets:	Applewood Ln/RIROLI Mall Dwy				Applewood Ln/RIROLI Mall Dwy				Olive Ave				Olive Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	1	0	0	1	0	0	1	3	0	0	1	4	0	0	TOTAL
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
7:00 AM	0	0	5	0	0	0	0	0	7	101	1	1	5	104	0	2	226
7:15 AM	0	0	2	0	0	0	1	0	8	140	3	2	4	125	2	2	289
7:30 AM	0	0	5	0	0	0	2	0	10	189	6	0	2	152	4	3	373
7:45 AM	0	0	9	0	0	0	1	0	12	263	3	3	8	160	4	1	464
8:00 AM	0	0	5	0	0	0	0	0	14	206	3	1	14	216	9	5	473
8:15 AM	0	0	10	0	0	0	4	0	4	199	6	2	10	150	2	2	389
8:30 AM	0	0	3	0	0	0	5	0	9	150	7	3	9	149	3	6	344
8:45 AM	0	0	4	0	0	0	5	0	11	186	11	1	6	149	7	4	384
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	0	0	43	0	0	0	18	0	75	1434	40	13	58	1205	31	25	2942
	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	4.80%	91.81%	2.56%	0.83%	4.40%	91.36%	2.35%	1.90%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	0	29	0	0	0	7	0	40	857	18	6	34	678	19	11	1699
PEAK HR FACTOR :	0.000	0.000	0.725	0.000	0.000	0.000	0.438	0.000	0.714	0.815	0.750	0.500	0.607	0.785	0.528	0.550	0.898
	0.725				0.438				0.819				0.760				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	1	0	0	1	0	0	1	3	0	0	1	4	0	0	TOTAL
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
4:00 PM	0	0	13	0	0	0	18	0	19	260	8	10	14	271	18	5	636
4:15 PM	0	0	13	0	0	0	19	0	10	287	10	8	22	231	25	2	627
4:30 PM	0	0	12	0	0	0	14	0	21	219	11	5	15	290	18	3	608
4:45 PM	0	0	24	0	0	0	24	0	19	267	12	8	13	278	13	3	661
5:00 PM	0	0	9	0	0	0	22	0	20	207	8	8	10	257	22	1	564
5:15 PM	0	0	11	0	0	0	21	0	21	261	11	5	9	262	22	4	627
5:30 PM	0	0	11	0	0	0	18	0	23	203	6	5	13	267	18	3	567
5:45 PM	0	0	7	0	0	0	12	0	10	187	3	6	13	239	18	1	496
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	0	0	100	0	0	0	148	0	143	1891	69	55	109	2095	154	22	4786
	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	6.63%	87.63%	3.20%	2.55%	4.58%	88.03%	6.47%	0.92%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	0	62	0	0	0	75	0	69	1033	41	31	64	1070	74	13	2532
PEAK HR FACTOR :	0.000	0.000	0.646	0.000	0.000	0.000	0.781	0.000	0.821	0.900	0.854	0.775	0.727	0.922	0.740	0.650	0.958
	0.646				0.781				0.932				0.936				

National Data & Surveying Services

Intersection Turning Movement Count

Location: M St & Loughborough Dr/Collins Dr
 City: Merced
 Control: Signalized

Project ID: 18-07228-009
 Date: 6/5/2018

Total

NS/EW Streets:	M St				M St				Loughborough Dr/Collins Dr				Loughborough Dr/Collins Dr				TOTAL
	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
AM	1	1.5	0.5	0	1	1.5	0.5	0	1	1	1	0	1	1	0	0	TOTAL
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
7:00 AM	8	54	0	0	5	83	14	0	13	2	13	0	5	4	11	0	212
7:15 AM	7	73	1	0	17	124	34	0	14	5	15	0	9	11	20	0	330
7:30 AM	17	111	3	0	29	143	32	0	38	12	34	0	6	14	27	0	466
7:45 AM	42	161	3	1	36	217	25	0	45	38	33	0	9	20	26	0	656
8:00 AM	19	93	3	0	33	157	33	0	27	17	23	0	20	24	32	0	481
8:15 AM	21	99	5	0	12	129	26	0	32	10	30	0	10	8	19	0	401
8:30 AM	23	63	3	0	11	110	26	0	25	7	26	0	7	11	17	0	329
8:45 AM	25	70	1	0	9	113	33	0	35	8	24	0	10	9	6	0	343
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	17.88%	79.91%	2.10%	0.11%	10.48%	74.16%	15.37%	0.00%	43.54%	18.82%	37.64%	0.00%	22.69%	30.15%	47.16%	0.00%	3218
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	99	464	14	1	110	646	116	0	142	77	120	0	45	66	104	0	2004
PEAK HR FACTOR :	0.589	0.720	0.700	0.250	0.764	0.744	0.879	0.000	0.789	0.507	0.882	0.000	0.563	0.688	0.813	0.000	0.764
	0.698				0.784				0.731				0.707				
PM	1	1.5	0.5	0	1	1.5	0.5	0	1	1	1	0	1	1	0	0	TOTAL
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
4:00 PM	22	101	9	0	19	120	43	0	60	12	48	0	8	24	29	0	495
4:15 PM	14	98	4	0	10	115	29	0	51	8	49	0	16	12	17	0	423
4:30 PM	40	105	4	0	8	133	33	0	58	9	63	0	13	15	25	0	506
4:45 PM	25	110	3	0	6	105	33	0	60	3	43	0	7	15	27	0	437
5:00 PM	27	159	5	1	5	123	44	0	54	10	46	0	15	35	37	0	561
5:15 PM	45	125	4	0	8	89	40	0	51	7	44	0	9	13	21	0	456
5:30 PM	22	87	4	0	12	107	25	0	67	8	43	0	8	9	20	0	412
5:45 PM	25	94	3	0	8	82	26	1	56	10	35	0	8	15	15	0	378
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	19.37%	77.38%	3.17%	0.09%	6.21%	71.41%	22.30%	0.08%	51.06%	7.49%	41.45%	0.00%	20.34%	33.41%	46.25%	0.00%	3668
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	137	499	16	1	27	450	150	0	223	29	196	0	44	78	110	0	1960
PEAK HR FACTOR :	0.761	0.785	0.800	0.250	0.844	0.846	0.852	0.000	0.929	0.725	0.778	0.000	0.733	0.557	0.743	0.000	0.873
	0.850				0.901				0.862				0.667				

National Data & Surveying Services

Intersection Turning Movement Count

Location: M St & Fairfield Dr
 City: Merced
 Control: 2-Way Stop (EB/WB)

Project ID: 18-07228-010
 Date: 6/5/2018

Total

NS/EW Streets:	M St				M St				Fairfield Dr				Fairfield Dr				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
7:00 AM	0	60	3	0	0	93	5	0	0	0	10	0	0	0	4	0	175
7:15 AM	0	94	5	0	0	134	8	0	0	0	4	0	0	0	5	0	250
7:30 AM	0	125	12	0	0	157	16	0	0	0	10	0	0	0	6	0	326
7:45 AM	0	203	13	0	0	244	11	0	0	0	12	0	0	0	25	0	508
8:00 AM	0	117	15	0	0	191	9	0	0	0	13	0	0	0	10	0	355
8:15 AM	0	124	5	0	0	159	10	0	0	0	12	0	0	0	9	0	319
8:30 AM	0	100	8	0	0	135	14	0	0	0	9	0	0	0	5	0	271
8:45 AM	0	98	7	0	0	136	10	0	0	0	4	0	0	0	8	0	263
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	0	921	68	0	0	1249	83	0	0	0	74	0	0	0	72	0	2467
	0.00%	93.12%	6.88%	0.00%	0.00%	93.77%	6.23%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	569	45	0	0	751	46	0	0	0	47	0	0	0	50	0	1508
PEAK HR FACTOR :	0.000	0.701	0.750	0.000	0.000	0.769	0.719	0.000	0.000	0.000	0.904	0.000	0.000	0.000	0.500	0.000	0.742
		0.711				0.781				0.904				0.500			
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
4:00 PM	0	149	9	0	0	179	8	0	0	0	30	0	0	0	10	0	385
4:15 PM	0	125	8	0	0	184	15	0	0	0	18	0	0	0	11	0	361
4:30 PM	0	133	3	0	0	239	7	0	0	0	33	0	0	0	12	0	427
4:45 PM	0	140	11	0	0	164	16	0	0	0	36	0	0	0	9	0	376
5:00 PM	0	193	10	0	0	202	10	0	0	0	35	0	0	0	11	0	461
5:15 PM	0	148	13	0	0	139	13	0	0	0	34	0	0	0	9	0	356
5:30 PM	0	114	9	0	0	155	12	0	0	0	48	0	0	0	8	0	346
5:45 PM	0	112	7	0	0	116	14	0	0	0	31	0	0	0	7	0	287
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	0	1114	70	0	0	1378	95	0	0	0	265	0	0	0	77	0	2999
	0.00%	94.09%	5.91%	0.00%	0.00%	93.55%	6.45%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	0	591	32	0	0	789	48	0	0	0	122	0	0	0	43	0	1625
PEAK HR FACTOR :	0.000	0.766	0.727	0.000	0.000	0.825	0.750	0.000	0.000	0.000	0.847	0.000	0.000	0.000	0.896	0.000	0.881
		0.767				0.851				0.847				0.896			

National Data & Surveying Services

Intersection Turning Movement Count

Location: M St & Olive Ave
 City: Merced
 Control: Signalized

Project ID: 18-07228-011
 Date: 6/5/2018

Total

NS/EW Streets:	M St				M St				Olive Ave				Olive Ave				TOTAL
	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
AM	1	2	0	0	1	1.5	0.5	0	1	3	1	0	1	3	0	0	TOTAL
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
7:00 AM	23	40	19	0	28	66	7	0	5	68	17	3	17	83	17	0	393
7:15 AM	25	68	12	0	27	84	11	0	18	91	31	3	19	96	15	2	502
7:30 AM	35	106	22	0	41	131	8	0	21	105	54	4	26	113	10	5	681
7:45 AM	21	155	33	0	53	175	18	0	35	171	33	2	44	134	28	9	911
8:00 AM	38	71	31	0	42	129	19	0	33	163	35	2	46	182	25	13	829
8:15 AM	32	85	18	0	49	117	16	0	23	134	40	3	34	123	18	3	695
8:30 AM	26	67	10	0	24	97	17	0	12	111	32	1	25	125	27	3	577
8:45 AM	36	65	22	0	40	92	18	0	19	129	25	1	14	113	22	5	601
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	22.26%	61.98%	15.75%	0.00%	23.22%	68.07%	8.71%	0.00%	11.66%	68.26%	18.75%	1.33%	16.12%	69.41%	11.60%	2.87%	5189
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	126	417	104	0	185	552	61	0	112	573	162	11	150	552	81	30	3116
PEAK HR FACTOR :	0.829	0.673	0.788	0.000	0.873	0.789	0.803	0.000	0.800	0.838	0.750	0.688	0.815	0.758	0.723	0.577	0.855
	0.774				0.811				0.890				0.764				
PM	1	2	0	0	1	1.5	0.5	0	1	3	1	0	1	3	0	0	TOTAL
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
4:00 PM	53	97	22	0	61	107	28	0	36	205	45	11	33	227	17	8	950
4:15 PM	59	86	21	0	45	111	42	0	27	188	45	8	26	189	17	3	867
4:30 PM	74	101	28	0	97	155	30	0	21	199	32	6	41	213	15	8	1020
4:45 PM	59	103	32	0	48	119	21	0	32	202	39	12	24	225	14	8	938
5:00 PM	89	171	29	0	84	143	28	0	22	146	34	5	33	169	9	8	970
5:15 PM	80	117	30	0	64	84	19	0	24	212	36	10	39	201	20	7	943
5:30 PM	64	91	25	0	64	128	14	0	12	161	31	7	25	203	20	2	847
5:45 PM	56	95	12	0	59	76	22	0	8	158	27	6	19	172	12	6	728
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	33.50%	54.02%	12.48%	0.00%	31.66%	55.97%	12.37%	0.00%	9.07%	73.29%	14.40%	3.24%	11.92%	79.43%	6.16%	2.48%	7263
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	302	492	119	0	293	501	98	0	99	759	141	33	137	808	58	31	3871
PEAK HR FACTOR :	0.848	0.719	0.930	0.000	0.755	0.808	0.817	0.000	0.773	0.895	0.904	0.688	0.835	0.898	0.725	0.969	0.949
	0.790				0.791				0.905				0.933				

VOLUME

Olivewood Dr Bet. Meadows Ave & R St

Day: Tuesday
Date: 6/5/2018City: Merced
Project #: CA18_7229_007

DAILY TOTALS					NB	SB	EB	WB	Total					
					0	0	3,165	3,051	6,216					
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL			
00:00			1	0	1	12:00			58	66	124			
00:15			4	1	5	12:15			61	67	128			
00:30			4	1	5	12:30			68	41	109			
00:45			7	16	3	5	12:45		83	270	54	228	137	498
01:00			1	0	1	13:00			59	69	128			
01:15			0	2	2	13:15			51	53	104			
01:30			3	2	5	13:30			70	60	130			
01:45			2	6	6	10	8	16	63	243	65	247	128	490
02:00			1	0	1	14:00			66	57	123			
02:15			2	0	2	14:15			52	70	122			
02:30			1	2	3	14:30			55	67	122			
02:45			0	4	0	2	0	6	55	228	55	249	110	477
03:00			1	1	2	15:00			66	56	122			
03:15			3	0	3	15:15			67	61	128			
03:30			3	2	5	15:30			67	55	122			
03:45			0	7	5	8	5	15	63	263	77	249	140	512
04:00			1	1	2	16:00			71	64	135			
04:15			0	0	0	16:15			59	67	126			
04:30			0	0	0	16:30			75	60	135			
04:45			3	4	4	5	7	9	81	286	82	273	163	559
05:00			2	2	4	17:00			56	77	133			
05:15			3	3	6	17:15			83	63	146			
05:30			3	4	7	17:30			72	68	140			
05:45			2	10	8	17	10	27	69	280	57	265	126	545
06:00			6	2	8	18:00			59	50	109			
06:15			7	5	12	18:15			45	53	98			
06:30			10	6	16	18:30			50	38	88			
06:45			12	35	19	32	31	67	47	201	53	194	100	395
07:00			15	18	33	19:00			55	59	114			
07:15			20	14	34	19:15			57	44	101			
07:30			22	23	45	19:30			46	38	84			
07:45			29	86	28	83	57	169	45	203	35	176	80	379
08:00			17	22	39	20:00			46	42	88			
08:15			27	34	61	20:15			44	26	70			
08:30			24	29	53	20:30			30	22	52			
08:45			26	94	35	120	61	214	38	158	18	108	56	266
09:00			41	39	80	21:00			31	21	52			
09:15			35	41	76	21:15			38	18	56			
09:30			25	49	74	21:30			23	11	34			
09:45			28	129	58	187	86	316	18	110	14	64	32	174
10:00			53	61	114	22:00			27	10	37			
10:15			54	44	98	22:15			16	10	26			
10:30			48	56	104	22:30			19	6	25			
10:45			62	217	61	222	123	439	15	77	7	33	22	110
11:00			46	66	112	23:00			18	6	24			
11:15			46	68	114	23:15			8	3	11			
11:30			48	58	106	23:30			12	2	14			
11:45			56	196	68	260	124	456	4	42	3	14	7	56
TOTALS			804	951	1755	TOTALS			2361	2100	4461			
SPLIT %			45.8%	54.2%	28.2%	SPLIT %			52.9%	47.1%	71.8%			

DAILY TOTALS					NB	SB	EB	WB	Total		
					0	0	3,165	3,051	6,216		
AM Peak Hour			11:45	11:00	11:45	PM Peak Hour			16:30	16:45	16:45
AM Pk Volume			243	260	485	PM Pk Volume			295	290	582
Pk Hr Factor			0.893	0.956	0.947	Pk Hr Factor			0.889	0.884	0.893
7 - 9 Volume	0	0	180	203	383	4 - 6 Volume	0	0	566	538	1104
7 - 9 Peak Hour			07:45	08:00	08:00	4 - 6 Peak Hour			16:30	16:45	16:45
7 - 9 Pk Volume	0	0	97	120	214	4 - 6 Pk Volume	0	0	295	290	582
Pk Hr Factor	0.000	0.000	0.836	0.857	0.877	Pk Hr Factor	0.000	0.000	0.889	0.884	0.893

VOLUME

Olivewood Dr Bet. R St & M St

Day: Tuesday
Date: 6/5/2018

City: Merced
Project #: CA18_7229_008

DAILY TOTALS					NB	SB	EB	WB	Total					
					0	0	1,677	1,963	3,640					
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL			
00:00			1	0	1	12:00			43	53	96			
00:15			1	0	1	12:15			44	51	95			
00:30			1	1	2	12:30			41	54	95			
00:45			0	3	2	12:45		3	40	168	40	198	80	366
01:00			1	0	1	13:00			36	48	84			
01:15			1	2	3	13:15			31	50	81			
01:30			1	0	1	13:30			44	34	78			
01:45			0	3	0	13:45		2	34	145	48	180	82	325
02:00			0	1	1	14:00			36	46	82			
02:15			1	1	2	14:15			37	39	76			
02:30			0	0	0	14:30			34	42	76			
02:45			0	1	1	14:45		3	36	143	35	162	71	305
03:00			1	0	1	15:00			42	42	84			
03:15			0	2	2	15:15			43	51	94			
03:30			0	0	0	15:30			44	46	90			
03:45			1	2	4	15:45		6	39	168	44	183	83	351
04:00			1	1	2	16:00			37	40	77			
04:15			1	0	1	16:15			48	52	100			
04:30			1	1	2	16:30			34	48	82			
04:45			0	3	2	16:45		4	41	160	51	191	92	351
05:00			1	4	5	17:00			41	42	83			
05:15			1	4	5	17:15			37	25	62			
05:30			2	1	3	17:30			21	19	40			
05:45			1	5	0	17:45		9	21	120	30	116	51	236
06:00			5	2	7	18:00			24	35	59			
06:15			4	3	7	18:15			20	19	39			
06:30			7	6	13	18:30			15	17	32			
06:45			5	21	6	18:45		17	12	71	19	90	31	161
07:00			10	8	18	19:00			16	16	32			
07:15			17	9	26	19:15			14	9	23			
07:30			11	16	27	19:30			15	18	33			
07:45			26	64	22	19:45		55	17	62	19	62	36	124
08:00			15	32	47	20:00			21	11	32			
08:15			24	28	52	20:15			8	10	18			
08:30			18	28	46	20:30			5	8	13			
08:45			21	78	25	20:45		113	9	43	8	37	17	80
09:00			26	30	56	21:00			12	13	25			
09:15			30	44	74	21:15			6	4	10			
09:30			29	35	64	21:30			6	2	8			
09:45			30	115	54	21:45		163	9	33	13	32	22	65
10:00			23	30	53	22:00			5	3	8			
10:15			38	32	70	22:15			3	4	7			
10:30			31	36	67	22:30			4	4	8			
10:45			35	127	43	22:45		141	0	12	4	15	4	27
11:00			27	35	62	23:00			3	4	7			
11:15			40	48	88	23:15			1	2	3			
11:30			22	50	72	23:30			2	1	3			
11:45			34	123	39	23:45		172	1	7	2	9	3	16
TOTALS			545	688	1233	TOTALS			1132	1275	2407			
SPLIT %			44.2%	55.8%	33.9%	SPLIT %			47.0%	53.0%	66.1%			

DAILY TOTALS					NB	SB	EB	WB	Total		
					0	0	1,677	1,963	3,640		
AM Peak Hour			11:45	11:45	11:45	PM Peak Hour			12:00	12:00	12:00
AM Pk Volume			162	197	359	PM Pk Volume			168	198	366
Pk Hr Factor			0.920	0.912	0.935	Pk Hr Factor			0.955	0.917	0.953
7 - 9 Volume	0	0	142	168	310	4 - 6 Volume	0	0	280	307	587
7 - 9 Peak Hour			07:45	08:00	07:45	4 - 6 Peak Hour			16:15	16:15	16:15
7 - 9 Pk Volume	0	0	83	113	193	4 - 6 Pk Volume	0	0	164	193	357
Pk Hr Factor	0.000	0.000	0.798	0.883	0.928	Pk Hr Factor	0.000	0.000	0.854	0.928	0.893

VOLUME

R St Bet. Loughborough Dr & Olive Ave

Day: Tuesday
Date: 6/5/2018

City: Merced
Project #: CA18_7229_001

DAILY TOTALS					NB	SB	EB	WB	Total
					9,625	9,218	0	0	18,843

AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL	
00:00	26	11			37	12:00	187	128			315	
00:15	13	6			19	12:15	171	161			332	
00:30	12	10			22	12:30	184	191			375	
00:45	12	63	2	29	14	12:45	198	740	173	653	371	1393
01:00	11	6			17	13:00	198	155			353	
01:15	6	7			13	13:15	175	144			319	
01:30	13	4			17	13:30	173	139			312	
01:45	10	40	5	22	15	13:45	174	720	162	600	336	1320
02:00	5	3			8	14:00	167	170			337	
02:15	12	3			15	14:15	204	196			400	
02:30	6	1			7	14:30	169	159			328	
02:45	6	29	7	14	13	14:45	194	734	175	700	369	1434
03:00	8	2			10	15:00	201	163			364	
03:15	9	7			16	15:15	211	170			381	
03:30	3	8			11	15:30	206	149			355	
03:45	18	38	9	26	27	15:45	240	858	224	706	464	1564
04:00	9	5			14	16:00	164	150			314	
04:15	11	6			17	16:15	166	151			317	
04:30	9	15			24	16:30	192	151			343	
04:45	13	42	15	41	28	16:45	187	709	126	578	313	1287
05:00	17	19			36	17:00	231	165			396	
05:15	18	21			39	17:15	196	137			333	
05:30	24	47			71	17:30	150	130			280	
05:45	43	102	52	139	95	17:45	165	742	133	565	298	1307
06:00	53	49			102	18:00	168	131			299	
06:15	36	69			105	18:15	153	135			288	
06:30	33	86			119	18:30	160	141			301	
06:45	53	175	72	276	125	18:45	140	621	126	533	266	1154
07:00	59	76			135	19:00	138	114			252	
07:15	69	116			185	19:15	138	136			274	
07:30	111	156			267	19:30	129	90			219	
07:45	128	367	180	528	308	19:45	136	541	126	466	262	1007
08:00	94	126			220	20:00	121	106			227	
08:15	123	154			277	20:15	128	115			243	
08:30	100	131			231	20:30	122	126			248	
08:45	111	428	132	543	243	20:45	105	476	123	470	228	946
09:00	86	118			204	21:00	118	120			238	
09:15	121	108			229	21:15	102	97			199	
09:30	85	99			184	21:30	82	87			169	
09:45	121	413	144	469	265	21:45	83	385	72	376	155	761
10:00	105	124			229	22:00	63	53			116	
10:15	113	122			235	22:15	48	62			110	
10:30	115	165			280	22:30	55	38			93	
10:45	111	444	138	549	249	22:45	33	199	29	182	62	381
11:00	157	164			321	23:00	43	39			82	
11:15	128	174			302	23:15	39	25			64	
11:30	173	161			334	23:30	27	13			40	
11:45	174	632	167	666	341	23:45	18	127	10	87	28	214
TOTALS		2773	3302		6075	TOTALS		6852	5916		12768	
SPLIT %		45.6%	54.4%		32.2%	SPLIT %		53.7%	46.3%		67.8%	

DAILY TOTALS					NB	SB	EB	WB	Total
					9,625	9,218	0	0	18,843

AM Peak Hour	11:45	11:00			11:45	PM Peak Hour	15:00	15:00			15:00
AM Pk Volume	716	666			1363	PM Pk Volume	858	706			1564
Pk Hr Factor	0.957	0.957			0.909	Pk Hr Factor	0.894	0.788			0.843
7 - 9 Volume	795	1071	0	0	1866	4 - 6 Volume	1451	1143	0	0	2594
7 - 9 Peak Hour	07:30	07:30			07:30	4 - 6 Peak Hour	16:30	16:15			16:30
7 - 9 Pk Volume	456	616	0	0	1072	4 - 6 Pk Volume	806	593	0	0	1385
Pk Hr Factor	0.891	0.856	0.000	0.000	0.870	Pk Hr Factor	0.872	0.898	0.000	0.000	0.874

VOLUME

Loughborough Dr Bet. R St & M St

Day: Tuesday
Date: 6/5/2018

City: Merced
Project #: CA18_7229_002

DAILY TOTALS					NB	SB	EB	WB	Total
					0	0	4,384	3,993	8,377

AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL			
00:00			9	5	14	12:00			76	73	149			
00:15			11	4	15	12:15			61	67	128			
00:30			8	4	12	12:30			90	96	186			
00:45			5	33	4	17	12:45		86	313	73	309	159	622
01:00			6	5	11	13:00			85	80	165			
01:15			2	3	5	13:15			91	77	168			
01:30			3	3	6	13:30			87	53	140			
01:45			3	14	3	14	13:45		102	365	70	280	172	645
02:00			3	4	7	14:00			69	74	143			
02:15			2	0	2	14:15			70	86	156			
02:30			4	0	4	14:30			94	67	161			
02:45			4	13	2	6	14:45		91	324	69	296	160	620
03:00			1	2	3	15:00			115	84	199			
03:15			0	0	0	15:15			89	111	200			
03:30			1	3	4	15:30			96	86	182			
03:45			2	4	4	9	15:45		77	377	70	351	147	728
04:00			1	2	3	16:00			79	96	175			
04:15			3	1	4	16:15			69	61	130			
04:30			4	4	8	16:30			89	87	176			
04:45			6	14	5	12	16:45		76	313	69	313	145	626
05:00			2	5	7	17:00			73	109	182			
05:15			3	5	8	17:15			67	85	152			
05:30			7	9	16	17:30			68	61	129			
05:45			10	22	11	30	17:45		74	282	69	324	143	606
06:00			14	13	27	18:00			65	66	131			
06:15			16	12	28	18:15			63	62	125			
06:30			12	19	31	18:30			65	45	110			
06:45			29	71	19	63	18:45		52	245	56	229	108	474
07:00			28	25	53	19:00			67	46	113			
07:15			38	49	87	19:15			50	50	100			
07:30			87	58	145	19:30			64	56	120			
07:45			119	272	55	187	19:45		50	231	53	205	103	436
08:00			69	59	128	20:00			51	54	105			
08:15			59	44	103	20:15			40	37	77			
08:30			62	59	121	20:30			34	43	77			
08:45			75	265	46	208	20:45		46	171	42	176	88	347
09:00			52	41	93	21:00			50	45	95			
09:15			49	36	85	21:15			39	37	76			
09:30			53	42	95	21:30			52	35	87			
09:45			54	208	48	167	21:45		38	179	24	141	62	320
10:00			68	61	129	22:00			29	30	59			
10:15			58	52	110	22:15			17	27	44			
10:30			76	52	128	22:30			23	17	40			
10:45			61	263	72	237	22:45		21	90	13	87	34	177
11:00			75	80	155	23:00			15	13	28			
11:15			58	71	129	23:15			7	8	15			
11:30			70	65	135	23:30			9	9	18			
11:45			71	274	82	298	23:45		10	41	4	34	14	75
TOTALS			1453	1248	2701	TOTALS			2931	2745	5676			
SPLIT %			53.8%	46.2%	32.2%	SPLIT %			51.6%	48.4%	67.8%			

DAILY TOTALS					NB	SB	EB	WB	Total
					0	0	4,384	3,993	8,377

AM Peak Hour			07:30	11:45	11:45	PM Peak Hour			14:45	15:15	14:45
AM Pk Volume			334	318	616	PM Pk Volume			391	363	741
Pk Hr Factor			0.702	0.828	0.828	Pk Hr Factor			0.850	0.818	0.926
7 - 9 Volume	0	0	537	395	932	4 - 6 Volume	0	0	595	637	1232
7 - 9 Peak Hour			07:30	07:15	07:30	4 - 6 Peak Hour			16:00	16:30	16:30
7 - 9 Pk Volume	0	0	334	221	550	4 - 6 Pk Volume	0	0	313	350	655
Pk Hr Factor	0.000	0.000	0.702	0.936	0.790	Pk Hr Factor	0.000	0.000	0.879	0.803	0.900

VOLUME

Olive Ave Bet. R St & M St

Day: Tuesday
Date: 6/5/2018

City: Merced
Project #: CA18_7229_004

DAILY TOTALS				NB	SB	EB	WB	Total
				0	0	14,020	14,440	28,460

AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL			
00:00			16	27	43	12:00			263	278	541			
00:15			25	20	45	12:15			255	279	534			
00:30			20	25	45	12:30			251	277	528			
00:45			15	76	21	93	12:45		266	1035	274	1108	540	2143
01:00			15	15	30	13:00			278	258	536			
01:15			11	13	24	13:15			237	253	490			
01:30			14	11	25	13:30			276	254	530			
01:45			10	50	6	45	13:45		268	1059	233	998	501	2057
02:00			10	14	24	14:00			255	259	514			
02:15			7	11	18	14:15			217	274	491			
02:30			9	11	20	14:30			279	249	528			
02:45			13	39	13	49	14:45		249	1000	266	1048	515	2048
03:00			8	9	17	15:00			287	272	559			
03:15			8	14	22	15:15			282	343	625			
03:30			9	18	27	15:30			269	279	548			
03:45			8	33	12	53	15:45		257	1095	285	1179	542	2274
04:00			10	15	25	16:00			277	285	562			
04:15			14	20	34	16:15			276	261	537			
04:30			14	28	42	16:30			252	295	547			
04:45			14	52	51	114	16:45		286	1091	282	1123	568	2214
05:00			18	32	50	17:00			229	302	531			
05:15			29	45	74	17:15			275	276	551			
05:30			39	45	84	17:30			206	269	475			
05:45			49	135	73	195	17:45		201	911	266	1113	467	2024
06:00			46	53	99	18:00			199	235	434			
06:15			64	63	127	18:15			212	208	420			
06:30			71	81	152	18:30			184	206	390			
06:45			108	289	88	285	18:45		210	805	183	832	393	1637
07:00			101	108	209	19:00			161	186	347			
07:15			151	123	274	19:15			184	158	342			
07:30			198	154	352	19:30			149	191	340			
07:45			259	709	168	553	19:45		165	659	153	688	318	1347
08:00			229	209	438	20:00			147	163	310			
08:15			210	154	364	20:15			157	151	308			
08:30			160	155	315	20:30			159	171	330			
08:45			195	794	153	671	20:45		146	609	153	638	299	1247
09:00			163	157	320	21:00			143	176	319			
09:15			194	153	347	21:15			126	157	283			
09:30			215	205	420	21:30			104	118	222			
09:45			212	784	211	726	21:45		104	477	80	531	184	1008
10:00			216	230	446	22:00			105	109	214			
10:15			218	207	425	22:15			71	83	154			
10:30			195	230	425	22:30			67	66	133			
10:45			247	876	233	900	22:45		62	305	56	314	118	619
11:00			211	277	488	23:00			63	64	127			
11:15			252	242	494	23:15			40	43	83			
11:30			253	246	499	23:30			27	26	53			
11:45			253	969	261	1026	23:45		38	168	25	158	63	326
TOTALS			4806	4710	9516	TOTALS			9214	9730	18944			
SPLIT %			50.5%	49.5%	33.4%	SPLIT %			48.6%	51.4%	66.6%			

DAILY TOTALS				NB	SB	EB	WB	Total
				0	0	14,020	14,440	28,460

AM Peak Hour	11:30	11:45	11:45	PM Peak Hour	14:30	15:15	15:15				
AM Pk Volume	1024	1095	2117	PM Pk Volume	1097	1192	2277				
Pk Hr Factor	0.973	0.981	0.978	Pk Hr Factor	0.956	0.869	0.911				
7 - 9 Volume	0	0	1503	1224	2727	4 - 6 Volume	0	0	2002	2236	4238
7 - 9 Peak Hour	07:30	07:45	07:30	4 - 6 Peak Hour	16:00	16:30	16:00				
7 - 9 Pk Volume	0	0	896	686	1581	4 - 6 Pk Volume	0	0	1091	1155	2214
Pk Hr Factor	0.000	0.000	0.865	0.821	0.902	Pk Hr Factor	0.000	0.000	0.954	0.956	0.974

VOLUME

M St Bet. Loughborough Dr & Olive Ave

Day: Tuesday
Date: 6/5/2018

City: Merced
Project #: CA18_7229_006

DAILY TOTALS				NB	SB	EB	WB	Total
				8,296	9,930	0	0	18,226

AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00	14	9			23	12:00	192	199			391
00:15	22	13			35	12:15	182	207			389
00:30	10	9			19	12:30	165	231			396
00:45	6	52	6	37	12	12:45	146	685	203	840	349
01:00	6	3			9	13:00	139	222			361
01:15	11	5			16	13:15	185	205			390
01:30	11	2			13	13:30	165	142			307
01:45	11	39	5	15	16	13:45	191	680	188	757	379
02:00	9	4			13	14:00	165	174			339
02:15	4	2			6	14:15	157	169			326
02:30	6	5			11	14:30	166	218			384
02:45	4	23	3	14	7	14:45	156	644	203	764	359
03:00	7	7			14	15:00	177	192			369
03:15	3	3			6	15:15	221	213			434
03:30	4	6			10	15:30	156	203			359
03:45	6	20	8	24	14	15:45	156	710	218	826	374
04:00	8	7			15	16:00	168	170			338
04:15	5	3			8	16:15	138	179			317
04:30	6	12			18	16:30	145	224			369
04:45	12	31	11	33	23	16:45	149	600	165	738	314
05:00	13	16			29	17:00	177	206			383
05:15	17	18			35	17:15	169	144			313
05:30	15	20			35	17:30	113	168			281
05:45	24	69	41	95	65	17:45	112	571	125	643	237
06:00	34	41			75	18:00	91	150			241
06:15	44	44			88	18:15	98	125			223
06:30	36	77			113	18:30	88	105			193
06:45	46	160	79	241	125	18:45	91	368	116	496	207
07:00	61	96			157	19:00	88	118			206
07:15	103	140			243	19:15	68	73			141
07:30	131	175			306	19:30	91	109			200
07:45	215	510	243	654	458	19:45	69	316	84	384	153
08:00	141	199			340	20:00	76	79			155
08:15	132	165			297	20:15	60	84			144
08:30	107	140			247	20:30	57	91			148
08:45	103	483	141	645	244	20:45	55	248	89	343	144
09:00	105	144			249	21:00	85	82			167
09:15	86	116			202	21:15	61	77			138
09:30	106	135			241	21:30	48	74			122
09:45	135	432	166	561	301	21:45	54	248	49	282	103
10:00	117	144			261	22:00	45	52			97
10:15	140	154			294	22:15	47	34			81
10:30	148	165			313	22:30	44	20			64
10:45	139	544	193	656	332	22:45	36	172	24	130	60
11:00	160	171			331	23:00	25	25			50
11:15	139	160			299	23:15	28	16			44
11:30	119	162			281	23:30	24	19			43
11:45	172	590	182	675	354	23:45	24	101	17	77	41
TOTALS	2953	3650			6603	TOTALS	5343	6280			11623
SPLIT %	44.7%	55.3%			36.2%	SPLIT %	46.0%	54.0%			63.8%

DAILY TOTALS				NB	SB	EB	WB	Total
				8,296	9,930	0	0	18,226

AM Peak Hour	11:45	11:45			11:45	PM Peak Hour	14:30	12:15			14:30
AM Pk Volume	711	819			1530	PM Pk Volume	720	863			1546
Pk Hr Factor	0.926	0.886			0.966	Pk Hr Factor	0.814	0.934			0.891
7 - 9 Volume	993	1299	0	0	2292	4 - 6 Volume	1171	1381	0	0	2552
7 - 9 Peak Hour	07:30	07:30			07:30	4 - 6 Peak Hour	16:30	16:15			16:15
7 - 9 Pk Volume	619	782	0	0	1401	4 - 6 Pk Volume	640	774	0	0	1383
Pk Hr Factor	0.720	0.805	0.000	0.000	0.765	Pk Hr Factor	0.904	0.864	0.000	0.000	0.903

APPENDIX B:

VOLUME DEVELOPMENT WORKSHEETS

Table B-1 - Existing Peak Hour Volume Summary

	A.M. Peak Hour							
	Existing Without Project	Phase I Project Trips	Existing With Project Phase I	Phase II Alt I Project Trips	Existing With Project Phases I+II - Alt I	Phase II Alt II Project Trips	Demolished Uses Trips	Existing With Project Phases I+II - Alt II
1 R Street/Loughborough Drive								
NBL	43	0	43	0	43	0	0	43
NBT	268	4	272	0	272	0	0	272
NBR	122	0	122	0	122	0	0	122
SBL	63	0	63	0	63	0	3	60
SBT	466	6	472	0	472	0	0	472
SBR	90	0	90	0	90	0	0	90
EBL	86	0	86	0	86	0	0	86
EBT	165	2	167	0	167	0	1	166
EBR	45	0	45	0	45	0	0	45
WBL	78	0	78	0	78	0	0	78
WBT	97	1	98	0	98	0	1	97
WBR	49	0	49	0	49	0	2	47
North Leg								
Approach	619	6	625	0	625	0	3	622
Departure	403	4	407	0	407	0	2	405
Total	1,022	10	1,032	0	1,032	0	5	1,027
South Leg								
Approach	433	4	437	0	437	0	0	437
Departure	589	6	595	0	595	0	0	595
Total	1,022	10	1,032	0	1,032	0	0	1,032
East Leg								
Approach	224	1	225	0	225	0	3	222
Departure	350	2	352	0	352	0	4	348
Total	574	3	577	0	577	0	7	570
West Leg								
Approach	296	2	298	0	298	0	1	297
Departure	230	1	231	0	231	0	1	230
Total	526	3	529	0	529	0	2	527
Total Approaches								
Approach	1,572	13	1,585	0	1,585	0	7	1,578
Departure	1,572	13	1,585	0	1,585	0	7	1,578
Total	3,144	26	3,170	0	3,170	0	14	3,156

Table B-1 - Existing Peak Hour Volume Summary

	A.M. Peak Hour							
	Existing Without Project	Phase I Project Trips	Existing With Project Phase I	Phase II Alt I Project Trips	Existing With Project Phases I+II - Alt I	Phase II Alt II Project Trips	Demolished Uses Trips	Existing With Project Phases I+II - Alt II
2 R Street/99 Cents Stores Driveway - Mall Driveway 1								
NBL	36	0	36	0	36	0	0	36
NBT	419	0	419	0	419	0	0	419
NBR	32	0	32	0	32	0	0	32
SBL	28	6	34	0	34	0	0	34
SBT	543	0	543	0	543	0	0	543
SBR	22	0	22	0	22	0	0	22
EBL	0	0	0	0	0	0	0	0
EBT	0	0	0	0	0	0	0	0
EBR	29	0	29	0	29	0	0	29
WBL	0	0	0	0	0	0	0	0
WBT	0	0	0	0	0	0	0	0
WBR	14	4	18	0	18	0	0	18
North Leg								
Approach	593	6	599	0	599	0	0	599
Departure	433	4	437	0	437	0	0	437
Total	1,026	10	1,036	0	1,036	0	0	1,036
South Leg								
Approach	487	0	487	0	487	0	0	487
Departure	572	0	572	0	572	0	0	572
Total	1,059	0	1,059	0	1,059	0	0	1,059
East Leg								
Approach	14	4	18	0	18	0	0	18
Departure	60	6	66	0	66	0	0	66
Total	74	10	84	0	84	0	0	84
West Leg								
Approach	29	0	29	0	29	0	0	29
Departure	58	0	58	0	58	0	0	58
Total	87	0	87	0	87	0	0	87
Total Approaches								
Approach	1,123	10	1,133	0	1,133	0	0	1,133
Departure	1,123	10	1,133	0	1,133	0	0	1,133
Total	2,246	20	2,266	0	2,266	0	0	2,266

Table B-1 - Existing Peak Hour Volume Summary

	A.M. Peak Hour							
	Existing Without Project	Phase I Project Trips	Existing With Project Phase I	Phase II Alt I Project Trips	Existing With Project Phases I+II - Alt I	Phase II Alt II Project Trips	Demolished Uses Trips	Existing With Project Phases I+II - Alt II
3 R Street/Olive Avenue								
NBL	120	0	120	0	120	0	0	120
NBT	325	0	325	0	325	0	0	325
NBR	125	4	129	0	129	0	2	127
SBL	98	0	98	0	98	0	0	98
SBT	396	0	396	0	396	0	0	396
SBR	55	0	55	0	55	0	0	55
EBL	102	0	102	0	102	0	0	102
EBT	647	3	650	0	650	0	2	648
EBR	138	0	138	0	138	0	0	138
WBL	162	3	165	0	165	0	1	164
WBT	457	2	459	0	459	0	1	458
WBR	68	0	68	0	68	0	0	68
North Leg								
Approach	549	0	549	0	549	0	0	549
Departure	495	0	495	0	495	0	0	495
Total	1,044	0	1,044	0	1,044	0	0	1,044
South Leg								
Approach	570	4	574	0	574	0	2	572
Departure	696	3	699	0	699	0	1	698
Total	1,266	7	1,273	0	1,273	0	3	1,270
East Leg								
Approach	687	5	692	0	692	0	2	690
Departure	870	7	877	0	877	0	4	873
Total	1,557	12	1,569	0	1,569	0	6	1,563
West Leg								
Approach	887	3	890	0	890	0	2	888
Departure	632	2	634	0	634	0	1	633
Total	1,519	5	1,524	0	1,524	0	3	1,521
Total Approaches								
Approach	2,693	12	2,705	0	2,705	0	6	2,699
Departure	2,693	12	2,705	0	2,705	0	6	2,699
Total	5,386	24	5,410	0	5,410	0	12	5,398

Table B-1 - Existing Peak Hour Volume Summary

	A.M. Peak Hour							
	Existing Without Project	Phase I Project Trips	Existing With Project Phase I	Phase II Alt I Project Trips	Existing With Project Phases I+II - Alt I	Phase II Alt II Project Trips	Demolished Uses Trips	Existing With Project Phases I+II - Alt II
4 R Street/Olivewood Drive								
NBL	117	0	117	0	117	0	0	117
NBT	515	4	519	0	519	0	2	517
NBR	110	0	110	0	110	0	0	110
SBL	45	0	45	0	45	0	0	45
SBT	628	3	631	0	631	0	1	630
SBR	19	0	19	0	19	0	0	19
EBL	0	0	0	0	0	0	0	0
EBT	0	0	0	0	0	0	0	0
EBR	94	0	94	0	94	0	0	94
WBL	0	0	0	0	0	0	0	0
WBT	0	0	0	0	0	0	0	0
WBR	55	0	55	0	55	0	0	55
North Leg								
Approach	692	3	695	0	695	0	1	694
Departure	570	4	574	0	574	0	2	572
Total	1,262	7	1,269	0	1,269	0	3	1,266
South Leg								
Approach	742	4	746	0	746	0	2	744
Departure	722	3	725	0	725	0	1	724
Total	1,464	7	1,471	0	1,471	0	3	1,468
East Leg								
Approach	55	0	55	0	55	0	0	55
Departure	155	0	155	0	155	0	0	155
Total	210	0	210	0	210	0	0	210
West Leg								
Approach	94	0	94	0	94	0	0	94
Departure	136	0	136	0	136	0	0	136
Total	230	0	230	0	230	0	0	230
Total Approaches								
Approach	1,583	7	1,590	0	1,590	0	3	1,587
Departure	1,583	7	1,590	0	1,590	0	3	1,587
Total	3,166	14	3,180	0	3,180	0	6	3,174

Table B-1 - Existing Peak Hour Volume Summary

	A.M. Peak Hour							
	Existing Without Project	Phase I Project Trips	Existing With Project Phase I	Phase II Alt I Project Trips	Existing With Project Phases I+II - Alt I	Phase II Alt II Project Trips	Demolished Uses Trips	Existing With Project Phases I+II - Alt II
5 Mall Driveway 2 - Pepperwood Lane/Olive Avenue								
NBL	8	0	8	0	8	0	0	8
NBT	2	1	3	0	3	0	0	3
NBR	56	0	56	0	56	0	0	56
SBL	4	2	6	0	6	0	1	5
SBT	1	0	1	0	1	0	0	1
SBR	3	3	6	0	6	0	1	5
EBL	17	5	22	0	22	0	1	21
EBT	844	2	846	0	846	0	2	844
EBR	14	0	14	0	14	0	0	14
WBL	27	0	27	0	27	0	0	27
WBT	671	1	672	0	672	0	1	671
WBR	4	2	6	0	6	0	0	6
North Leg								
Approach	8	5	13	0	13	0	2	11
Departure	23	8	31	0	31	0	1	30
Total	31	13	44	0	44	0	3	41
South Leg								
Approach	66	1	67	0	67	0	0	67
Departure	42	0	42	0	42	0	0	42
Total	108	1	109	0	109	0	0	109
East Leg								
Approach	702	3	705	0	705	0	1	704
Departure	904	4	908	0	908	0	3	905
Total	1,606	7	1,613	0	1,613	0	4	1,609
West Leg								
Approach	875	7	882	0	882	0	3	879
Departure	682	4	686	0	686	0	2	684
Total	1,557	11	1,568	0	1,568	0	5	1,563
Total Approaches								
Approach	1,651	16	1,667	0	1,667	0	6	1,661
Departure	1,651	16	1,667	0	1,667	0	6	1,661
Total	3,302	32	3,334	0	3,334	0	12	3,322

Table B-1 - Existing Peak Hour Volume Summary

	A.M. Peak Hour							
	Existing Without Project	Phase I Project Trips	Existing With Project Phase I	Phase II Alt I Project Trips	Existing With Project Phases I+II - Alt I	Phase II Alt II Project Trips	Demolished Uses Trips	Existing With Project Phases I+II - Alt II
6 Laurel Glenn Apartments Driveway - Mall Driveway 3/Loughborough Drive								
NBL	7	2	9	0	9	0	3	6
NBT	0	0	0	0	0	0	0	0
NBR	26	4	30	0	30	0	2	28
SBL	4	0	4	0	4	0	0	4
SBT	0	0	0	0	0	0	0	0
SBR	6	0	6	0	6	0	0	6
EBL	1	0	1	0	1	0	0	1
EBT	324	0	324	0	324	0	0	324
EBR	23	3	26	0	26	0	5	21
WBL	26	1	27	0	27	0	0	27
WBT	216	0	216	0	216	0	0	216
WBR	6	0	6	0	6	0	0	6
North Leg								
Approach	10	0	10	0	10	0	0	10
Departure	7	0	7	0	7	0	0	7
Total	17	0	17	0	17	0	0	17
South Leg								
Approach	33	6	39	0	39	0	5	34
Departure	49	4	53	0	53	0	5	48
Total	82	10	92	0	92	0	10	82
East Leg								
Approach	248	1	249	0	249	0	0	249
Departure	354	4	358	0	358	0	2	356
Total	602	5	607	0	607	0	2	605
West Leg								
Approach	348	3	351	0	351	0	5	346
Departure	229	2	231	0	231	0	3	228
Total	577	5	582	0	582	0	8	574
Total Approaches								
Approach	639	10	649	0	649	0	10	639
Departure	639	10	649	0	649	0	10	639
Total	1,278	20	1,298	0	1,298	0	20	1,278

Table B-1 - Existing Peak Hour Volume Summary

	A.M. Peak Hour							
	Existing Without Project	Phase I Project Trips	Existing With Project Phase I	Phase II Alt I Project Trips	Existing With Project Phases I+II - Alt I	Phase II Alt II Project Trips	Demolished Uses Trips	Existing With Project Phases I+II - Alt II
7 Mall Driveway 4 - Applewood Lane/Olive Avenue								
NBL	0	0	0	0	0	0	0	0
NBT	0	0	0	0	0	0	0	0
NBR	29	0	29	0	29	0	0	29
SBL	0	0	0	0	0	0	0	0
SBT	0	0	0	0	0	0	0	0
SBR	7	1	8	0	8	0	1	7
EBL	46	2	48	0	48	0	2	46
EBT	857	2	859	0	859	0	1	858
EBR	18	0	18	0	18	0	0	18
WBL	45	0	45	0	45	0	0	45
WBT	678	2	680	0	680	0	0	680
WBR	19	5	24	0	24	0	4	20
North Leg								
Approach	7	1	8	0	8	0	1	7
Departure	65	7	72	0	72	0	6	66
Total	72	8	80	0	80	0	7	73
South Leg								
Approach	29	0	29	0	29	0	0	29
Departure	63	0	63	0	63	0	0	63
Total	92	0	92	0	92	0	0	92
East Leg								
Approach	742	7	749	0	749	0	4	745
Departure	886	2	888	0	888	0	1	887
Total	1,628	9	1,637	0	1,637	0	5	1,632
West Leg								
Approach	921	4	925	0	925	0	3	922
Departure	685	3	688	0	688	0	1	687
Total	1,606	7	1,613	0	1,613	0	4	1,609
Total Approaches								
Approach	1,699	12	1,711	0	1,711	0	8	1,703
Departure	1,699	12	1,711	0	1,711	0	8	1,703
Total	3,398	24	3,422	0	3,422	0	16	3,406

Table B-1 - Existing Peak Hour Volume Summary

	A.M. Peak Hour							
	Existing Without Project	Phase I Project Trips	Existing With Project Phase I	Phase II Alt I Project Trips	Existing With Project Phases I+II - Alt I	Phase II Alt II Project Trips	Demolished Uses Trips	Existing With Project Phases I+II - Alt II
8 M Street/Loughborough Drive - Collins Drive								
NBL	100	0	100	0	100	0	0	100
NBT	464	0	464	0	464	0	0	464
NBR	14	0	14	0	14	0	0	14
SBL	110	0	110	0	110	0	0	110
SBT	646	5	651	0	651	0	3	648
SBR	116	0	116	0	116	0	0	116
EBL	142	3	145	0	145	0	2	143
EBT	77	0	77	0	77	0	0	77
EBR	120	0	120	0	120	0	0	120
WBL	45	0	45	0	45	0	0	45
WBT	66	1	67	0	67	0	0	67
WBR	104	0	104	0	104	0	0	104
North Leg								
Approach	872	5	877	0	877	0	3	874
Departure	710	3	713	0	713	0	2	711
Total	1,582	8	1,590	0	1,590	0	5	1,585
South Leg								
Approach	578	0	578	0	578	0	0	578
Departure	811	5	816	0	816	0	3	813
Total	1,389	5	1,394	0	1,394	0	3	1,391
East Leg								
Approach	215	1	216	0	216	0	0	216
Departure	201	0	201	0	201	0	0	201
Total	416	1	417	0	417	0	0	417
West Leg								
Approach	339	3	342	0	342	0	2	340
Departure	282	1	283	0	283	0	0	283
Total	621	4	625	0	625	0	2	623
Total Approaches								
Approach	2,004	9	2,013	0	2,013	0	5	2,008
Departure	2,004	9	2,013	0	2,013	0	5	2,008
Total	4,008	18	4,026	0	4,026	0	10	4,016

Table B-1 - Existing Peak Hour Volume Summary

	A.M. Peak Hour							
	Existing Without Project	Phase I Project Trips	Existing With Project Phase I	Phase II Alt I Project Trips	Existing With Project Phases I+II - Alt I	Phase II Alt II Project Trips	Demolished Uses Trips	Existing With Project Phases I+II - Alt II
9 M Street/Fairfield Drive								
NBL	0	0	0	0	0	0	0	0
NBT	575	0	575	0	575	0	0	575
NBR	46	0	46	0	46	0	0	46
SBL	0	0	0	0	0	0	0	0
SBT	751	0	751	0	751	0	0	751
SBR	46	5	51	0	51	0	3	48
EBL	0	0	0	0	0	0	0	0
EBT	0	0	0	0	0	0	0	0
EBR	47	3	50	0	50	0	1	49
WBL	0	0	0	0	0	0	0	0
WBT	0	0	0	0	0	0	0	0
WBR	50	0	50	0	50	0	0	50
North Leg								
Approach	797	5	802	0	802	0	3	799
Departure	625	0	625	0	625	0	0	625
Total	1,422	5	1,427	0	1,427	0	3	1,424
South Leg								
Approach	621	0	621	0	621	0	0	621
Departure	798	3	801	0	801	0	1	800
Total	1,419	3	1,422	0	1,422	0	1	1,421
East Leg								
Approach	50	0	50	0	50	0	0	50
Departure	46	0	46	0	46	0	0	46
Total	96	0	96	0	96	0	0	96
West Leg								
Approach	47	3	50	0	50	0	1	49
Departure	46	5	51	0	51	0	3	48
Total	93	8	101	0	101	0	4	97
Total Approaches								
Approach	1,515	8	1,523	0	1,523	0	4	1,519
Departure	1,515	8	1,523	0	1,523	0	4	1,519
Total	3,030	16	3,046	0	3,046	0	8	3,038

Table B-1 - Existing Peak Hour Volume Summary

	A.M. Peak Hour							
	Existing Without Project	Phase I Project Trips	Existing With Project Phase I	Phase II Alt I Project Trips	Existing With Project Phases I+II - Alt I	Phase II Alt II Project Trips	Demolished Uses Trips	Existing With Project Phases I+II - Alt II
10 M Street/Olive Avenue								
NBL	126	4	130	0	130	0	2	128
NBT	417	0	417	0	417	0	0	417
NBR	104	0	104	0	104	0	0	104
SBL	185	0	185	0	185	0	0	185
SBT	552	3	555	0	555	0	1	554
SBR	61	0	61	0	61	0	0	61
EBL	123	0	123	0	123	0	0	123
EBT	573	2	575	0	575	0	1	574
EBR	162	0	162	0	162	0	0	162
WBL	180	0	180	0	180	0	0	180
WBT	552	3	555	0	555	0	2	553
WBR	81	0	81	0	81	0	0	81
North Leg								
Approach	798	3	801	0	801	0	1	800
Departure	621	0	621	0	621	0	0	621
Total	1,419	3	1,422	0	1,422	0	1	1,421
South Leg								
Approach	647	4	651	0	651	0	2	649
Departure	894	3	897	0	897	0	1	896
Total	1,541	7	1,548	0	1,548	0	3	1,545
East Leg								
Approach	813	3	816	0	816	0	2	814
Departure	862	2	864	0	864	0	1	863
Total	1,675	5	1,680	0	1,680	0	3	1,677
West Leg								
Approach	858	2	860	0	860	0	1	859
Departure	739	7	746	0	746	0	4	742
Total	1,597	9	1,606	0	1,606	0	5	1,601
Total Approaches								
Approach	3,116	12	3,128	0	3,128	0	6	3,122
Departure	3,116	12	3,128	0	3,128	0	6	3,122
Total	6,232	24	6,256	0	6,256	0	12	6,244

Table B-1 - Existing Peak Hour Volume Summary

	A.M. Peak Hour							
	Existing Without Project	Phase I Project Trips	Existing With Project Phase I	Phase II Alt I Project Trips	Existing With Project Phases I+II - Alt I	Phase II Alt II Project Trips	Demolished Uses Trips	Existing With Project Phases I+II - Alt II
11 M Street/Olivewood Drive								
NBL	68	0	68	0	68	0	0	68
NBT	636	4	640	0	640	0	2	638
NBR	0	0	0	0	0	0	0	0
SBL	0	0	0	0	0	0	0	0
SBT	817	3	820	0	820	0	1	819
SBR	41	0	41	0	41	0	0	41
EBL	7	0	7	0	7	0	0	7
EBT	0	0	0	0	0	0	0	0
EBR	67	0	67	0	67	0	0	67
WBL	0	0	0	0	0	0	0	0
WBT	0	0	0	0	0	0	0	0
WBR	0	0	0	0	0	0	0	0
North Leg								
Approach	858	3	861	0	861	0	1	860
Departure	643	4	647	0	647	0	2	645
Total	1,501	7	1,508	0	1,508	0	3	1,505
South Leg								
Approach	704	4	708	0	708	0	2	706
Departure	884	3	887	0	887	0	1	886
Total	1,588	7	1,595	0	1,595	0	3	1,592
East Leg								
Approach	0	0	0	0	0	0	0	0
Departure	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0
West Leg								
Approach	74	0	74	0	74	0	0	74
Departure	109	0	109	0	109	0	0	109
Total	183	0	183	0	183	0	0	183
Total Approaches								
Approach	1,636	7	1,643	0	1,643	0	3	1,640
Departure	1,636	7	1,643	0	1,643	0	3	1,640
Total	3,272	14	3,286	0	3,286	0	6	3,280

Table B-1 - Existing Peak Hour Volume Summary

	P.M. Peak Hour							
	Existing Without Project	Phase I Project Trips	Existing With Project Phase I	Phase II Alt I Project Trips	Existing With Project Phases I+II - Alt I	Phase II Alt II Project Trips	Demolished Uses Trips	Existing With Project Phases I+II - Alt II
1 R Street/Loughborough Drive								
NBL	120	0	120	0	120	0	0	120
NBT	528	19	547	0	547	0	0	547
NBR	135	0	135	0	135	0	0	135
SBL	48	0	48	19	67	19	18	49
SBT	360	18	378	0	378	0	0	378
SBR	87	0	87	0	87	0	0	87
EBL	102	0	102	0	102	0	0	102
EBT	121	5	126	6	132	6	5	127
EBR	35	0	35	0	35	0	0	35
WBL	104	0	104	0	104	0	0	104
WBT	168	6	174	5	179	5	6	173
WBR	81	0	81	18	99	18	21	78
North Leg								
Approach	495	18	513	19	532	19	18	514
Departure	711	19	730	18	748	18	21	727
Total	1,206	37	1,243	37	1,280	37	39	1,241
South Leg								
Approach	783	19	802	0	802	0	0	802
Departure	499	18	517	0	517	0	0	517
Total	1,282	37	1,319	0	1,319	0	0	1,319
East Leg								
Approach	353	6	359	23	382	23	27	355
Departure	304	5	309	25	334	25	23	311
Total	657	11	668	48	716	48	50	666
West Leg								
Approach	258	5	263	6	269	6	5	264
Departure	375	6	381	5	386	5	6	380
Total	633	11	644	11	655	11	11	644
Total Approaches								
Approach	1,889	48	1,937	48	1,985	48	50	1,935
Departure	1,889	48	1,937	48	1,985	48	50	1,935
Total	3,778	96	3,874	96	3,970	96	100	3,870

Table B-1 - Existing Peak Hour Volume Summary

	P.M. Peak Hour							
	Existing Without Project	Phase I Project Trips	Existing With Project Phase I	Phase II Alt I Project Trips	Existing With Project Phases I+II - Alt I	Phase II Alt II Project Trips	Demolished Uses Trips	Existing With Project Phases I+II - Alt II
2 R Street/99 Cents Stores Driveway - Mall Driveway 1								
NBL	94	0	94	0	94	0	0	94
NBT	701	0	701	0	701	0	0	701
NBR	114	0	114	0	114	0	0	114
SBL	84	18	102	0	102	0	0	102
SBT	457	0	457	0	457	0	0	457
SBR	29	0	29	0	29	0	0	29
EBL	0	0	0	0	0	0	0	0
EBT	0	0	0	0	0	0	0	0
EBR	125	0	125	0	125	0	0	125
WBL	0	0	0	0	0	0	0	0
WBT	0	0	0	0	0	0	0	0
WBR	81	19	100	0	100	0	0	100
North Leg								
Approach	570	18	588	0	588	0	0	588
Departure	782	19	801	0	801	0	0	801
Total	1,352	37	1,389	0	1,389	0	0	1,389
South Leg								
Approach	909	0	909	0	909	0	0	909
Departure	582	0	582	0	582	0	0	582
Total	1,491	0	1,491	0	1,491	0	0	1,491
East Leg								
Approach	81	19	100	0	100	0	0	100
Departure	198	18	216	0	216	0	0	216
Total	279	37	316	0	316	0	0	316
West Leg								
Approach	125	0	125	0	125	0	0	125
Departure	123	0	123	0	123	0	0	123
Total	248	0	248	0	248	0	0	248
Total Approaches								
Approach	1,685	37	1,722	0	1,722	0	0	1,722
Departure	1,685	37	1,722	0	1,722	0	0	1,722
Total	3,370	74	3,444	0	3,444	0	0	3,444

Table B-1 - Existing Peak Hour Volume Summary

	P.M. Peak Hour							
	Existing Without Project	Phase I Project Trips	Existing With Project Phase I	Phase II Alt I Project Trips	Existing With Project Phases I+II - Alt I	Phase II Alt II Project Trips	Demolished Uses Trips	Existing With Project Phases I+II - Alt II
3 R Street/Olive Avenue								
NBL	293	0	293	0	293	0	0	293
NBT	570	0	570	0	570	0	0	570
NBR	98	12	110	13	123	13	12	111
SBL	134	0	134	0	134	0	0	134
SBT	352	0	352	0	352	0	0	352
SBR	111	0	111	0	111	0	0	111
EBL	212	0	212	0	212	0	0	212
EBT	773	9	782	9	791	9	9	782
EBR	187	0	187	0	187	0	0	187
WBL	239	13	252	13	265	13	14	251
WBT	842	10	852	9	861	9	10	851
WBR	144	0	144	0	144	0	0	144
North Leg								
Approach	597	0	597	0	597	0	0	597
Departure	926	0	926	0	926	0	0	926
Total	1,523	0	1,523	0	1,523	0	0	1,523
South Leg								
Approach	961	12	973	13	986	13	12	974
Departure	778	13	791	13	804	13	14	790
Total	1,739	25	1,764	26	1,790	26	26	1,764
East Leg								
Approach	1,225	23	1,248	22	1,270	22	24	1,246
Departure	1,005	21	1,026	22	1,048	22	21	1,027
Total	2,230	44	2,274	44	2,318	44	45	2,273
West Leg								
Approach	1,172	9	1,181	9	1,190	9	9	1,181
Departure	1,246	10	1,256	9	1,265	9	10	1,255
Total	2,418	19	2,437	18	2,455	18	19	2,436
Total Approaches								
Approach	3,955	44	3,999	44	4,043	44	45	3,998
Departure	3,955	44	3,999	44	4,043	44	45	3,998
Total	7,910	88	7,998	88	8,086	88	90	7,996

Table B-1 - Existing Peak Hour Volume Summary

	P.M. Peak Hour							
	Existing Without Project	Phase I Project Trips	Existing With Project Phase I	Phase II Alt I Project Trips	Existing With Project Phases I+II - Alt I	Phase II Alt II Project Trips	Demolished Uses Trips	Existing With Project Phases I+II - Alt II
4 R Street/Olivewood Drive								
NBL	249	0	249	0	249	0	0	249
NBT	793	12	805	13	818	13	12	806
NBR	116	0	116	0	116	0	0	116
SBL	43	0	43	0	43	0	0	43
SBT	663	13	676	13	689	13	14	675
SBR	37	0	37	0	37	0	0	37
EBL	0	0	0	0	0	0	0	0
EBT	0	0	0	0	0	0	0	0
EBR	319	0	319	0	319	0	0	319
WBL	0	0	0	0	0	0	0	0
WBT	0	0	0	0	0	0	0	0
WBR	181	0	181	0	181	0	0	181
North Leg								
Approach	743	13	756	13	769	13	14	755
Departure	974	12	986	13	999	13	12	987
Total	1,717	25	1,742	26	1,768	26	26	1,742
South Leg								
Approach	1,158	12	1,170	13	1,183	13	12	1,171
Departure	982	13	995	13	1,008	13	14	994
Total	2,140	25	2,165	26	2,191	26	26	2,165
East Leg								
Approach	181	0	181	0	181	0	0	181
Departure	159	0	159	0	159	0	0	159
Total	340	0	340	0	340	0	0	340
West Leg								
Approach	319	0	319	0	319	0	0	319
Departure	286	0	286	0	286	0	0	286
Total	605	0	605	0	605	0	0	605
Total Approaches								
Approach	2,401	25	2,426	26	2,452	26	26	2,426
Departure	2,401	25	2,426	26	2,452	26	26	2,426
Total	4,802	50	4,852	52	4,904	52	52	4,852

Table B-1 - Existing Peak Hour Volume Summary

	P.M. Peak Hour							
	Existing Without Project	Phase I Project Trips	Existing With Project Phase I	Phase II Alt I Project Trips	Existing With Project Phases I+II - Alt I	Phase II Alt II Project Trips	Demolished Uses Trips	Existing With Project Phases I+II - Alt II
5 Mall Driveway 2 - Pepperwood Lane/Olive Avenue								
NBL	22	0	22	0	22	0	0	22
NBT	3	2	5	2	7	2	2	5
NBR	97	0	97	0	97	0	0	97
SBL	5	10	15	9	24	9	10	14
SBT	1	2	3	2	5	2	2	3
SBR	74	15	89	7	96	7	8	88
EBL	64	14	78	8	86	8	7	79
EBT	952	7	959	15	974	15	14	960
EBR	37	0	37	0	37	0	0	37
WBL	56	0	56	0	56	0	0	56
WBT	1,118	8	1,126	14	1,140	14	16	1,124
WBR	20	7	27	0	27	0	0	27
North Leg								
Approach	80	27	107	18	125	18	20	105
Departure	87	23	110	10	120	10	9	111
Total	167	50	217	28	245	28	29	216
South Leg								
Approach	122	2	124	2	126	2	2	124
Departure	94	2	96	2	98	2	2	96
Total	216	4	220	4	224	4	4	220
East Leg								
Approach	1,194	15	1,209	14	1,223	14	16	1,207
Departure	1,054	17	1,071	24	1,095	24	24	1,071
Total	2,248	32	2,280	38	2,318	38	40	2,278
West Leg								
Approach	1,053	21	1,074	23	1,097	23	21	1,076
Departure	1,214	23	1,237	21	1,258	21	24	1,234
Total	2,267	44	2,311	44	2,355	44	45	2,310
Total Approaches								
Approach	2,449	65	2,514	57	2,571	57	59	2,512
Departure	2,449	65	2,514	57	2,571	57	59	2,512
Total	4,898	130	5,028	114	5,142	114	118	5,024

Table B-1 - Existing Peak Hour Volume Summary

	P.M. Peak Hour							
	Existing Without Project	Phase I Project Trips	Existing With Project Phase I	Phase II Alt I Project Trips	Existing With Project Phases I+II - Alt I	Phase II Alt II Project Trips	Demolished Uses Trips	Existing With Project Phases I+II - Alt II
6 Laurel Glenn Apartments Driveway - Mall Driveway 3/Loughborough Drive								
NBL	29	10	39	27	66	27	31	35
NBT	1	0	1	0	1	0	0	1
NBR	69	19	88	18	106	18	21	85
SBL	9	0	9	0	9	0	0	9
SBT	1	0	1	0	1	0	0	1
SBR	2	0	2	0	2	0	0	2
EBL	11	0	11	0	11	0	0	11
EBT	332	0	332	0	332	0	0	332
EBR	18	9	27	28	55	28	26	29
WBL	39	2	41	19	60	2	2	41
WBT	320	0	320	0	320	0	0	320
WBR	10	0	10	0	10	0	0	10
North Leg								
Approach	12	0	12	0	12	0	0	12
Departure	22	0	22	0	22	0	0	22
Total	34	0	34	0	34	0	0	34
South Leg								
Approach	99	29	128	45	173	45	52	121
Departure	58	11	69	47	116	30	28	71
Total	157	40	197	92	289	75	80	192
East Leg								
Approach	369	2	371	19	390	2	2	371
Departure	410	19	429	18	447	18	21	426
Total	779	21	800	37	837	20	23	797
West Leg								
Approach	361	9	370	28	398	28	26	372
Departure	351	10	361	27	388	27	31	357
Total	712	19	731	55	786	55	57	729
Total Approaches								
Approach	841	40	881	92	973	75	80	876
Departure	841	40	881	92	973	75	80	876
Total	1,682	80	1,762	184	1,946	150	160	1,752

Table B-1 - Existing Peak Hour Volume Summary

	P.M. Peak Hour							
	Existing Without Project	Phase I Project Trips	Existing With Project Phase I	Phase II Alt I Project Trips	Existing With Project Phases I+II - Alt I	Phase II Alt II Project Trips	Demolished Uses Trips	Existing With Project Phases I+II - Alt II
7 Mall Driveway 4 - Applewood Lane/Olive Avenue								
NBL	0	0	0	0	0	0	0	0
NBT	0	0	0	0	0	0	0	0
NBR	62	0	62	0	62	0	0	62
SBL	0	0	0	0	0	0	0	0
SBT	0	0	0	0	0	0	0	0
SBR	75	8	83	14	97	14	16	81
EBL	100	7	107	15	122	15	14	108
EBT	1,033	10	1,043	9	1,052	9	10	1,042
EBR	41	0	41	0	41	0	0	41
WBL	77	0	77	0	77	0	0	77
WBT	1,070	7	1,077	0	1,077	0	0	1,077
WBR	74	14	88	23	111	23	21	90
North Leg								
Approach	75	8	83	14	97	14	16	81
Departure	174	21	195	38	233	38	35	198
Total	249	29	278	52	330	52	51	279
South Leg								
Approach	62	0	62	0	62	0	0	62
Departure	118	0	118	0	118	0	0	118
Total	180	0	180	0	180	0	0	180
East Leg								
Approach	1,221	21	1,242	23	1,265	23	21	1,244
Departure	1,095	10	1,105	9	1,114	9	10	1,104
Total	2,316	31	2,347	32	2,379	32	31	2,348
West Leg								
Approach	1,174	17	1,191	24	1,215	24	24	1,191
Departure	1,145	15	1,160	14	1,174	14	16	1,158
Total	2,319	32	2,351	38	2,389	38	40	2,349
Total Approaches								
Approach	2,532	46	2,578	61	2,639	61	61	2,578
Departure	2,532	46	2,578	61	2,639	61	61	2,578
Total	5,064	92	5,156	122	5,278	122	122	5,156

Table B-1 - Existing Peak Hour Volume Summary

	P.M. Peak Hour							
	Existing Without Project	Phase I Project Trips	Existing With Project Phase I	Phase II Alt I Project Trips	Existing With Project Phases I+II - Alt I	Phase II Alt II Project Trips	Demolished Uses Trips	Existing With Project Phases I+II - Alt II
8 M Street/Loughborough Drive - Collins Drive								
NBL	138	0	138	0	138	0	0	138
NBT	499	0	499	0	499	0	0	499
NBR	16	0	16	0	16	0	0	16
SBL	27	0	27	0	27	0	0	27
SBT	450	16	466	0	466	17	16	467
SBR	150	0	150	17	167	0	0	150
EBL	223	17	240	16	256	16	19	237
EBT	29	2	31	2	33	2	2	31
EBR	196	0	196	0	196	0	0	196
WBL	44	0	44	0	44	0	0	44
WBT	78	2	80	2	82	2	2	80
WBR	110	0	110	0	110	0	0	110
North Leg								
Approach	627	16	643	17	660	17	16	644
Departure	832	17	849	16	865	16	19	846
Total	1,459	33	1,492	33	1,525	33	35	1,490
South Leg								
Approach	653	0	653	0	653	0	0	653
Departure	690	16	706	0	706	17	16	707
Total	1,343	16	1,359	0	1,359	17	16	1,360
East Leg								
Approach	232	2	234	2	236	2	2	234
Departure	72	2	74	2	76	2	2	74
Total	304	4	308	4	312	4	4	308
West Leg								
Approach	448	19	467	18	485	18	21	464
Departure	366	2	368	19	387	2	2	368
Total	814	21	835	37	872	20	23	832
Total Approaches								
Approach	1,960	37	1,997	37	2,034	37	39	1,995
Departure	1,960	37	1,997	37	2,034	37	39	1,995
Total	3,920	74	3,994	74	4,068	74	78	3,990

Table B-1 - Existing Peak Hour Volume Summary

	P.M. Peak Hour							
	Existing Without Project	Phase I Project Trips	Existing With Project Phase I	Phase II Alt I Project Trips	Existing With Project Phases I+II - Alt I	Phase II Alt II Project Trips	Demolished Uses Trips	Existing With Project Phases I+II - Alt II
9 M Street/Fairfield Drive								
NBL	0	0	0	0	0	0	0	0
NBT	647	0	647	0	647	0	0	647
NBR	35	0	35	0	35	0	0	35
SBL	0	0	0	0	0	0	0	0
SBT	773	0	773	0	773	0	0	773
SBR	48	16	64	0	64	17	16	65
EBL	0	0	0	0	0	0	0	0
EBT	0	0	0	0	0	0	0	0
EBR	119	13	132	13	145	13	14	131
WBL	0	0	0	0	0	0	0	0
WBT	0	0	0	0	0	0	0	0
WBR	43	0	43	0	43	0	0	43
North Leg								
Approach	821	16	837	0	837	17	16	838
Departure	690	0	690	0	690	0	0	690
Total	1,511	16	1,527	0	1,527	17	16	1,528
South Leg								
Approach	682	0	682	0	682	0	0	682
Departure	892	13	905	13	918	13	14	904
Total	1,574	13	1,587	13	1,600	13	14	1,586
East Leg								
Approach	43	0	43	0	43	0	0	43
Departure	35	0	35	0	35	0	0	35
Total	78	0	78	0	78	0	0	78
West Leg								
Approach	119	13	132	13	145	13	14	131
Departure	48	16	64	0	64	17	16	65
Total	167	29	196	13	209	30	30	196
Total Approaches								
Approach	1,665	29	1,694	13	1,707	30	30	1,694
Departure	1,665	29	1,694	13	1,707	30	30	1,694
Total	3,330	58	3,388	26	3,414	60	60	3,388

Table B-1 - Existing Peak Hour Volume Summary

	P.M. Peak Hour							
	Existing Without Project	Phase I Project Trips	Existing With Project Phase I	Phase II Alt I Project Trips	Existing With Project Phases I+II - Alt I	Phase II Alt II Project Trips	Demolished Uses Trips	Existing With Project Phases I+II - Alt II
10 M Street/Olive Avenue								
NBL	302	12	314	13	327	13	12	315
NBT	492	0	492	0	492	0	0	492
NBR	119	0	119	0	119	0	0	119
SBL	293	0	293	0	293	0	0	293
SBT	501	13	514	13	527	13	14	513
SBR	98	0	98	0	98	0	0	98
EBL	132	0	132	0	132	0	0	132
EBT	759	10	769	9	778	9	10	768
EBR	141	0	141	0	141	0	0	141
WBL	168	0	168	0	168	0	0	168
WBT	808	9	817	9	826	9	9	817
WBR	58	0	58	0	58	0	0	58
North Leg								
Approach	892	13	905	13	918	13	14	904
Departure	682	0	682	0	682	0	0	682
Total	1,574	13	1,587	13	1,600	13	14	1,586
South Leg								
Approach	913	12	925	13	938	13	12	926
Departure	810	13	823	13	836	13	14	822
Total	1,723	25	1,748	26	1,774	26	26	1,748
East Leg								
Approach	1,034	9	1,043	9	1,052	9	9	1,043
Departure	1,171	10	1,181	9	1,190	9	10	1,180
Total	2,205	19	2,224	18	2,242	18	19	2,223
West Leg								
Approach	1,032	10	1,042	9	1,051	9	10	1,041
Departure	1,208	21	1,229	22	1,251	22	21	1,230
Total	2,240	31	2,271	31	2,302	31	31	2,271
Total Approaches								
Approach	3,871	44	3,915	44	3,959	44	45	3,914
Departure	3,871	44	3,915	44	3,959	44	45	3,914
Total	7,742	88	7,830	88	7,918	88	90	7,828

Table B-1 - Existing Peak Hour Volume Summary

	P.M. Peak Hour							
	Existing Without Project	Phase I Project Trips	Existing With Project Phase I	Phase II Alt I Project Trips	Existing With Project Phases I+II - Alt I	Phase II Alt II Project Trips	Demolished Uses Trips	Existing With Project Phases I+II - Alt II
11 M Street/Olivewood Drive								
NBL	102	0	102	0	102	0	0	102
NBT	897	12	909	13	922	13	12	910
NBR	0	0	0	0	0	0	0	0
SBL	0	0	0	0	0	0	0	0
SBT	727	13	740	13	753	13	14	739
SBR	51	0	51	0	51	0	0	51
EBL	13	0	13	0	13	0	0	13
EBT	0	0	0	0	0	0	0	0
EBR	180	0	180	0	180	0	0	180
WBL	0	0	0	0	0	0	0	0
WBT	0	0	0	0	0	0	0	0
WBR	0	0	0	0	0	0	0	0
North Leg								
Approach	778	13	791	13	804	13	14	790
Departure	910	12	922	13	935	13	12	923
Total	1,688	25	1,713	26	1,739	26	26	1,713
South Leg								
Approach	999	12	1,011	13	1,024	13	12	1,012
Departure	907	13	920	13	933	13	14	919
Total	1,906	25	1,931	26	1,957	26	26	1,931
East Leg								
Approach	0	0	0	0	0	0	0	0
Departure	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0
West Leg								
Approach	193	0	193	0	193	0	0	193
Departure	153	0	153	0	153	0	0	153
Total	346	0	346	0	346	0	0	346
Total Approaches								
Approach	1,970	25	1,995	26	2,021	26	26	1,995
Departure	1,970	25	1,995	26	2,021	26	26	1,995
Total	3,940	50	3,990	52	4,042	52	52	3,990

Table B-2 - Project Alternative I Cumulative (2023) Peak Hour Volume Summary

	AM Peak Hour					
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
1 R Street/Loughborough Drive						
NBL	43	2	0	45	0	45
NBT	268	13	6	287	4	291
NBR	122	6	0	128	0	128
SBL	63	3	9	75	0	75
SBT	466	23	17	506	6	512
SBR	90	5	0	95	0	95
EBL	86	4	0	90	0	90
EBT	165	8	3	176	2	178
EBR	45	2	0	47	0	47
WBL	78	4	0	82	0	82
WBT	97	5	2	104	1	105
WBR	49	2	4	55	0	55
North Leg						
Approach	619	31	26	676	6	682
Departure	403	19	10	432	4	436
Total	1,022	50	36	1,108	10	1,118
South Leg						
Approach	433	21	6	460	4	464
Departure	589	29	17	635	6	641
Total	1,022	50	23	1,095	10	1,105
East Leg						
Approach	224	11	6	241	1	242
Departure	350	17	12	379	2	381
Total	574	28	18	620	3	623
West Leg						
Approach	296	14	3	313	2	315
Departure	230	12	2	244	1	245
Total	526	26	5	557	3	560
Total Approaches						
Approach	1,572	77	41	1,690	13	1,703
Departure	1,572	77	41	1,690	13	1,703
Total	3,144	154	82	3,380	26	3,406

Table B-2 - Project Alternative I Cumulative (2023) Peak Hour Volume Summary

	AM Peak Hour					
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
2 R Street/99 Cents Stores Driveway - Mall Driveway 1						
NBL	36	2	0	38	0	38
NBT	419	21	4	444	0	444
NBR	32	2	0	34	0	34
SBL	28	1	6	35	6	41
SBT	543	27	12	582	0	582
SBR	22	1	0	23	0	23
EBL	0	0	0	0	0	0
EBT	0	0	0	0	0	0
EBR	29	1	0	30	0	30
WBL	0	0	0	0	0	0
WBT	0	0	0	0	0	0
WBR	14	1	2	17	4	21
North Leg						
Approach	593	29	18	640	6	646
Departure	433	22	6	461	4	465
Total	1,026	51	24	1,101	10	1,111
South Leg						
Approach	487	25	4	516	0	516
Departure	572	28	12	612	0	612
Total	1,059	53	16	1,128	0	1,128
East Leg						
Approach	14	1	2	17	4	21
Departure	60	3	6	69	6	75
Total	74	4	8	86	10	96
West Leg						
Approach	29	1	0	30	0	30
Departure	58	3	0	61	0	61
Total	87	4	0	91	0	91
Total Approaches						
Approach	1,123	56	24	1,203	10	1,213
Departure	1,123	56	24	1,203	10	1,213
Total	2,246	112	48	2,406	20	2,426

Table B-2 - Project Alternative I Cumulative (2023) Peak Hour Volume Summary

	AM Peak Hour					
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
3 R Street/Olive Avenue						
NBL	120	6	1	127	0	127
NBT	325	16	0	341	0	341
NBR	125	6	10	141	4	145
SBL	98	5	6	109	0	109
SBT	396	20	0	416	0	416
SBR	55	3	6	64	0	64
EBL	102	5	2	109	0	109
EBT	647	32	6	685	3	688
EBR	138	7	1	146	0	146
WBL	162	8	10	180	3	183
WBT	457	23	7	487	2	489
WBR	68	3	2	73	0	73
North Leg						
Approach	549	28	12	589	0	589
Departure	495	24	4	523	0	523
Total	1,044	52	16	1,112	0	1,112
South Leg						
Approach	570	28	11	609	4	613
Departure	696	35	11	742	3	745
Total	1,266	63	22	1,351	7	1,358
East Leg						
Approach	687	34	19	740	5	745
Departure	870	43	22	935	7	942
Total	1,557	77	41	1,675	12	1,687
West Leg						
Approach	887	44	9	940	3	943
Departure	632	32	14	678	2	680
Total	1,519	76	23	1,618	5	1,623
Total Approaches						
Approach	2,693	134	51	2,878	12	2,890
Departure	2,693	134	51	2,878	12	2,890
Total	5,386	268	102	5,756	24	5,780

Table B-2 - Project Alternative I Cumulative (2023) Peak Hour Volume Summary

	AM Peak Hour					
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
4 R Street/Olivewood Drive						
NBL	117	6	0	123	0	123
NBT	515	26	11	552	4	556
NBR	110	6	0	116	0	116
SBL	45	2	0	47	0	47
SBT	628	31	11	670	3	673
SBR	19	1	0	20	0	20
EBL	0	0	0	0	0	0
EBT	0	0	0	0	0	0
EBR	94	5	0	99	0	99
WBL	0	0	0	0	0	0
WBT	0	0	0	0	0	0
WBR	55	3	0	58	0	58
North Leg						
Approach	692	34	11	737	3	740
Departure	570	29	11	610	4	614
Total	1,262	63	22	1,347	7	1,354
South Leg						
Approach	742	38	11	791	4	795
Departure	722	36	11	769	3	772
Total	1,464	74	22	1,560	7	1,567
East Leg						
Approach	55	3	0	58	0	58
Departure	155	8	0	163	0	163
Total	210	11	0	221	0	221
West Leg						
Approach	94	5	0	99	0	99
Departure	136	7	0	143	0	143
Total	230	12	0	242	0	242
Total Approaches						
Approach	1,583	80	22	1,685	7	1,692
Departure	1,583	80	22	1,685	7	1,692
Total	3,166	160	44	3,370	14	3,384

Table B-2 - Project Alternative I Cumulative (2023) Peak Hour Volume Summary

	AM Peak Hour					
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
5 Mall Driveway 2 - Pepperwood Lane/Olive Avenue						
NBL	8	0	0	8	0	8
NBT	2	0	0	2	1	3
NBR	56	3	0	59	0	59
SBL	4	0	1	5	2	7
SBT	1	0	0	1	0	1
SBR	3	0	0	3	3	6
EBL	17	1	0	18	5	23
EBT	844	42	22	908	2	910
EBR	14	1	0	15	0	15
WBL	27	1	0	28	0	28
WBT	671	34	19	724	1	725
WBR	4	0	1	5	2	7
North Leg						
Approach	8	0	1	9	5	14
Departure	23	1	1	25	8	33
Total	31	1	2	34	13	47
South Leg						
Approach	66	3	0	69	1	70
Departure	42	2	0	44	0	44
Total	108	5	0	113	1	114
East Leg						
Approach	702	35	20	757	3	760
Departure	904	45	23	972	4	976
Total	1,606	80	43	1,729	7	1,736
West Leg						
Approach	875	44	22	941	7	948
Departure	682	34	19	735	4	739
Total	1,557	78	41	1,676	11	1,687
Total Approaches						
Approach	1,651	82	43	1,776	16	1,792
Departure	1,651	82	43	1,776	16	1,792
Total	3,302	164	86	3,552	32	3,584

Table B-2 - Project Alternative I Cumulative (2023) Peak Hour Volume Summary

	AM Peak Hour					
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
6 Laurel Glenn Apartments Driveway - Mall Driveway 3/Loughborough Drive						
NBL	7	0	6	13	2	15
NBT	0	0	0	0	0	0
NBR	26	1	10	37	4	41
SBL	4	0	0	4	0	4
SBT	0	0	0	0	0	0
SBR	6	0	0	6	0	6
EBL	1	0	0	1	0	1
EBT	324	16	3	343	0	343
EBR	23	1	8	32	3	35
WBL	26	1	0	27	1	28
WBT	216	11	1	228	0	228
WBR	6	0	0	6	0	6
North Leg						
Approach	10	0	0	10	0	10
Departure	7	0	0	7	0	7
Total	17	0	0	17	0	17
South Leg						
Approach	33	1	16	50	6	56
Departure	49	2	8	59	4	63
Total	82	3	24	109	10	119
East Leg						
Approach	248	12	1	261	1	262
Departure	354	17	13	384	4	388
Total	602	29	14	645	5	650
West Leg						
Approach	348	17	11	376	3	379
Departure	229	11	7	247	2	249
Total	577	28	18	623	5	628
Total Approaches						
Approach	639	30	28	697	10	707
Departure	639	30	28	697	10	707
Total	1,278	60	56	1,394	20	1,414



Table B-2 - Project Alternative I Cumulative (2023) Peak Hour Volume Summary

	AM Peak Hour					
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
7 Mall Driveway 4 - Applewood Lane/Olive Avenue						
NBL	0	0	0	0	0	0
NBT	0	0	0	0	0	0
NBR	29	1	0	30	0	30
SBL	0	0	0	0	0	0
SBT	0	0	0	0	0	0
SBR	7	0	0	7	1	8
EBL	46	2	15	63	2	65
EBT	857	43	7	907	2	909
EBR	18	1	0	19	0	19
WBL	45	2	0	47	0	47
WBT	678	34	19	731	2	733
WBR	19	1	2	22	5	27
North Leg						
Approach	7	0	0	7	1	8
Departure	65	3	17	85	7	92
Total	72	3	17	92	8	100
South Leg						
Approach	29	1	0	30	0	30
Departure	63	3	0	66	0	66
Total	92	4	0	96	0	96
East Leg						
Approach	742	37	21	800	7	807
Departure	886	44	7	937	2	939
Total	1,628	81	28	1,737	9	1,746
West Leg						
Approach	921	46	22	989	4	993
Departure	685	34	19	738	3	741
Total	1,606	80	41	1,727	7	1,734
Total Approaches						
Approach	1,699	84	43	1,826	12	1,838
Departure	1,699	84	43	1,826	12	1,838
Total	3,398	168	86	3,652	24	3,676

Table B-2 - Project Alternative I Cumulative (2023) Peak Hour Volume Summary

	AM Peak Hour					
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
8 M Street/Loughborough Drive - Collins Drive						
NBL	100	5	0	105	0	105
NBT	464	23	0	487	0	487
NBR	14	1	0	15	0	15
SBL	110	6	0	116	0	116
SBT	646	32	9	687	5	692
SBR	116	6	0	122	0	122
EBL	142	7	9	158	3	161
EBT	77	4	2	83	0	83
EBR	120	6	1	127	0	127
WBL	45	2	1	48	0	48
WBT	66	3	0	69	1	70
WBR	104	5	0	109	0	109
North Leg						
Approach	872	44	9	925	5	930
Departure	710	35	9	754	3	757
Total	1,582	79	18	1,679	8	1,687
South Leg						
Approach	578	29	0	607	0	607
Departure	811	40	11	862	5	867
Total	1,389	69	11	1,469	5	1,474
East Leg						
Approach	215	10	1	226	1	227
Departure	201	11	2	214	0	214
Total	416	21	3	440	1	441
West Leg						
Approach	339	17	12	368	3	371
Departure	282	14	0	296	1	297
Total	621	31	12	664	4	668
Total Approaches						
Approach	2,004	100	22	2,126	9	2,135
Departure	2,004	100	22	2,126	9	2,135
Total	4,008	200	44	4,252	18	4,270

Table B-2 - Project Alternative I Cumulative (2023) Peak Hour Volume Summary

	AM Peak Hour					
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
9 M Street/Fairfield Drive						
NBL	0	0	0	0	0	0
NBT	575	29	1	605	0	605
NBR	46	2	0	48	0	48
SBL	0	0	0	0	0	0
SBT	751	38	0	789	0	789
SBR	46	2	10	58	5	63
EBL	0	0	0	0	0	0
EBT	0	0	0	0	0	0
EBR	47	2	20	69	3	72
WBL	0	0	0	0	0	0
WBT	0	0	0	0	0	0
WBR	50	3	0	53	0	53
North Leg						
Approach	797	40	10	847	5	852
Departure	625	32	1	658	0	658
Total	1,422	72	11	1,505	5	1,510
South Leg						
Approach	621	31	1	653	0	653
Departure	798	40	20	858	3	861
Total	1,419	71	21	1,511	3	1,514
East Leg						
Approach	50	3	0	53	0	53
Departure	46	2	0	48	0	48
Total	96	5	0	101	0	101
West Leg						
Approach	47	2	20	69	3	72
Departure	46	2	10	58	5	63
Total	93	4	30	127	8	135
Total Approaches						
Approach	1,515	76	31	1,622	8	1,630
Departure	1,515	76	31	1,622	8	1,630
Total	3,030	152	62	3,244	16	3,260

Table B-2 - Project Alternative I Cumulative (2023) Peak Hour Volume Summary

	AM Peak Hour					
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
10 M Street/Olive Avenue						
NBL	126	6	10	142	4	146
NBT	417	21	0	438	0	438
NBR	104	5	0	109	0	109
SBL	185	9	10	204	0	204
SBT	552	28	10	590	3	593
SBR	61	3	0	64	0	64
EBL	123	6	0	129	0	129
EBT	573	29	7	609	2	611
EBR	162	8	0	170	0	170
WBL	180	9	0	189	0	189
WBT	552	28	16	596	3	599
WBR	81	4	1	86	0	86
North Leg						
Approach	798	40	20	858	3	861
Departure	621	31	1	653	0	653
Total	1,419	71	21	1,511	3	1,514
South Leg						
Approach	647	32	10	689	4	693
Departure	894	45	10	949	3	952
Total	1,541	77	20	1,638	7	1,645
East Leg						
Approach	813	41	17	871	3	874
Departure	862	43	17	922	2	924
Total	1,675	84	34	1,793	5	1,798
West Leg						
Approach	858	43	7	908	2	910
Departure	739	37	26	802	7	809
Total	1,597	80	33	1,710	9	1,719
Total Approaches						
Approach	3,116	156	54	3,326	12	3,338
Departure	3,116	156	54	3,326	12	3,338
Total	6,232	312	108	6,652	24	6,676



Table B-2 - Project Alternative I Cumulative (2023) Peak Hour Volume Summary

	AM Peak Hour					
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
11 M Street/Olivewood Drive						
NBL	68	3	0	71	0	71
NBT	636	32	10	678	4	682
NBR	0	0	0	0	0	0
SBL	0	0	0	0	0	0
SBT	817	41	10	868	3	871
SBR	41	2	0	43	0	43
EBL	7	0	0	7	0	7
EBT	0	0	0	0	0	0
EBR	67	3	0	70	0	70
WBL	0	0	0	0	0	0
WBT	0	0	0	0	0	0
WBR	0	0	0	0	0	0
North Leg						
Approach	858	43	10	911	3	914
Departure	643	32	10	685	4	689
Total	1,501	75	20	1,596	7	1,603
South Leg						
Approach	704	35	10	749	4	753
Departure	884	44	10	938	3	941
Total	1,588	79	20	1,687	7	1,694
East Leg						
Approach	0	0	0	0	0	0
Departure	0	0	0	0	0	0
Total	0	0	0	0	0	0
West Leg						
Approach	74	3	0	77	0	77
Departure	109	5	0	114	0	114
Total	183	8	0	191	0	191
Total Approaches						
Approach	1,636	81	20	1,737	7	1,744
Departure	1,636	81	20	1,737	7	1,744
Total	3,272	162	40	3,474	14	3,488

Table B-2 - Project Alternative I Cumulative (2023) Peak Hour Volume Summary

	PM Peak Hour					
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
1 R Street/Loughborough Drive						
NBL	120	6	0	126	0	126
NBT	528	26	18	572	19	591
NBR	135	7	0	142	0	142
SBL	48	2	5	55	19	74
SBT	360	18	11	389	18	407
SBR	87	4	0	91	0	91
EBL	102	5	0	107	0	107
EBT	121	6	1	128	11	139
EBR	35	2	0	37	0	37
WBL	104	5	0	109	0	109
WBT	168	8	1	177	11	188
WBR	81	4	7	92	18	110
North Leg						
Approach	495	24	16	535	37	572
Departure	711	35	25	771	37	808
Total	1,206	59	41	1,306	74	1,380
South Leg						
Approach	783	39	18	840	19	859
Departure	499	25	11	535	18	553
Total	1,282	64	29	1,375	37	1,412
East Leg						
Approach	353	17	8	378	29	407
Departure	304	15	6	325	30	355
Total	657	32	14	703	59	762
West Leg						
Approach	258	13	1	272	11	283
Departure	375	18	1	394	11	405
Total	633	31	2	666	22	688
Total Approaches						
Approach	1,889	93	43	2,025	96	2,121
Departure	1,889	93	43	2,025	96	2,121
Total	3,778	186	86	4,050	192	4,242

Table B-2 - Project Alternative I Cumulative (2023) Peak Hour Volume Summary

	PM Peak Hour					
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
2 R Street/99 Cents Stores Driveway - Mall Driveway 1						
NBL	94	5	0	99	0	99
NBT	701	35	12	748	0	748
NBR	114	6	0	120	0	120
SBL	84	4	4	92	18	110
SBT	457	23	7	487	0	487
SBR	29	1	0	30	0	30
EBL	0	0	0	0	0	0
EBT	0	0	0	0	0	0
EBR	125	6	0	131	0	131
WBL	0	0	0	0	0	0
WBT	0	0	0	0	0	0
WBR	81	4	6	91	19	110
North Leg						
Approach	570	28	11	609	18	627
Departure	782	39	18	839	19	858
Total	1,352	67	29	1,448	37	1,485
South Leg						
Approach	909	46	12	967	0	967
Departure	582	29	7	618	0	618
Total	1,491	75	19	1,585	0	1,585
East Leg						
Approach	81	4	6	91	19	110
Departure	198	10	4	212	18	230
Total	279	14	10	303	37	340
West Leg						
Approach	125	6	0	131	0	131
Departure	123	6	0	129	0	129
Total	248	12	0	260	0	260
Total Approaches						
Approach	1,685	84	29	1,798	37	1,835
Departure	1,685	84	29	1,798	37	1,835
Total	3,370	168	58	3,596	74	3,670

Table B-2 - Project Alternative I Cumulative (2023) Peak Hour Volume Summary

	PM Peak Hour					
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
3 R Street/Olive Avenue						
NBL	293	15	3	311	0	311
NBT	570	29	0	599	0	599
NBR	98	5	5	108	25	133
SBL	134	7	4	145	0	145
SBT	352	18	0	370	0	370
SBR	111	6	4	121	0	121
EBL	212	11	6	229	0	229
EBT	773	39	4	816	18	834
EBR	187	9	3	199	0	199
WBL	239	12	5	256	26	282
WBT	842	42	3	887	19	906
WBR	144	7	6	157	0	157
North Leg						
Approach	597	31	8	636	0	636
Departure	926	47	12	985	0	985
Total	1,523	78	20	1,621	0	1,621
South Leg						
Approach	961	49	8	1,018	25	1,043
Departure	778	39	8	825	26	851
Total	1,739	88	16	1,843	51	1,894
East Leg						
Approach	1,225	61	14	1,300	45	1,345
Departure	1,005	51	13	1,069	43	1,112
Total	2,230	112	27	2,369	88	2,457
West Leg						
Approach	1,172	59	13	1,244	18	1,262
Departure	1,246	63	10	1,319	19	1,338
Total	2,418	122	23	2,563	37	2,600
Total Approaches						
Approach	3,955	200	43	4,198	88	4,286
Departure	3,955	200	43	4,198	88	4,286
Total	7,910	400	86	8,396	176	8,572

Table B-2 - Project Alternative I Cumulative (2023) Peak Hour Volume Summary

	PM Peak Hour					
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
4 R Street/Olivewood Drive						
NBL	249	12	0	261	0	261
NBT	793	40	8	841	25	866
NBR	116	6	0	122	0	122
SBL	43	2	0	45	0	45
SBT	663	33	8	704	26	730
SBR	37	2	0	39	0	39
EBL	0	0	0	0	0	0
EBT	0	0	0	0	0	0
EBR	319	16	0	335	0	335
WBL	0	0	0	0	0	0
WBT	0	0	0	0	0	0
WBR	181	9	0	190	0	190
North Leg						
Approach	743	37	8	788	26	814
Departure	974	49	8	1,031	25	1,056
Total	1,717	86	16	1,819	51	1,870
South Leg						
Approach	1,158	58	8	1,224	25	1,249
Departure	982	49	8	1,039	26	1,065
Total	2,140	107	16	2,263	51	2,314
East Leg						
Approach	181	9	0	190	0	190
Departure	159	8	0	167	0	167
Total	340	17	0	357	0	357
West Leg						
Approach	319	16	0	335	0	335
Departure	286	14	0	300	0	300
Total	605	30	0	635	0	635
Total Approaches						
Approach	2,401	120	16	2,537	51	2,588
Departure	2,401	120	16	2,537	51	2,588
Total	4,802	240	32	5,074	102	5,176

Table B-2 - Project Alternative I Cumulative (2023) Peak Hour Volume Summary

	PM Peak Hour					
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
5 Mall Driveway 2 - Pepperwood Lane/Olive Avenue						
NBL	22	1	0	23	0	23
NBT	3	0	0	3	4	7
NBR	97	5	0	102	0	102
SBL	5	0	3	8	19	27
SBT	1	0	0	1	4	5
SBR	74	4	0	78	22	100
EBL	64	3	0	67	22	89
EBT	952	48	13	1013	22	1035
EBR	37	2	0	39	0	39
WBL	56	3	0	59	0	59
WBT	1,118	56	14	1188	22	1210
WBR	20	1	1	22	7	29
North Leg						
Approach	80	4	3	87	45	132
Departure	87	4	1	92	33	125
Total	167	8	4	179	78	257
South Leg						
Approach	122	6	0	128	4	132
Departure	94	5	0	99	4	103
Total	216	11	0	227	8	235
East Leg						
Approach	1,194	60	15	1,269	29	1,298
Departure	1,054	53	16	1,123	41	1,164
Total	2,248	113	31	2,392	70	2,462
West Leg						
Approach	1,053	53	13	1,119	44	1,163
Departure	1,214	61	14	1,289	44	1,333
Total	2,267	114	27	2,408	88	2,496
Total Approaches						
Approach	2,449	123	31	2,603	122	2,725
Departure	2,449	123	31	2,603	122	2,725
Total	4,898	246	62	5,206	244	5,450

Table B-2 - Project Alternative I Cumulative (2023) Peak Hour Volume Summary

	PM Peak Hour					
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
6 Laurel Glenn Apartments Driveway - Mall Driveway 3/Loughborough Drive						
NBL	29	1	5	35	37	72
NBT	1	0	0	1	0	1
NBR	69	3	5	77	37	114
SBL	9	0	0	9	0	9
SBT	1	0	0	1	0	1
SBR	2	0	0	2	0	2
EBL	11	1	0	12	0	12
EBT	332	17	1	350	0	350
EBR	18	1	3	22	37	59
WBL	39	2	0	41	21	62
WBT	320	16	3	339	0	339
WBR	10	1	0	11	0	11
North Leg						
Approach	12	0	0	12	0	12
Departure	22	2	0	24	0	24
Total	34	2	0	36	0	36
South Leg						
Approach	99	4	10	113	74	187
Departure	58	3	3	64	58	122
Total	157	7	13	177	132	309
East Leg						
Approach	369	19	3	391	21	412
Departure	410	20	6	436	37	473
Total	779	39	9	827	58	885
West Leg						
Approach	361	19	4	384	37	421
Departure	351	17	8	376	37	413
Total	712	36	12	760	74	834
Total Approaches						
Approach	841	42	17	900	132	1,032
Departure	841	42	17	900	132	1,032
Total	1,682	84	34	1,800	264	2,064

Table B-2 - Project Alternative I Cumulative (2023) Peak Hour Volume Summary

	PM Peak Hour					
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
7 Mall Driveway 4 - Applewood Lane/Olive Avenue						
NBL	0	0	0	0	0	0
NBT	0	0	0	0	0	0
NBR	62	3	0	65	0	65
SBL	0	0	0	0	0	0
SBT	0	0	0	0	0	0
SBR	75	4	0	79	22	101
EBL	100	5	7	112	22	134
EBT	1,033	52	8	1093	19	1112
EBR	41	2	0	43	0	43
WBL	77	4	0	81	0	81
WBT	1,070	54	15	1139	7	1146
WBR	74	4	1	79	37	116
North Leg						
Approach	75	4	0	79	22	101
Departure	174	9	8	191	59	250
Total	249	13	8	270	81	351
South Leg						
Approach	62	3	0	65	0	65
Departure	118	6	0	124	0	124
Total	180	9	0	189	0	189
East Leg						
Approach	1,221	62	16	1,299	44	1,343
Departure	1,095	55	8	1,158	19	1,177
Total	2,316	117	24	2,457	63	2,520
West Leg						
Approach	1,174	59	15	1,248	41	1,289
Departure	1,145	58	15	1,218	29	1,247
Total	2,319	117	30	2,466	70	2,536
Total Approaches						
Approach	2,532	128	31	2,691	107	2,798
Departure	2,532	128	31	2,691	107	2,798
Total	5,064	256	62	5,382	214	5,596

Table B-2 - Project Alternative I Cumulative (2023) Peak Hour Volume Summary

	PM Peak Hour					
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
8 M Street/Loughborough Drive - Collins Drive						
NBL	138	7	1	146	0	146
NBT	499	25	0	524	0	524
NBR	16	1	0	17	0	17
SBL	27	1	0	28	0	28
SBT	450	23	4	477	16	493
SBR	150	8	0	158	17	175
EBL	223	11	4	238	33	271
EBT	29	1	1	31	4	35
EBR	196	10	1	207	0	207
WBL	44	2	0	46	0	46
WBT	78	4	1	83	4	87
WBR	110	6	0	116	0	116
North Leg						
Approach	627	32	4	663	33	696
Departure	832	42	4	878	33	911
Total	1,459	74	8	1,541	66	1,607
South Leg						
Approach	653	33	1	687	0	687
Departure	690	35	5	730	16	746
Total	1,343	68	6	1,417	16	1,433
East Leg						
Approach	232	12	1	245	4	249
Departure	72	3	1	76	4	80
Total	304	15	2	321	8	329
West Leg						
Approach	448	22	6	476	37	513
Departure	366	19	2	387	21	408
Total	814	41	8	863	58	921
Total Approaches						
Approach	1,960	99	12	2,071	74	2,145
Departure	1,960	99	12	2,071	74	2,145
Total	3,920	198	24	4,142	148	4,290

Table B-2 - Project Alternative I Cumulative (2023) Peak Hour Volume Summary

	PM Peak Hour					
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
9 M Street/Fairfield Drive						
NBL	0	0	0	0	0	0
NBT	647	32	1	680	0	680
NBR	35	2	0	37	0	37
SBL	0	0	0	0	0	0
SBT	773	39	1	813	0	813
SBR	48	2	5	55	16	71
EBL	0	0	0	0	0	0
EBT	0	0	0	0	0	0
EBR	119	6	10	135	26	161
WBL	0	0	0	0	0	0
WBT	0	0	0	0	0	0
WBR	43	2	0	45	0	45
North Leg						
Approach	821	41	6	868	16	884
Departure	690	34	1	725	0	725
Total	1,511	75	7	1,593	16	1,609
South Leg						
Approach	682	34	1	717	0	717
Departure	892	45	11	948	26	974
Total	1,574	79	12	1,665	26	1,691
East Leg						
Approach	43	2	0	45	0	45
Departure	35	2	0	37	0	37
Total	78	4	0	82	0	82
West Leg						
Approach	119	6	10	135	26	161
Departure	48	2	5	55	16	71
Total	167	8	15	190	42	232
Total Approaches						
Approach	1,665	83	17	1,765	42	1,807
Departure	1,665	83	17	1,765	42	1,807
Total	3,330	166	34	3,530	84	3,614

Table B-2 - Project Alternative I Cumulative (2023) Peak Hour Volume Summary

	PM Peak Hour					
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
10 M Street/Olive Avenue						
NBL	302	15	5	322	25	347
NBT	492	25	0	517	0	517
NBR	119	6	0	125	0	125
SBL	293	15	6	314	0	314
SBT	501	25	5	531	26	557
SBR	98	5	0	103	0	103
EBL	132	7	0	139	0	139
EBT	759	38	8	805	19	824
EBR	141	7	0	148	0	148
WBL	168	8	0	176	0	176
WBT	808	40	14	862	18	880
WBR	58	3	1	62	0	62
North Leg						
Approach	892	45	11	948	26	974
Departure	682	35	1	718	0	718
Total	1,574	80	12	1,666	26	1,692
South Leg						
Approach	913	46	5	964	25	989
Departure	810	40	5	855	26	881
Total	1,723	86	10	1,819	51	1,870
East Leg						
Approach	1,034	51	15	1,100	18	1,118
Departure	1,171	59	14	1,244	19	1,263
Total	2,205	110	29	2,344	37	2,381
West Leg						
Approach	1,032	52	8	1,092	19	1,111
Departure	1,208	60	19	1,287	43	1,330
Total	2,240	112	27	2,379	62	2,441
Total Approaches						
Approach	3,871	194	39	4,104	88	4,192
Departure	3,871	194	39	4,104	88	4,192
Total	7,742	388	78	8,208	176	8,384

Table B-2 - Project Alternative I Cumulative (2023) Peak Hour Volume Summary

	PM Peak Hour					
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
11 M Street/Olivewood Drive						
NBL	102	5	0	107	0	107
NBT	897	45	5	947	25	972
NBR	0	0	0	0	0	0
SBL	0	0	0	0	0	0
SBT	727	36	5	768	26	794
SBR	51	3	0	54	0	54
EBL	13	1	0	14	0	14
EBT	0	0	0	0	0	0
EBR	180	9	0	189	0	189
WBL	0	0	0	0	0	0
WBT	0	0	0	0	0	0
WBR	0	0	0	0	0	0
North Leg						
Approach	778	39	5	822	26	848
Departure	910	46	5	961	25	986
Total	1,688	85	10	1,783	51	1,834
South Leg						
Approach	999	50	5	1,054	25	1,079
Departure	907	45	5	957	26	983
Total	1,906	95	10	2,011	51	2,062
East Leg						
Approach	0	0	0	0	0	0
Departure	0	0	0	0	0	0
Total	0	0	0	0	0	0
West Leg						
Approach	193	10	0	203	0	203
Departure	153	8	0	161	0	161
Total	346	18	0	364	0	364
Total Approaches						
Approach	1,970	99	10	2,079	51	2,130
Departure	1,970	99	10	2,079	51	2,130
Total	3,940	198	20	4,158	102	4,260

Table B-3 - Project Alternative II Cumulative (2023) Peak Hour Volume Summary

		AM Peak Hour							
		Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Demolished Uses Trips	Demolished Uses Trip Adjustment	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
1	R Street/Loughborough Drive								
	NBL	43	2	0	45	0	0	0	45
	NBT	268	13	6	287	0	0	4	291
	NBR	122	6	0	128	0	0	0	128
	SBL	63	3	9	75	3	-3	0	72
	SBT	466	23	17	506	0	0	6	512
	SBR	90	5	0	95	0	0	0	95
	EBL	86	4	0	90	0	0	0	90
	EBT	165	8	3	176	1	-1	2	177
	EBR	45	2	0	47	0	0	0	47
	WBL	78	4	0	82	0	0	0	82
	WBT	97	5	2	104	1	-1	1	104
	WBR	49	2	4	55	2	-2	0	53
	North Leg								
	Approach	619	31	26	676	3	-3	6	679
	Departure	403	19	10	432	2	-2	4	434
	Total	1,022	50	36	1,108	5	-5	10	1,113
	South Leg								
	Approach	433	21	6	460	0	0	4	464
	Departure	589	29	17	635	0	0	6	641
	Total	1,022	50	23	1,095	0	0	10	1,105
	East Leg								
	Approach	224	11	6	241	3	-3	1	239
	Departure	350	17	12	379	4	-4	2	377
	Total	574	28	18	620	7	-7	3	616
	West Leg								
	Approach	296	14	3	313	1	-1	2	314
	Departure	230	12	2	244	1	-1	1	244
	Total	526	26	5	557	2	-2	3	558
	Total Approaches								
	Approach	1,572	77	41	1,690	7	-7	13	1,696
	Departure	1,572	77	41	1,690	7	-7	13	1,696
	Total	3,144	154	82	3,380	14	-14	26	3,392



Table B-3 - Project Alternative II Cumulative (2023) Peak Hour Volume Summary

	AM Peak Hour							
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Demolished Uses Trips	Demolished Uses Trip Adjustment	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
2 R Street/99 Cents Stores Driveway - Mall Driveway 1								
NBL	36	2	0	38	0	0	0	38
NBT	419	21	4	444	0	0	0	444
NBR	32	2	0	34	0	0	0	34
SBL	28	1	6	35	0	0	6	41
SBT	543	27	12	582	0	0	0	582
SBR	22	1	0	23	0	0	0	23
EBL	0	0	0	0	0	0	0	0
EBT	0	0	0	0	0	0	0	0
EBR	29	1	0	30	0	0	0	30
WBL	0	0	0	0	0	0	0	0
WBT	0	0	0	0	0	0	0	0
WBR	14	1	2	17	0	0	4	21
North Leg								
Approach	593	29	18	640	0	0	6	646
Departure	433	22	6	461	0	0	4	465
Total	1,026	51	24	1,101	0	0	10	1,111
South Leg								
Approach	487	25	4	516	0	0	0	516
Departure	572	28	12	612	0	0	0	612
Total	1,059	53	16	1,128	0	0	0	1,128
East Leg								
Approach	14	1	2	17	0	0	4	21
Departure	60	3	6	69	0	0	6	75
Total	74	4	8	86	0	0	10	96
West Leg								
Approach	29	1	0	30	0	0	0	30
Departure	58	3	0	61	0	0	0	61
Total	87	4	0	91	0	0	0	91
Total Approaches								
Approach	1,123	56	24	1,203	0	0	10	1,213
Departure	1,123	56	24	1,203	0	0	10	1,213
Total	2,246	112	48	2,406	0	0	20	2,426



Table B-3 - Project Alternative II Cumulative (2023) Peak Hour Volume Summary

	AM Peak Hour							
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Demolished Uses Trips	Demolished Uses Trip Adjustment	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
3 R Street/Olive Avenue								
NBL	120	6	1	127	0	0	0	127
NBT	325	16	0	341	0	0	0	341
NBR	125	6	10	141	2	-2	4	143
SBL	98	5	6	109	0	0	0	109
SBT	396	20	0	416	0	0	0	416
SBR	55	3	6	64	0	0	0	64
EBL	102	5	2	109	0	0	0	109
EBT	647	32	6	685	2	-2	3	686
EBR	138	7	1	146	0	0	0	146
WBL	162	8	10	180	1	-1	3	182
WBT	457	23	7	487	1	-1	2	488
WBR	68	3	2	73	0	0	0	73
North Leg								
Approach	549	28	12	589	0	0	0	589
Departure	495	24	4	523	0	0	0	523
Total	1,044	52	16	1,112	0	0	0	1,112
South Leg								
Approach	570	28	11	609	2	-2	4	611
Departure	696	35	11	742	1	-1	3	744
Total	1,266	63	22	1,351	3	-3	7	1,355
East Leg								
Approach	687	34	19	740	2	-2	5	743
Departure	870	43	22	935	4	-4	7	938
Total	1,557	77	41	1,675	6	-6	12	1,681
West Leg								
Approach	887	44	9	940	2	-2	3	941
Departure	632	32	14	678	1	-1	2	679
Total	1,519	76	23	1,618	3	-3	5	1,620
Total Approaches								
Approach	2,693	134	51	2,878	6	-6	12	2,884
Departure	2,693	134	51	2,878	6	-6	12	2,884
Total	5,386	268	102	5,756	12	-12	24	5,768

Table B-3 - Project Alternative II Cumulative (2023) Peak Hour Volume Summary

	AM Peak Hour							
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Demolished Uses Trips	Demolished Uses Trip Adjustment	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
4 R Street/Olivewood Drive								
NBL	117	6	0	123	0	0	0	123
NBT	515	26	11	552	2	-2	4	554
NBR	110	6	0	116	0	0	0	116
SBL	45	2	0	47	0	0	0	47
SBT	628	31	11	670	1	-1	3	672
SBR	19	1	0	20	0	0	0	20
EBL	0	0	0	0	0	0	0	0
EBT	0	0	0	0	0	0	0	0
EBR	94	5	0	99	0	0	0	99
WBL	0	0	0	0	0	0	0	0
WBT	0	0	0	0	0	0	0	0
WBR	55	3	0	58	0	0	0	58
North Leg								
Approach	692	34	11	737	1	-1	3	739
Departure	570	29	11	610	2	-2	4	612
Total	1,262	63	22	1,347	3	-3	7	1,351
South Leg								
Approach	742	38	11	791	2	-2	4	793
Departure	722	36	11	769	1	-1	3	771
Total	1,464	74	22	1,560	3	-3	7	1,564
East Leg								
Approach	55	3	0	58	0	0	0	58
Departure	155	8	0	163	0	0	0	163
Total	210	11	0	221	0	0	0	221
West Leg								
Approach	94	5	0	99	0	0	0	99
Departure	136	7	0	143	0	0	0	143
Total	230	12	0	242	0	0	0	242
Total Approaches								
Approach	1,583	80	22	1,685	3	-3	7	1,689
Departure	1,583	80	22	1,685	3	-3	7	1,689
Total	3,166	160	44	3,370	6	-6	14	3,378



Table B-3 - Project Alternative II Cumulative (2023) Peak Hour Volume Summary

	AM Peak Hour							
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Demolished Uses Trips	Demolished Uses Trip Adjustment	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
5 Mall Driveway 2 - Pepperwood Lane/Olive Avenue								
NBL	8	0	0	8	0	0	0	8
NBT	2	0	0	2	0	0	1	3
NBR	56	3	0	59	0	0	0	59
SBL	4	0	1	5	1	-1	2	6
SBT	1	0	0	1	0	0	0	1
SBR	3	0	0	3	1	-1	3	5
EBL	17	1	0	18	1	-1	5	22
EBT	844	42	22	908	2	-2	2	908
EBR	14	1	0	15	0	0	0	15
WBL	27	1	0	28	0	0	0	28
WBT	671	34	19	724	1	-1	1	724
WBR	4	0	1	5	0	0	2	7
North Leg								
Approach	8	0	1	9	2	-2	5	12
Departure	23	1	1	25	1	-1	8	32
Total	31	1	2	34	3	-3	13	44
South Leg								
Approach	66	3	0	69	0	0	1	70
Departure	42	2	0	44	0	0	0	44
Total	108	5	0	113	0	0	1	114
East Leg								
Approach	702	35	20	757	1	-1	3	759
Departure	904	45	23	972	3	-3	4	973
Total	1,606	80	43	1,729	4	-4	7	1,732
West Leg								
Approach	875	44	22	941	3	-3	7	945
Departure	682	34	19	735	2	-2	4	737
Total	1,557	78	41	1,676	5	-5	11	1,682
Total Approaches								
Approach	1,651	82	43	1,776	6	-6	16	1,786
Departure	1,651	82	43	1,776	6	-6	16	1,786
Total	3,302	164	86	3,552	12	-12	32	3,572

Table B-3 - Project Alternative II Cumulative (2023) Peak Hour Volume Summary

	AM Peak Hour							
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Demolished Uses Trips	Demolished Uses Trip Adjustment	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
6 Laurel Glenn Apartments Driveway - Mall Driveway 3/Loughborough Drive								
NBL	7	0	6	13	3	-3	2	12
NBT	0	0	0	0	0	0	0	0
NBR	26	1	10	37	2	-2	4	39
SBL	4	0	0	4	0	0	0	4
SBT	0	0	0	0	0	0	0	0
SBR	6	0	0	6	0	0	0	6
EBL	1	0	0	1	0	0	0	1
EBT	324	16	3	343	0	0	0	343
EBR	23	1	8	32	5	-5	3	30
WBL	26	1	0	27	0	0	1	28
WBT	216	11	1	228	0	0	0	228
WBR	6	0	0	6	0	0	0	6
North Leg								
Approach	10	0	0	10	0	0	0	10
Departure	7	0	0	7	0	0	0	7
Total	17	0	0	17	0	0	0	17
South Leg								
Approach	33	1	16	50	5	-5	6	51
Departure	49	2	8	59	5	-5	4	58
Total	82	3	24	109	10	-10	10	109
East Leg								
Approach	248	12	1	261	0	0	1	262
Departure	354	17	13	384	2	-2	4	386
Total	602	29	14	645	2	-2	5	648
West Leg								
Approach	348	17	11	376	5	-5	3	374
Departure	229	11	7	247	3	-3	2	246
Total	577	28	18	623	8	-8	5	620
Total Approaches								
Approach	639	30	28	697	10	-10	10	697
Departure	639	30	28	697	10	-10	10	697
Total	1,278	60	56	1,394	20	-20	20	1,394



Table B-3 - Project Alternative II Cumulative (2023) Peak Hour Volume Summary

	AM Peak Hour							
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Demolished Uses Trips	Demolished Uses Trip Adjustment	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
7 Mall Driveway 4 - Applewood Lane/Olive Avenue								
NBL	0	0	0	0	0	0	0	0
NBT	0	0	0	0	0	0	0	0
NBR	29	1	0	30	0	0	0	30
SBL	0	0	0	0	0	0	0	0
SBT	0	0	0	0	0	0	0	0
SBR	7	0	0	7	1	-1	1	7
EBL	46	2	15	63	2	-2	2	63
EBT	857	43	7	907	1	-1	2	908
EBR	18	1	0	19	0	0	0	19
WBL	45	2	0	47	0	0	0	47
WBT	678	34	19	731	0	0	2	733
WBR	19	1	2	22	4	-4	5	23
North Leg								
Approach	7	0	0	7	1	-1	1	7
Departure	65	3	17	85	6	-6	7	86
Total	72	3	17	92	7	-7	8	93
South Leg								
Approach	29	1	0	30	0	0	0	30
Departure	63	3	0	66	0	0	0	66
Total	92	4	0	96	0	0	0	96
East Leg								
Approach	742	37	21	800	4	-4	7	803
Departure	886	44	7	937	1	-1	2	938
Total	1,628	81	28	1,737	5	-5	9	1,741
West Leg								
Approach	921	46	22	989	3	-3	4	990
Departure	685	34	19	738	1	-1	3	740
Total	1,606	80	41	1,727	4	-4	7	1,730
Total Approaches								
Approach	1,699	84	43	1,826	8	-8	12	1,830
Departure	1,699	84	43	1,826	8	-8	12	1,830
Total	3,398	168	86	3,652	16	-16	24	3,660

Table B-3 - Project Alternative II Cumulative (2023) Peak Hour Volume Summary

	AM Peak Hour							
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Demolished Uses Trips	Demolished Uses Trip Adjustment	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
8 M Street/Loughborough Drive - Collins Drive								
NBL	100	5	0	105	0	0	0	105
NBT	464	23	0	487	0	0	0	487
NBR	14	1	0	15	0	0	0	15
SBL	110	6	0	116	0	0	0	116
SBT	646	32	9	687	3	-3	5	689
SBR	116	6	0	122	0	0	0	122
EBL	142	7	9	158	2	-2	3	159
EBT	77	4	2	83	0	0	0	83
EBR	120	6	1	127	0	0	0	127
WBL	45	2	1	48	0	0	0	48
WBT	66	3	0	69	0	0	1	70
WBR	104	5	0	109	0	0	0	109
North Leg								
Approach	872	44	9	925	3	-3	5	927
Departure	710	35	9	754	2	-2	3	755
Total	1,582	79	18	1,679	5	-5	8	1,682
South Leg								
Approach	578	29	0	607	0	0	0	607
Departure	811	40	11	862	3	-3	5	864
Total	1,389	69	11	1,469	3	-3	5	1,471
East Leg								
Approach	215	10	1	226	0	0	1	227
Departure	201	11	2	214	0	0	0	214
Total	416	21	3	440	0	0	1	441
West Leg								
Approach	339	17	12	368	2	-2	3	369
Departure	282	14	0	296	0	0	1	297
Total	621	31	12	664	2	-2	4	666
Total Approaches								
Approach	2,004	100	22	2,126	5	-5	9	2,130
Departure	2,004	100	22	2,126	5	-5	9	2,130
Total	4,008	200	44	4,252	10	-10	18	4,260



Table B-3 - Project Alternative II Cumulative (2023) Peak Hour Volume Summary

	AM Peak Hour							
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Demolished Uses Trips	Demolished Uses Trip Adjustment	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
9 M Street/Fairfield Drive								
NBL	0	0	0	0	0	0	0	0
NBT	575	29	1	605	0	0	0	605
NBR	46	2	0	48	0	0	0	48
SBL	0	0	0	0	0	0	0	0
SBT	751	38	0	789	0	0	0	789
SBR	46	2	10	58	3	-3	5	60
EBL	0	0	0	0	0	0	0	0
EBT	0	0	0	0	0	0	0	0
EBR	47	2	20	69	1	-1	3	71
WBL	0	0	0	0	0	0	0	0
WBT	0	0	0	0	0	0	0	0
WBR	50	3	0	53	0	0	0	53
North Leg								
Approach	797	40	10	847	3	-3	5	849
Departure	625	32	1	658	0	0	0	658
Total	1,422	72	11	1,505	3	-3	5	1,507
South Leg								
Approach	621	31	1	653	0	0	0	653
Departure	798	40	20	858	1	-1	3	860
Total	1,419	71	21	1,511	1	-1	3	1,513
East Leg								
Approach	50	3	0	53	0	0	0	53
Departure	46	2	0	48	0	0	0	48
Total	96	5	0	101	0	0	0	101
West Leg								
Approach	47	2	20	69	1	-1	3	71
Departure	46	2	10	58	3	-3	5	60
Total	93	4	30	127	4	-4	8	131
Total Approaches								
Approach	1,515	76	31	1,622	4	-4	8	1,626
Departure	1,515	76	31	1,622	4	-4	8	1,626
Total	3,030	152	62	3,244	8	-8	16	3,252



Table B-3 - Project Alternative II Cumulative (2023) Peak Hour Volume Summary

	AM Peak Hour							
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Demolished Uses Trips	Demolished Uses Trip Adjustment	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
10 M Street/Olive Avenue								
NBL	126	6	10	142	2	-2	4	144
NBT	417	21	0	438	0	0	0	438
NBR	104	5	0	109	0	0	0	109
SBL	185	9	10	204	0	0	0	204
SBT	552	28	10	590	1	-1	3	592
SBR	61	3	0	64	0	0	0	64
EBL	123	6	0	129	0	0	0	129
EBT	573	29	7	609	1	-1	2	610
EBR	162	8	0	170	0	0	0	170
WBL	180	9	0	189	0	0	0	189
WBT	552	28	16	596	2	-2	3	597
WBR	81	4	1	86	0	0	0	86
North Leg								
Approach	798	40	20	858	1	-1	3	860
Departure	621	31	1	653	0	0	0	653
Total	1,419	71	21	1,511	1	-1	3	1,513
South Leg								
Approach	647	32	10	689	2	-2	4	691
Departure	894	45	10	949	1	-1	3	951
Total	1,541	77	20	1,638	3	-3	7	1,642
East Leg								
Approach	813	41	17	871	2	-2	3	872
Departure	862	43	17	922	1	-1	2	923
Total	1,675	84	34	1,793	3	-3	5	1,795
West Leg								
Approach	858	43	7	908	1	-1	2	909
Departure	739	37	26	802	4	-4	7	805
Total	1,597	80	33	1,710	5	-5	9	1,714
Total Approaches								
Approach	3,116	156	54	3,326	6	-6	12	3,332
Departure	3,116	156	54	3,326	6	-6	12	3,332
Total	6,232	312	108	6,652	12	-12	24	6,664

Table B-3 - Project Alternative II Cumulative (2023) Peak Hour Volume Summary

	AM Peak Hour							
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Demolished Uses Trips	Demolished Uses Trip Adjustment	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
11 M Street/Olivewood Drive								
NBL	68	3	0	71	0	0	0	71
NBT	636	32	10	678	2	-2	4	680
NBR	0	0	0	0	0	0	0	0
SBL	0	0	0	0	0	0	0	0
SBT	817	41	10	868	1	-1	3	870
SBR	41	2	0	43	0	0	0	43
EBL	7	0	0	7	0	0	0	7
EBT	0	0	0	0	0	0	0	0
EBR	67	3	0	70	0	0	0	70
WBL	0	0	0	0	0	0	0	0
WBT	0	0	0	0	0	0	0	0
WBR	0	0	0	0	0	0	0	0
North Leg								
Approach	858	43	10	911	1	-1	3	913
Departure	643	32	10	685	2	-2	4	687
Total	1,501	75	20	1,596	3	-3	7	1,600
South Leg								
Approach	704	35	10	749	2	-2	4	751
Departure	884	44	10	938	1	-1	3	940
Total	1,588	79	20	1,687	3	-3	7	1,691
East Leg								
Approach	0	0	0	0	0	0	0	0
Departure	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0
West Leg								
Approach	74	3	0	77	0	0	0	77
Departure	109	5	0	114	0	0	0	114
Total	183	8	0	191	0	0	0	191
Total Approaches								
Approach	1,636	81	20	1,737	3	-3	7	1,741
Departure	1,636	81	20	1,737	3	-3	7	1,741
Total	3,272	162	40	3,474	6	-6	14	3,482

Table B-3 - Project Alternative II Cumulative (2023) Peak Hour Volume Summary

		PM Peak Hour							
		Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Demolished Uses Trips	Demolished Uses Trip Adjustment	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
1	R Street/Loughborough Drive								
	NBL	120	6	0	126	0	0	0	126
	NBT	528	26	18	572	0	0	19	591
	NBR	135	7	0	142	0	0	0	142
	SBL	48	2	5	55	18	-19	19	55
	SBT	360	18	11	389	0	0	18	407
	SBR	87	4	0	91	0	0	0	91
	EBL	102	5	0	107	0	0	0	107
	EBT	121	6	1	128	5	-5	11	134
	EBR	35	2	0	37	0	0	0	37
	WBL	104	5	0	109	0	0	0	109
	WBT	168	8	1	177	6	-6	11	182
	WBR	81	4	7	92	21	-22	18	88
	North Leg								
	Approach	495	24	16	535	18	-19	37	553
	Departure	711	35	25	771	21	-22	37	786
	Total	1,206	59	41	1,306	39	-41	74	1,339
	South Leg								
	Approach	783	39	18	840	0	0	19	859
	Departure	499	25	11	535	0	0	18	553
	Total	1,282	64	29	1,375	0	0	37	1,412
	East Leg								
	Approach	353	17	8	378	27	-28	29	379
	Departure	304	15	6	325	23	-24	30	331
	Total	657	32	14	703	50	-52	59	710
	West Leg								
	Approach	258	13	1	272	5	-5	11	278
	Departure	375	18	1	394	6	-6	11	399
	Total	633	31	2	666	11	-11	22	677
	Total Approaches								
	Approach	1,889	93	43	2,025	50	-52	96	2,069
	Departure	1,889	93	43	2,025	50	-52	96	2,069
	Total	3,778	186	86	4,050	100	-104	192	4,138



Table B-3 - Project Alternative II Cumulative (2023) Peak Hour Volume Summary

	PM Peak Hour							Cumulative With Project (Phases I+II)
	Existing Without Project	2018- 2023 Growth	Cumulative Project Trips	Cumulative Without Project	Demolished Uses Trips	Demolished Uses Trip Adjustment	Phases I+II Project Trips	
2 R Street/99 Cents Stores Driveway - Mall Driveway 1								
NBL	94	5	0	99	0	0	0	99
NBT	701	35	12	748	0	0	0	748
NBR	114	6	0	120	0	0	0	120
SBL	84	4	4	92	0	0	18	110
SBT	457	23	7	487	0	0	0	487
SBR	29	1	0	30	0	0	0	30
EBL	0	0	0	0	0	0	0	0
EBT	0	0	0	0	0	0	0	0
EBR	125	6	0	131	0	0	0	131
WBL	0	0	0	0	0	0	0	0
WBT	0	0	0	0	0	0	0	0
WBR	81	4	6	91	0	0	19	110
North Leg								
Approach	570	28	11	609	0	0	18	627
Departure	782	39	18	839	0	0	19	858
Total	1,352	67	29	1,448	0	0	37	1,485
South Leg								
Approach	909	46	12	967	0	0	0	967
Departure	582	29	7	618	0	0	0	618
Total	1,491	75	19	1,585	0	0	0	1,585
East Leg								
Approach	81	4	6	91	0	0	19	110
Departure	198	10	4	212	0	0	18	230
Total	279	14	10	303	0	0	37	340
West Leg								
Approach	125	6	0	131	0	0	0	131
Departure	123	6	0	129	0	0	0	129
Total	248	12	0	260	0	0	0	260
Total Approaches								
Approach	1,685	84	29	1,798	0	0	37	1,835
Departure	1,685	84	29	1,798	0	0	37	1,835
Total	3,370	168	58	3,596	0	0	74	3,670

Table B-3 - Project Alternative II Cumulative (2023) Peak Hour Volume Summary

	PM Peak Hour							Cumulative With Project (Phases I+II)
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Demolished Uses Trips	Demolished Uses Trip Adjustment	Phases I+II Project Trips	
3 R Street/Olive Avenue								
NBL	293	15	3	311	0	0	0	311
NBT	570	29	0	599	0	0	0	599
NBR	98	5	5	108	12	-13	25	120
SBL	134	7	4	145	0	0	0	145
SBT	352	18	0	370	0	0	0	370
SBR	111	6	4	121	0	0	0	121
EBL	212	11	6	229	0	0	0	229
EBT	773	39	4	816	9	-9	18	825
EBR	187	9	3	199	0	0	0	199
WBL	239	12	5	256	14	-15	26	267
WBT	842	42	3	887	10	-11	19	895
WBR	144	7	6	157	0	0	0	157
North Leg								
Approach	597	31	8	636	0	0	0	636
Departure	926	47	12	985	0	0	0	985
Total	1,523	78	20	1,621	0	0	0	1,621
South Leg								
Approach	961	49	8	1,018	12	-13	25	1,030
Departure	778	39	8	825	14	-15	26	836
Total	1,739	88	16	1,843	26	-28	51	1,866
East Leg								
Approach	1,225	61	14	1,300	24	-26	45	1,319
Departure	1,005	51	13	1,069	21	-22	43	1,090
Total	2,230	112	27	2,369	45	-48	88	2,409
West Leg								
Approach	1,172	59	13	1,244	9	-9	18	1,253
Departure	1,246	63	10	1,319	10	-11	19	1,327
Total	2,418	122	23	2,563	19	-20	37	2,580
Total Approaches								
Approach	3,955	200	43	4,198	45	-48	88	4,238
Departure	3,955	200	43	4,198	45	-48	88	4,238
Total	7,910	400	86	8,396	90	-96	176	8,476



Table B-3 - Project Alternative II Cumulative (2023) Peak Hour Volume Summary

	PM Peak Hour							Cumulative With Project (Phases I+II)
	Existing Without Project	2018- 2023 Growth	Cumulative Project Trips	Cumulative Without Project	Demolished Uses Trips	Demolished Uses Trip Adjustment	Phases I+II Project Trips	
4 R Street/Olivewood Drive								
NBL	249	12	0	261	0	0	0	261
NBT	793	40	8	841	12	-13	25	853
NBR	116	6	0	122	0	0	0	122
SBL	43	2	0	45	0	0	0	45
SBT	663	33	8	704	14	-15	26	715
SBR	37	2	0	39	0	0	0	39
EBL	0	0	0	0	0	0	0	0
EBT	0	0	0	0	0	0	0	0
EBR	319	16	0	335	0	0	0	335
WBL	0	0	0	0	0	0	0	0
WBT	0	0	0	0	0	0	0	0
WBR	181	9	0	190	0	0	0	190
North Leg								
Approach	743	37	8	788	14	-15	26	799
Departure	974	49	8	1,031	12	-13	25	1,043
Total	1,717	86	16	1,819	26	-28	51	1,842
South Leg								
Approach	1,158	58	8	1,224	12	-13	25	1,236
Departure	982	49	8	1,039	14	-15	26	1,050
Total	2,140	107	16	2,263	26	-28	51	2,286
East Leg								
Approach	181	9	0	190	0	0	0	190
Departure	159	8	0	167	0	0	0	167
Total	340	17	0	357	0	0	0	357
West Leg								
Approach	319	16	0	335	0	0	0	335
Departure	286	14	0	300	0	0	0	300
Total	605	30	0	635	0	0	0	635
Total Approaches								
Approach	2,401	120	16	2,537	26	-28	51	2,560
Departure	2,401	120	16	2,537	26	-28	51	2,560
Total	4,802	240	32	5,074	52	-56	102	5,120

Table B-3 - Project Alternative II Cumulative (2023) Peak Hour Volume Summary

	PM Peak Hour							Cumulative With Project (Phases I+II)
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Demolished Uses Trips	Demolished Uses Trip Adjustment	Phases I+II Project Trips	
5 Mall Driveway 2 - Pepperwood Lane/Olive Avenue								
NBL	22	1	0	23	0	0	0	23
NBT	3	0	0	3	2	-2	4	5
NBR	97	5	0	102	0	0	0	102
SBL	5	0	3	8	10	-11	19	16
SBT	1	0	0	1	2	-2	4	3
SBR	74	4	0	78	8	-8	22	92
EBL	64	3	0	67	7	-7	22	82
EBT	952	48	13	1013	14	-15	22	1020
EBR	37	2	0	39	0	0	0	39
WBL	56	3	0	59	0	0	0	59
WBT	1,118	56	14	1188	16	-17	22	1193
WBR	20	1	1	22	0	0	7	29
North Leg								
Approach	80	4	3	87	20	-21	45	111
Departure	87	4	1	92	9	-9	33	116
Total	167	8	4	179	29	-30	78	227
South Leg								
Approach	122	6	0	128	2	-2	4	130
Departure	94	5	0	99	2	-2	4	101
Total	216	11	0	227	4	-4	8	231
East Leg								
Approach	1,194	60	15	1,269	16	-17	29	1,281
Departure	1,054	53	16	1,123	24	-26	41	1,138
Total	2,248	113	31	2,392	40	-43	70	2,419
West Leg								
Approach	1,053	53	13	1,119	21	-22	44	1,141
Departure	1,214	61	14	1,289	24	-25	44	1,308
Total	2,267	114	27	2,408	45	-47	88	2,449
Total Approaches								
Approach	2,449	123	31	2,603	59	-62	122	2,663
Departure	2,449	123	31	2,603	59	-62	122	2,663
Total	4,898	246	62	5,206	118	-124	244	5,326



Table B-3 - Project Alternative II Cumulative (2023) Peak Hour Volume Summary

	PM Peak Hour							Cumulative With Project (Phases I+II)
	Existing Without Project	2018- 2023 Growth	Cumulative Project Trips	Cumulative Without Project	Demolished Uses Trips	Demolished Uses Trip Adjustment	Phases I+II Project Trips	
6 Laurel Glenn Apartments Driveway - Mall Driveway 3/Loughborough Drive								
NBL	29	1	5	35	31	-33	37	39
NBT	1	0	0	1	0	0	0	1
NBR	69	3	5	77	21	-22	37	92
SBL	9	0	0	9	0	0	0	9
SBT	1	0	0	1	0	0	0	1
SBR	2	0	0	2	0	0	0	2
EBL	11	1	0	12	0	0	0	12
EBT	332	17	1	350	0	0	0	350
EBR	18	1	3	22	26	-27	37	32
WBL	39	2	0	41	2	-2	4	43
WBT	320	16	3	339	0	0	0	339
WBR	10	1	0	11	0	0	0	11
North Leg								
Approach	12	0	0	12	0	0	0	12
Departure	22	2	0	24	0	0	0	24
Total	34	2	0	36	0	0	0	36
South Leg								
Approach	99	4	10	113	52	-55	74	132
Departure	58	3	3	64	28	-29	41	76
Total	157	7	13	177	80	-84	115	208
East Leg								
Approach	369	19	3	391	2	-2	4	393
Departure	410	20	6	436	21	-22	37	451
Total	779	39	9	827	23	-24	41	844
West Leg								
Approach	361	19	4	384	26	-27	37	394
Departure	351	17	8	376	31	-33	37	380
Total	712	36	12	760	57	-60	74	774
Total Approaches								
Approach	841	42	17	900	80	-84	115	931
Departure	841	42	17	900	80	-84	115	931
Total	1,682	84	34	1,800	160	-168	230	1,862



Table B-3 - Project Alternative II Cumulative (2023) Peak Hour Volume Summary

	PM Peak Hour							Cumulative With Project (Phases I+II)
	Existing Without Project	2018- 2023 Growth	Cumulative Project Trips	Cumulative Without Project	Demolished Uses Trips	Demolished Uses Trip Adjustment	Phases I+II Project Trips	
7 Mall Driveway 4 - Applewood Lane/Olive Avenue								
NBL	0	0	0	0	0	0	0	0
NBT	0	0	0	0	0	0	0	0
NBR	62	3	0	65	0	0	0	65
SBL	0	0	0	0	0	0	0	0
SBT	0	0	0	0	0	0	0	0
SBR	75	4	0	79	16	-17	22	84
EBL	100	5	7	112	14	-15	22	119
EBT	1,033	52	8	1093	10	-11	19	1101
EBR	41	2	0	43	0	0	0	43
WBL	77	4	0	81	0	0	0	81
WBT	1,070	54	15	1139	0	0	7	1146
WBR	74	4	1	79	21	-22	37	94
North Leg								
Approach	75	4	0	79	16	-17	22	84
Departure	174	9	8	191	35	-37	59	213
Total	249	13	8	270	51	-54	81	297
South Leg								
Approach	62	3	0	65	0	0	0	65
Departure	118	6	0	124	0	0	0	124
Total	180	9	0	189	0	0	0	189
East Leg								
Approach	1,221	62	16	1,299	21	-22	44	1,321
Departure	1,095	55	8	1,158	10	-11	19	1,166
Total	2,316	117	24	2,457	31	-33	63	2,487
West Leg								
Approach	1,174	59	15	1,248	24	-26	41	1,263
Departure	1,145	58	15	1,218	16	-17	29	1,230
Total	2,319	117	30	2,466	40	-43	70	2,493
Total Approaches								
Approach	2,532	128	31	2,691	61	-65	107	2,733
Departure	2,532	128	31	2,691	61	-65	107	2,733
Total	5,064	256	62	5,382	122	-130	214	5,466

Table B-3 - Project Alternative II Cumulative (2023) Peak Hour Volume Summary

	PM Peak Hour							Cumulative With Project (Phases I+II)
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Demolished Uses Trips	Demolished Uses Trip Adjustment	Phases I+II Project Trips	
8 M Street/Loughborough Drive - Collins Drive								
NBL	138	7	1	146	0	0	0	146
NBT	499	25	0	524	0	0	0	524
NBR	16	1	0	17	0	0	0	17
SBL	27	1	0	28	0	0	0	28
SBT	450	23	4	477	16	-17	33	493
SBR	150	8	0	158	0	0	0	158
EBL	223	11	4	238	19	-20	33	251
EBT	29	1	1	31	2	-2	4	33
EBR	196	10	1	207	0	0	0	207
WBL	44	2	0	46	0	0	0	46
WBT	78	4	1	83	2	-2	4	85
WBR	110	6	0	116	0	0	0	116
North Leg								
Approach	627	32	4	663	16	-17	33	679
Departure	832	42	4	878	19	-20	33	891
Total	1,459	74	8	1,541	35	-37	66	1,570
South Leg								
Approach	653	33	1	687	0	0	0	687
Departure	690	35	5	730	16	-17	33	746
Total	1,343	68	6	1,417	16	-17	33	1,433
East Leg								
Approach	232	12	1	245	2	-2	4	247
Departure	72	3	1	76	2	-2	4	78
Total	304	15	2	321	4	-4	8	325
West Leg								
Approach	448	22	6	476	21	-22	37	491
Departure	366	19	2	387	2	-2	4	389
Total	814	41	8	863	23	-24	41	880
Total Approaches								
Approach	1,960	99	12	2,071	39	-41	74	2,104
Departure	1,960	99	12	2,071	39	-41	74	2,104
Total	3,920	198	24	4,142	78	-82	148	4,208



Table B-3 - Project Alternative II Cumulative (2023) Peak Hour Volume Summary

	PM Peak Hour							Cumulative With Project (Phases I+II)
	Existing Without Project	2018- 2023 Growth	Cumulative Project Trips	Cumulative Without Project	Demolished Uses Trips	Demolished Uses Trip Adjustment	Phases I+II Project Trips	
9 M Street/Fairfield Drive								
NBL	0	0	0	0	0	0	0	0
NBT	647	32	1	680	0	0	0	680
NBR	35	2	0	37	0	0	0	37
SBL	0	0	0	0	0	0	0	0
SBT	773	39	1	813	0	0	0	813
SBR	48	2	5	55	16	-17	33	71
EBL	0	0	0	0	0	0	0	0
EBT	0	0	0	0	0	0	0	0
EBR	119	6	10	135	14	-15	26	146
WBL	0	0	0	0	0	0	0	0
WBT	0	0	0	0	0	0	0	0
WBR	43	2	0	45	0	0	0	45
North Leg								
Approach	821	41	6	868	16	-17	33	884
Departure	690	34	1	725	0	0	0	725
Total	1,511	75	7	1,593	16	-17	33	1,609
South Leg								
Approach	682	34	1	717	0	0	0	717
Departure	892	45	11	948	14	-15	26	959
Total	1,574	79	12	1,665	14	-15	26	1,676
East Leg								
Approach	43	2	0	45	0	0	0	45
Departure	35	2	0	37	0	0	0	37
Total	78	4	0	82	0	0	0	82
West Leg								
Approach	119	6	10	135	14	-15	26	146
Departure	48	2	5	55	16	-17	33	71
Total	167	8	15	190	30	-32	59	217
Total Approaches								
Approach	1,665	83	17	1,765	30	-32	59	1,792
Departure	1,665	83	17	1,765	30	-32	59	1,792
Total	3,330	166	34	3,530	60	-64	118	3,584

Table B-3 - Project Alternative II Cumulative (2023) Peak Hour Volume Summary

	PM Peak Hour							Cumulative With Project (Phases I+II)
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Demolished Uses Trips	Demolished Uses Trip Adjustment	Phases I+II Project Trips	
10 M Street/Olive Avenue								
NBL	302	15	5	322	12	-13	25	334
NBT	492	25	0	517	0	0	0	517
NBR	119	6	0	125	0	0	0	125
SBL	293	15	6	314	0	0	0	314
SBT	501	25	5	531	14	-15	26	542
SBR	98	5	0	103	0	0	0	103
EBL	132	7	0	139	0	0	0	139
EBT	759	38	8	805	10	-11	19	813
EBR	141	7	0	148	0	0	0	148
WBL	168	8	0	176	0	0	0	176
WBT	808	40	14	862	9	-9	18	871
WBR	58	3	1	62	0	0	0	62
North Leg								
Approach	892	45	11	948	14	-15	26	959
Departure	682	35	1	718	0	0	0	718
Total	1,574	80	12	1,666	14	-15	26	1,677
South Leg								
Approach	913	46	5	964	12	-13	25	976
Departure	810	40	5	855	14	-15	26	866
Total	1,723	86	10	1,819	26	-28	51	1,842
East Leg								
Approach	1,034	51	15	1,100	9	-9	18	1,109
Departure	1,171	59	14	1,244	10	-11	19	1,252
Total	2,205	110	29	2,344	19	-20	37	2,361
West Leg								
Approach	1,032	52	8	1,092	10	-11	19	1,100
Departure	1,208	60	19	1,287	21	-22	43	1,308
Total	2,240	112	27	2,379	31	-33	62	2,408
Total Approaches								
Approach	3,871	194	39	4,104	45	-48	88	4,144
Departure	3,871	194	39	4,104	45	-48	88	4,144
Total	7,742	388	78	8,208	90	-96	176	8,288

Table B-3 - Project Alternative II Cumulative (2023) Peak Hour Volume Summary

	PM Peak Hour							Cumulative With Project (Phases I+II)
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Demolished Uses Trips	Demolished Uses Trip Adjustment	Phases I+II Project Trips	
11 M Street/Olivewood Drive								
NBL	102	5	0	107	0	0	0	107
NBT	897	45	5	947	12	-13	25	959
NBR	0	0	0	0	0	0	0	0
SBL	0	0	0	0	0	0	0	0
SBT	727	36	5	768	14	-15	26	779
SBR	51	3	0	54	0	0	0	54
EBL	13	1	0	14	0	0	0	14
EBT	0	0	0	0	0	0	0	0
EBR	180	9	0	189	0	0	0	189
WBL	0	0	0	0	0	0	0	0
WBT	0	0	0	0	0	0	0	0
WBR	0	0	0	0	0	0	0	0
North Leg								
Approach	778	39	5	822	14	-15	26	833
Departure	910	46	5	961	12	-13	25	973
Total	1,688	85	10	1,783	26	-28	51	1,806
South Leg								
Approach	999	50	5	1,054	12	-13	25	1,066
Departure	907	45	5	957	14	-15	26	968
Total	1,906	95	10	2,011	26	-28	51	2,034
East Leg								
Approach	0	0	0	0	0	0	0	0
Departure	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0
West Leg								
Approach	193	10	0	203	0	0	0	203
Departure	153	8	0	161	0	0	0	161
Total	346	18	0	364	0	0	0	364
Total Approaches								
Approach	1,970	99	10	2,079	26	-28	51	2,102
Departure	1,970	99	10	2,079	26	-28	51	2,102
Total	3,940	198	20	4,158	52	-56	102	4,204

APPENDIX C:

INTERNAL CAPTURE ESTIMATION

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	Merced Mall Expansion and Redevelopment Project	Organization:	LSA
Project Location:	Merced, CA	Performed By:	
Scenario Description:	Proposed Project	Date:	
Analysis Year:		Checked By:	
Analysis Period:	AM Street Peak Hour	Date:	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips		
	ITE LUCs ¹	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail	820	50	TSF	47	29	18
Restaurant				0		
Cinema/Entertainment	445	14	Screens	0	0	0
Residential				0		
Hotel				0		
All Other Land Uses ²				0		
Total				47	29	18

Table 2-A: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office						
Retail	1.00	0%	0%	1.00	0%	0%
Restaurant						
Cinema/Entertainment	1.00	0%	0%	1.00	0%	0%
Residential						
Hotel						
All Other Land Uses ²						

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

Table 4-A: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail	0		0	0	0	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	47	29	18
Internal Capture Percentage	0%	0%	0%
External Vehicle-Trips ³	47	29	18
External Transit-Trips ⁴	0	0	0
External Non-Motorized Trips ⁴	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	0%	0%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	N/A	N/A
Hotel	N/A	N/A

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

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

³Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

⁴Person-Trips

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

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	Merced Mall Expansion and Redevelopment Project
Analysis Period:	AM Street Peak Hour

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends						
Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	0	0	1.00	0	0
Retail	1.00	29	29	1.00	18	18
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	0	0	1.00	0	0
Hotel	1.00	0	0	1.00	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	5		2	0	3	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		9	0	0	0	0
Retail	0		0	0	0	0
Restaurant	0	2		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	5	0	0		0
Hotel	0	1	0	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)						
Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	0	0	0	0	0	0
Retail	0	29	29	29	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	0	0	0	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)						
Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	0	0	0	0	0	0
Retail	0	18	18	18	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	0	0	0	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

¹Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

²Person-Trips

³Total 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:	Merced Mall Expansion and Redevelopment Project	Organization:	LSA
Project Location:	Merced, CA	Performed By:	
Scenario Description:	Proposed Project	Date:	
Analysis Year:		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 ¹	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail	820	50	TSF	191	92	99
Restaurant				0		
Cinema/Entertainment	445	14	Screens	192	98	94
Residential				0		
Hotel				0		
All Other Land Uses ²				0		
Total				383	190	193

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						
Retail	1.00	0%	0%	1.00	0%	0%
Restaurant						
Cinema/Entertainment	1.00	0%	0%	1.00	0%	0%
Residential						
Hotel						
All Other Land Uses ²						

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

Table 4-P: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		0	4	0	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	4	0		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	383	190	193
Internal Capture Percentage	4%	4%	4%
External Vehicle-Trips ³	367	182	185
External Transit-Trips ⁴	0	0	0
External Non-Motorized Trips ⁴	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	4%	4%
Restaurant	N/A	N/A
Cinema/Entertainment	4%	4%
Residential	N/A	N/A
Hotel	N/A	N/A

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

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

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

⁴Person-Trips

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

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	Merced Mall Expansion and Redevelopment Project
Analysis Period:	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	1.00	0	0	1.00	0	0
Retail	1.00	92	92	1.00	99	99
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	98	98	1.00	94	94
Residential	1.00	0	0	1.00	0	0
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		0	0	0	0	0
Retail	2		29	4	26	5
Restaurant	0	0		0	0	0
Cinema/Entertainment	2	20	29		8	2
Residential	0	0	0	0		0
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		7	0	1	0	0
Retail	0		0	25	0	0
Restaurant	0	46		31	0	0
Cinema/Entertainment	0	4	0		0	0
Residential	0	9	0	0		0
Hotel	0	2	0	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 ¹	Transit ²	Non-Motorized ²
Office	0	0	0	0	0	0
Retail	4	88	92	88	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	4	94	98	94	0	0
Residential	0	0	0	0	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	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 ¹	Transit ²	Non-Motorized ²
Office	0	0	0	0	0	0
Retail	4	95	99	95	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	4	90	94	90	0	0
Residential	0	0	0	0	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

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

²Person-Trips

³Total 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:	Merced Mall Expansion and Redevelopment Project	Organization:	LSA
Project Location:	Merced, CA	Performed By:	
Scenario Description:	Existing Portion to be Demolished in Phase II	Date:	
Analysis Year:		Checked By:	
Analysis Period:	AM Street Peak Hour	Date:	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips		
	ITE LUCs ¹	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail	820	25	TSF	24	15	9
Restaurant				0		
Cinema/Entertainment	445	7	Screens	0	0	0
Residential				0		
Hotel				0		
All Other Land Uses ²				0		
Total				24	15	9

Table 2-A: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office						
Retail	1.00	0%	0%	1.00	0%	0%
Restaurant						
Cinema/Entertainment	1.00	0%	0%	1.00	0%	0%
Residential						
Hotel						
All Other Land Uses ²						

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

Table 4-A: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		0	0	0	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	24	15	9
Internal Capture Percentage	0%	0%	0%
External Vehicle-Trips ³	24	15	9
External Transit-Trips ⁴	0	0	0
External Non-Motorized Trips ⁴	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	0%	0%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	N/A	N/A
Hotel	N/A	N/A

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

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

³Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

⁴Person-Trips

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

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	Merced Mall Expansion and Redevelopment Project
Analysis Period:	AM Street Peak Hour

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends						
Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	0	0	1.00	0	0
Retail	1.00	15	15	1.00	9	9
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	0	0	1.00	0	0
Hotel	1.00	0	0	1.00	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	3		1	0	1	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		5	0	0	0	0
Retail	0		0	0	0	0
Restaurant	0	1		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	3	0	0		0
Hotel	0	1	0	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)						
Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	0	0	0	0	0	0
Retail	0	15	15	15	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	0	0	0	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)						
Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	0	0	0	0	0	0
Retail	0	9	9	9	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	0	0	0	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

¹Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

²Person-Trips

³Total 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:	Merced Mall Expansion and Redevelopment Project	Organization:	LSA
Project Location:	Merced, CA	Performed By:	
Scenario Description:	Existing Portion to be Demolished in Phase II	Date:	
Analysis Year:		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 ¹	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail	820	25	TSF	97	47	50
Restaurant				0		
Cinema/Entertainment	445	7	Screens	102	45	57
Residential				0		
Hotel				0		
All Other Land Uses ²				0		
Total				199	92	107

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						
Retail	1.00	0%	0%	1.00	0%	0%
Restaurant						
Cinema/Entertainment	1.00	0%	0%	1.00	0%	0%
Residential						
Hotel						
All Other Land Uses ²						

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

Table 4-P: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		0	2	0	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	2	0		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	199	92	107
Internal Capture Percentage	4%	4%	4%
External Vehicle-Trips ³	191	88	103
External Transit-Trips ⁴	0	0	0
External Non-Motorized Trips ⁴	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	4%	4%
Restaurant	N/A	N/A
Cinema/Entertainment	4%	4%
Residential	N/A	N/A
Hotel	N/A	N/A

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

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

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

⁴Person-Trips

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

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	Merced Mall Expansion and Redevelopment Project
Analysis Period:	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	1.00	0	0	1.00	0	0
Retail	1.00	47	47	1.00	50	50
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	45	45	1.00	57	57
Residential	1.00	0	0	1.00	0	0
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		0	0	0	0	0
Retail	1		15	2	13	3
Restaurant	0	0		0	0	0
Cinema/Entertainment	1	12	18		5	1
Residential	0	0	0	0		0
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		4	0	0	0	0
Retail	0		0	12	0	0
Restaurant	0	24		14	0	0
Cinema/Entertainment	0	2	0		0	0
Residential	0	5	0	0		0
Hotel	0	1	0	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 ¹	Transit ²	Non-Motorized ²
Office	0	0	0	0	0	0
Retail	2	45	47	45	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	2	43	45	43	0	0
Residential	0	0	0	0	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	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 ¹	Transit ²	Non-Motorized ²
Office	0	0	0	0	0	0
Retail	2	48	50	48	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	2	55	57	55	0	0
Residential	0	0	0	0	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

¹ Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P
² Person-Trips
³ 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 D:

LEVEL OF SERVICE WORKSHEETS

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project

1: R Street & Loughborough Drive

Exist No Proj AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	86	165	45	78	97	49	10	33	268	122	6	57
Future Volume (veh/h)	86	165	45	78	97	49	10	33	268	122	6	57
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0		0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00		1.00
Parking Bus, Adj	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				
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900		1900	1900	1900		1900
Adj Flow Rate, veh/h	100	192	52	91	113	57		38	312	0		66
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86		0.86	0.86	0.86		0.86
Percent Heavy Veh, %	0	0	0	0	0	0		0	0	0		0
Cap, veh/h	129	236	64	118	300	254		415	1011			481
Arrive On Green	0.07	0.16	0.16	0.07	0.16	0.16		0.15	0.19	0.00		0.27
Sat Flow, veh/h	1810	1440	390	1810	1900	1610		1810	3610	1610		1810
Grp Volume(v), veh/h	100	0	244	91	113	57		38	312	0		66
Grp Sat Flow(s),veh/h/ln	1810	0	1830	1810	1900	1610		1810	1805	1610		1810
Q Serve(g_s), s	4.3	0.0	10.3	4.0	4.3	1.4		1.4	6.0	0.0		2.2
Cycle Q Clear(g_c), s	4.3	0.0	10.3	4.0	4.3	1.4		1.4	6.0	0.0		2.2
Prop In Lane	1.00		0.21	1.00		1.00		1.00		1.00		1.00
Lane Grp Cap(c), veh/h	129	0	300	118	300	254		415	1011			481
V/C Ratio(X)	0.77	0.00	0.81	0.77	0.38	0.22		0.09	0.31			0.14
Avail Cap(c_a), veh/h	238	0	469	219	468	397		415	1011			481
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		0.67	0.67	0.67		1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00		1.00	1.00	0.00		1.00
Uniform Delay (d), s/veh	36.5	0.0	32.3	36.8	30.2	8.9		26.7	25.8	0.0		22.4
Incr Delay (d2), s/veh	9.4	0.0	6.0	10.1	0.8	0.4		0.1	0.8	0.0		0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	4.9	2.0	2.0	0.9		0.6	2.7	0.0		0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.9	0.0	38.3	46.9	31.0	9.4		26.8	26.6	0.0		22.5
LnGrp LOS	D	A	D	D	C	A		C	C			C
Approach Vol, veh/h		344			261				350	A		
Approach Delay, s/veh		40.5			31.8				26.6			
Approach LOS		D			C				C			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	25.8	26.9	9.7	17.6	22.9	29.8	10.2	17.1				
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	9.4	22.4	9.7	20.5	6.5	25.3	10.5	19.7				
Max Q Clear Time (g_c+I1), s	4.2	8.0	6.0	12.3	3.4	14.0	6.3	6.3				
Green Ext Time (p_c), s	0.0	1.7	0.1	0.8	0.0	3.1	0.1	0.6				
Intersection Summary												
HCM 6th Ctrl Delay			30.2									
HCM 6th LOS			C									
Notes												
User approved ignoring U-Turning movement.												
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.												

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project
 1: R Street & Loughborough Drive

Exist No Proj AM Peak Hour



Movement	SBT	SBR
Lane Configurations	↑↑	
Traffic Volume (veh/h)	466	90
Future Volume (veh/h)	466	90
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1900	1900
Adj Flow Rate, veh/h	542	105
Peak Hour Factor	0.86	0.86
Percent Heavy Veh, %	0	0
Cap, veh/h	954	184
Arrive On Green	0.32	0.32
Sat Flow, veh/h	3018	582
Grp Volume(v), veh/h	323	324
Grp Sat Flow(s),veh/h/ln	1805	1795
Q Serve(g_s), s	11.9	12.0
Cycle Q Clear(g_c), s	11.9	12.0
Prop In Lane		0.32
Lane Grp Cap(c), veh/h	571	568
V/C Ratio(X)	0.57	0.57
Avail Cap(c_a), veh/h	571	568
HCM Platoon Ratio	1.00	1.00
Upstream Filter(l)	1.00	1.00
Uniform Delay (d), s/veh	22.8	22.8
Incr Delay (d2), s/veh	4.0	4.1
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	5.5
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	26.8	26.9
LnGrp LOS	C	C
Approach Vol, veh/h	713	
Approach Delay, s/veh	26.5	
Approach LOS	C	
Timer - Assigned Phs		

HCM 6th TWSC
 2: R Street & 99 Cents Stores Driveway/Mall Driveway 1

Merced Mall Expansion and Redevelopment Project
 Exist No Proj AM Peak Hour

Intersection														
Int Delay, s/veh	0.8													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations			↗			↗		↘	↕			↘	↕	
Traffic Vol, veh/h	0	0	29	0	0	14	5	31	419	32	16	12	543	22
Future Vol, veh/h	0	0	29	0	0	14	5	31	419	32	16	12	543	22
Conflicting Peds, #/hr	0	0	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	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	-	None	-	-	-	None
Storage Length	-	-	0	-	-	0	-	35	-	-	-	130	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	33	0	0	16	6	35	471	36	18	13	610	25

Major/Minor	Minor2		Minor1		Major1			Major2						
Conflicting Flow All	-	-	318	-	-	254	635	635	0	0	507	507	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	6.4	4.1	-	-	6.4	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.5	2.2	-	-	2.5	2.2	-	-
Pot Cap-1 Maneuver	0	0	*881	0	0	*920	1043	1241	-	-	1132	1326	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-	-	-
Platoon blocked, %			1			1	1	1	-	-	1	1	-	-
Mov Cap-1 Maneuver	-	-	*881	-	-	*920	1203	1203	-	-	1197	1197	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	9.2		9		0.6		0.4	
HCM LOS	A		A					

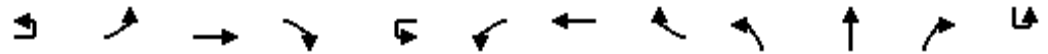
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1203	-	-	881	920	1197	-	-
HCM Lane V/C Ratio	0.034	-	-	0.037	0.017	0.026	-	-
HCM Control Delay (s)	8.1	-	-	9.2	9	8.1	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.1	0.1	-	-

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

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project

3: R Street & Olive Avenue

Exist No Proj AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU
Lane Configurations		↔	↑↑↑	↗		↔	↑↑↑	↗	↖	↑↑		
Traffic Volume (veh/h)	7	95	647	138	5	157	457	68	120	325	125	2
Future Volume (veh/h)	7	95	647	138	5	157	457	68	120	325	125	2
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		1900	1900	1900		1900	1900	1900	1900	1900	1900	
Adj Flow Rate, veh/h		109	744	159		180	525	78	138	374	144	
Peak Hour Factor		0.87	0.87	0.87		0.87	0.87	0.87	0.87	0.87	0.87	
Percent Heavy Veh, %		0	0	0		0	0	0	0	0	0	
Cap, veh/h		436	2009	624		224	1400	435	177	476	181	
Arrive On Green		0.24	0.39	0.39		0.04	0.09	0.09	0.10	0.19	0.19	
Sat Flow, veh/h		1810	5187	1610		1810	5187	1610	1810	2559	971	
Grp Volume(v), veh/h		109	744	159		180	525	78	138	262	256	
Grp Sat Flow(s),veh/h/ln		1810	1729	1610		1810	1729	1610	1810	1805	1725	
Q Serve(g_s), s		3.9	8.2	3.5		7.9	7.6	2.7	6.0	11.1	11.3	
Cycle Q Clear(g_c), s		3.9	8.2	3.5		7.9	7.6	2.7	6.0	11.1	11.3	
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.56	
Lane Grp Cap(c), veh/h		436	2009	624		224	1400	435	177	336	321	
V/C Ratio(X)		0.25	0.37	0.25		0.80	0.37	0.18	0.78	0.78	0.80	
Avail Cap(c_a), veh/h		436	2009	624		328	1400	435	238	429	410	
HCM Platoon Ratio		1.00	1.00	1.00		0.33	0.33	0.33	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	
Uniform Delay (d), s/veh		24.5	17.5	7.2		37.4	30.1	15.4	35.3	31.0	31.1	
Incr Delay (d2), s/veh		0.3	0.5	1.0		8.8	0.8	0.9	11.2	7.0	8.3	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		1.7	3.2	2.0		4.2	3.4	1.5	3.1	5.3	5.3	
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		24.8	18.1	8.2		46.2	30.8	16.3	46.5	38.0	39.4	
LnGrp LOS		C	B	A		D	C	B	D	D	D	
Approach Vol, veh/h			1012				783			656		
Approach Delay, s/veh			17.2				32.9			40.3		
Approach LOS			B				C			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.4	35.5	12.3	17.8	23.8	26.1	10.7	19.4				
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	14.5	19.0	10.5	18.0	11.9	21.6	9.5	19.0				
Max Q Clear Time (g_c+I1), s	9.9	10.2	8.0	11.6	5.9	9.6	6.8	13.3				
Green Ext Time (p_c), s	0.2	3.7	0.1	1.7	0.1	3.0	0.1	1.5				

Intersection Summary

HCM 6th Ctrl Delay	30.0
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project

3: R Street & Olive Avenue

Exist No Proj AM Peak Hour



Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (veh/h)	96	396	55
Future Volume (veh/h)	96	396	55
Initial Q (Qb), veh	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00
Work Zone On Approach		No	
Adj Sat Flow, veh/h/ln	1900	1900	1900
Adj Flow Rate, veh/h	110	455	63
Peak Hour Factor	0.87	0.87	0.87
Percent Heavy Veh, %	0	0	0
Cap, veh/h	141	601	268
Arrive On Green	0.08	0.17	0.17
Sat Flow, veh/h	1810	3610	1610
Grp Volume(v), veh/h	110	455	63
Grp Sat Flow(s),veh/h/ln	1810	1805	1610
Q Serve(g_s), s	4.8	9.6	2.7
Cycle Q Clear(g_c), s	4.8	9.6	2.7
Prop In Lane	1.00		1.00
Lane Grp Cap(c), veh/h	141	601	268
V/C Ratio(X)	0.78	0.76	0.24
Avail Cap(c_a), veh/h	215	812	362
HCM Platoon Ratio	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.2	31.8	28.9
Incr Delay (d2), s/veh	9.6	2.8	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	4.3	1.1
Unsig. Movement Delay, s/veh			
LnGrp Delay(d),s/veh	45.9	34.6	29.4
LnGrp LOS	D	C	C
Approach Vol, veh/h		628	
Approach Delay, s/veh		36.1	
Approach LOS		D	
Timer - Assigned Phs			

Intersection													
Int Delay, s/veh	1.9												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations			↗			↗	↖	↕	↗		↖	↕	↗
Traffic Vol, veh/h	0	0	94	0	0	55	117	515	110	1	44	628	19
Future Vol, veh/h	0	0	94	0	0	55	117	515	110	1	44	628	19
Conflicting Peds, #/hr	0	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	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	-	None
Storage Length	-	-	0	-	-	0	95	-	70	-	40	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	116	0	0	68	144	636	136	1	54	775	23

Major/Minor	Minor2		Minor1		Major1		Major2						
Conflicting Flow All	-	-	388	-	-	318	798	0	0	636	772	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	4.1	-	-	6.4	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.2	-	-	2.5	2.2	-	-
Pot Cap-1 Maneuver	0	0	*842	0	0	684	1115	-	-	575	852	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-	-
Platoon blocked, %			1			1	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	*842	-	-	684	1115	-	-	841	841	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10	10.8	1.4	0.6
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1115	-	-	842	684	841	-
HCM Lane V/C Ratio	0.13	-	-	0.138	0.099	0.066	-
HCM Control Delay (s)	8.7	-	-	10	10.8	9.6	-
HCM Lane LOS	A	-	-	B	B	A	-
HCM 95th %tile Q(veh)	0.4	-	-	0.5	0.3	0.2	-

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

Level of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

 Intersection #1 Intersection 5

Average Delay (sec/veh): 1.0 Worst Case Level Of Service: D[27.2]

Street Name:Mall Driveway 2 - Pepperwood Lane Olive Avenue
 Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R
 Control: Stop Sign Stop Sign Uncontrolled Uncontrolled
 Rights: Include Include Include Include
 Lanes: 0 0 1! 0 0 0 0 1! 0 0 1 0 3 0 1 1 0 3 1 0

Volume Module: >> Count Date: 5 Jun 2018 <<
 Base Vol: 8 2 56 4 1 3 17 844 14 27 671 4
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Initial Bse: 8 2 56 4 1 3 17 844 14 27 671 4
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.91 0.91 0.91 0.91 0.91 0.91 0.91 0.91 0.91 0.91 0.91 0.91
 PHF Volume: 9 2 62 4 1 3 19 931 15 30 740 4
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 FinalVolume: 9 2 62 4 1 3 19 931 15 30 740 4

Critical Gap Module:
 Critical Gp: 7.5 6.5 6.9 7.5 6.5 6.9 4.1 xxxx xxxxx 4.1 xxxx xxxxx
 FollowUpTim: 3.5 4.0 3.3 3.5 4.0 3.3 2.2 xxxx xxxxx 2.2 xxxx xxxxx

Capacity Module:
 Cnflct Vol: 1213 1772 310 1150 1785 187 744 xxxx xxxxx 946 xxxx xxxxx
 Potent Cap.: 140 84 692 156 82 829 873 xxxx xxxxx 734 xxxx xxxxx
 Move Cap.: 131 79 692 132 77 829 873 xxxx xxxxx 734 xxxx xxxxx
 Volume/Cap: 0.07 0.03 0.09 0.03 0.01 0.00 0.02 xxxx xxxx 0.04 xxxx xxxx

Level of Service Module:
 2Way95thQ: xxxx xxxx xxxxx xxxx xxxx xxxxx 0.1 xxxx xxxxx 0.1 xxxx xxxxx
 Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx 9.2 xxxx xxxxx 10.1 xxxx xxxxx
 LOS by Move: * * * * * A * * B * *
 Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
 Shared Cap.: xxxx 395 xxxxx xxxx 171 xxxxx xxxx xxxx xxxxx xxxx xxxx xxxxx
 SharedQueue:xxxxx 0.7 xxxxx xxxxx 0.2 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
 Shrd ConDel:xxxxx 16.2 xxxxx xxxxx 27.2 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
 Shared LOS: * C * * D * * * * * * * * * *
 ApproachDel: 16.2 27.2 xxxxxxx xxxxxxx
 ApproachLOS: C D * *

 Note: Queue reported is the number of cars per lane.

 Level Of Service Detailed Computation Report
 2000 HCM Unsignalized Method
 Base Volume Alternative

 Intersection #1 Intersection 5

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed:	4.00 feet/sec											
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period:	0.25 hour											

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	324	23	26	216	6	7	0	26	4	0	6
Future Vol, veh/h	1	324	23	26	216	6	7	0	26	4	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	50	50	-	50	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	1	421	30	34	281	8	9	0	34	5	0	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	289	0	0	451	0	0	780	780	421	804	802	281
Stage 1	-	-	-	-	-	-	423	423	-	349	349	-
Stage 2	-	-	-	-	-	-	357	357	-	455	453	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1308	-	-	1120	-	-	326	331	637	313	320	857
Stage 1	-	-	-	-	-	-	613	591	-	735	664	-
Stage 2	-	-	-	-	-	-	727	658	-	589	573	-
Platoon blocked, %	1	-	-	-	-	-	1	1	-	1	1	1
Mov Cap-1 Maneuver	1308	-	-	1120	-	-	315	321	637	289	310	857
Mov Cap-2 Maneuver	-	-	-	-	-	-	315	321	-	289	310	-
Stage 1	-	-	-	-	-	-	612	590	-	735	644	-
Stage 2	-	-	-	-	-	-	698	639	-	557	572	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.9			12.5			12.7		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	523	1308	-	-	1120	-	-	480
HCM Lane V/C Ratio	0.082	0.001	-	-	0.03	-	-	0.027
HCM Control Delay (s)	12.5	7.8	-	-	8.3	-	-	12.7
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.3	0	-	-	0.1	-	-	0.1

Level of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Intersection 7

Average Delay (sec/veh): 0.8 Worst Case Level Of Service: B[10.5]

Street Name: Mall Driveway 4 - Applewood Lane Olive Avenue
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R
Control: Stop Sign Stop Sign Uncontrolled Uncontrolled
Rights: Include Include Include Include
Lanes: 0 0 0 0 1 0 0 0 0 1 1 0 3 0 1 1 0 3 1 0

Volume Module:
Base Vol: 0 0 29 0 0 7 46 857 18 45 678 19
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 0 29 0 0 7 46 857 18 45 678 19
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90
PHF Volume: 0 0 32 0 0 8 51 954 20 50 755 21
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
FinalVolume: 0 0 32 0 0 8 51 954 20 50 755 21

Critical Gap Module:
Critical Gp:xxxxx xxxx 6.9 xxxxx xxxx 6.9 4.1 xxxx xxxxxx 4.1 xxxx xxxxxx
FollowUpTim:xxxxx xxxx 3.3 xxxxx xxxx 3.3 2.2 xxxx xxxxxx 2.2 xxxx xxxxxx

Capacity Module:
Cnflct Vol: xxxx xxxx 318 xxxx xxxx 199 776 xxxx xxxxxx 974 xxxx xxxxxx
Potent Cap.: xxxx xxxx 684 xxxx xxxx 815 849 xxxx xxxxxx 716 xxxx xxxxxx
Move Cap.: xxxx xxxx 684 xxxx xxxx 815 849 xxxx xxxxxx 716 xxxx xxxxxx
Volume/Cap: xxxx xxxx 0.05 xxxx xxxx 0.01 0.06 xxxx xxxx 0.07 xxxx xxxx

Level of Service Module:
2Way95thQ: xxxx xxxx 0.1 xxxx xxxx 0.0 0.2 xxxx xxxxxx 0.2 xxxx xxxxxx
Control Del:xxxxx xxxx 10.5 xxxxxx xxxx 9.5 9.5 xxxx xxxxxx 10.4 xxxx xxxxxx
LOS by Move: * * B * * A A * * B * *
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxxx xxxx xxxx xxxxxx xxxx xxxx xxxxxx xxxx xxxx xxxxxx
SharedQueue:xxxxxx xxxxx xxxxxx xxxxxx xxxxx xxxxxx xxxxxx xxxxx xxxxx xxxxxx xxxxxx xxxxx xxxxxx
Shrd ConDel:xxxxxx xxxxx xxxxxx xxxxxx xxxxx xxxxxx xxxxxx xxxxx xxxxx xxxxxx xxxxxx xxxxx xxxxxx
Shared LOS: * * * * * * * * * * * * * * * *
ApproachDel: 10.5 9.5 xxxxxxx xxxxxxx
ApproachLOS: B A * *

Note: Queue reported is the number of cars per lane.

Level Of Service Detailed Computation Report
2000 HCM Unsignalized Method
Base Volume Alternative

Intersection #2 Intersection 7

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed:	4.00 feet/sec											
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period:	0.25 hour											

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project
 8: M Street & Loughborough Drive/Collins Drive

Exist No Proj AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	142	77	120	45	66	104	1	99	464	14	110	646	116
Future Volume (veh/h)	142	77	120	45	66	104	1	99	464	14	110	646	116
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00
Parking Bus, Adj	1.00	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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	187	101	158	59	87	137	130	611	18	145	850	153	
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	226	216	183	308	106	167	321	1517	45	459	1313	236	
Arrive On Green	0.12	0.11	0.11	0.17	0.16	0.16	0.06	0.42	0.42	0.07	0.43	0.43	
Sat Flow, veh/h	1810	1900	1610	1810	665	1047	1810	3581	105	1810	3056	550	
Grp Volume(v), veh/h	187	101	158	59	0	224	130	308	321	145	502	501	
Grp Sat Flow(s),veh/h/ln	1810	1900	1610	1810	0	1712	1810	1805	1881	1810	1805	1801	
Q Serve(g_s), s	8.1	4.0	6.2	2.2	0.0	10.1	3.2	9.5	9.5	3.5	17.6	17.6	
Cycle Q Clear(g_c), s	8.1	4.0	6.2	2.2	0.0	10.1	3.2	9.5	9.5	3.5	17.6	17.6	
Prop In Lane	1.00		1.00	1.00		0.61	1.00		0.06	1.00		0.31	
Lane Grp Cap(c), veh/h	226	216	183	308	0	272	321	765	797	459	776	774	
V/C Ratio(X)	0.83	0.47	0.86	0.19	0.00	0.82	0.41	0.40	0.40	0.32	0.65	0.65	
Avail Cap(c_a), veh/h	260	534	453	308	0	385	334	765	797	513	776	774	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(l)	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	34.2	33.2	22.5	28.5	0.0	32.5	13.8	16.0	16.0	11.9	18.0	18.0	
Incr Delay (d2), s/veh	17.5	1.6	11.5	0.3	0.0	9.4	0.8	1.6	1.5	0.4	4.2	4.2	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	4.6	1.9	3.5	1.0	0.0	4.8	1.3	4.0	4.2	1.4	7.7	7.7	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	51.7	34.8	34.0	28.8	0.0	42.0	14.6	17.6	17.5	12.3	22.2	22.2	
LnGrp LOS	D	C	C	C	A	D	B	B	B	B	C	C	
Approach Vol, veh/h		446			283			759			1148		
Approach Delay, s/veh		41.6			39.2			17.1			20.9		
Approach LOS		D			D			B			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	9.9	38.4	18.1	13.6	9.4	38.9	14.5	17.2					
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	7.8	24.7	7.0	22.5	5.5	27.0	11.5	18.0					
Max Q Clear Time (g_c+1/3), s	11.5	11.5	4.2	8.2	5.2	19.6	10.1	12.1					
Green Ext Time (p_c), s	0.1	3.2	0.0	0.9	0.0	3.7	0.1	0.6					

Intersection Summary

HCM 6th Ctrl Delay	25.3
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

Intersection												
Int Delay, s/veh	0.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗		↕			↕↕↕	
Traffic Vol, veh/h	0	0	47	0	0	50	0	575	46	0	751	46
Future Vol, veh/h	0	0	47	0	0	50	0	575	46	0	751	46
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	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	74	74	74	74	74	74	74	74	74	74	74	74
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	64	0	0	68	0	777	62	0	1015	62

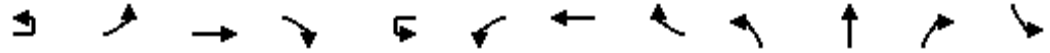
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	-	539	-	-	420	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.1	-	-	6.9	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.9	-	-	3.3	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	*746	0	0	588	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %			1									
Mov Cap-1 Maneuver	-	-	*746	-	-	588	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB			
HCM Control Delay, s	10.3		11.9		0		0			
HCM LOS	B		B							

Minor Lane/Major Mvmt	NBT	NBR	EBLn1WBLn1	SBT	SBR
Capacity (veh/h)	-	-	746	588	-
HCM Lane V/C Ratio	-	-	0.085	0.115	-
HCM Control Delay (s)	-	-	10.3	11.9	-
HCM Lane LOS	-	-	B	B	-
HCM 95th %tile Q(veh)	-	-	0.3	0.4	-

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

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project
 10: M Street & Olive Avenue Exist No Proj AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		↔	↑↑↑	↗		↔	↑↑↑		↖	↑↑		↖
Traffic Volume (veh/h)	11	112	573	162	30	150	552	81	126	417	104	185
Future Volume (veh/h)	11	112	573	162	30	150	552	81	126	417	104	185
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	1.00
Parking Bus, Adj		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		
Adj Sat Flow, veh/h/ln		1900	1900	1900		1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h		132	674	191		176	649	95	148	491	122	218
Peak Hour Factor		0.85	0.85	0.85		0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %		0	0	0		0	0	0	0	0	0	0
Cap, veh/h		168	1232	382		347	1539	223	201	584	144	257
Arrive On Green		0.03	0.08	0.08		0.19	0.34	0.34	0.11	0.20	0.20	0.14
Sat Flow, veh/h		1810	5187	1610		1810	4577	662	1810	2869	709	1810
Grp Volume(v), veh/h		132	674	191		176	489	255	148	308	305	218
Grp Sat Flow(s),veh/h/ln		1810	1729	1610		1810	1729	1781	1810	1805	1772	1810
Q Serve(g_s), s		5.8	10.0	9.1		7.0	8.7	8.9	6.3	13.1	13.3	9.4
Cycle Q Clear(g_c), s		5.8	10.0	9.1		7.0	8.7	8.9	6.3	13.1	13.3	9.4
Prop In Lane		1.00		1.00		1.00		0.37	1.00		0.40	1.00
Lane Grp Cap(c), veh/h		168	1232	382		347	1163	599	201	367	361	257
V/C Ratio(X)		0.78	0.55	0.50		0.51	0.42	0.43	0.74	0.84	0.85	0.85
Avail Cap(c_a), veh/h		222	1232	382		347	1163	599	215	406	399	283
HCM Platoon Ratio		0.33	0.33	0.33		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
Uniform Delay (d), s/veh		38.0	32.7	32.3		28.9	20.5	20.6	34.4	30.6	30.7	33.5
Incr Delay (d2), s/veh		12.6	1.8	4.6		1.2	1.1	2.2	11.6	13.3	14.4	19.4
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
%ile BackOfQ(50%),veh/ln		3.2	4.7	4.3		3.1	3.6	3.9	3.4	6.9	6.9	5.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		50.6	34.5	36.9		30.1	21.6	22.8	46.0	44.0	45.0	52.8
LnGrp LOS		D	C	D		C	C	C	D	D	D	D
Approach Vol, veh/h			997				920			761		
Approach Delay, s/veh			37.1				23.6			44.8		
Approach LOS			D				C			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.8	23.5	13.4	23.3	11.9	31.4	15.9	20.8				
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	12.5	19.0	9.5	21.0	9.8	21.7	12.5	18.0				
Max Q Clear Time (g_c+I1), s	9.0	12.0	8.3	17.2	7.8	10.9	11.4	15.3				
Green Ext Time (p_c), s	0.1	3.0	0.0	1.6	0.1	3.6	0.1	1.0				

Intersection Summary												
HCM 6th Ctrl Delay			37.1									
HCM 6th LOS			D									

Notes
 User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project
 10: M Street & Olive Avenue

Exist No Proj AM Peak Hour



Movement	SBT	SBR
Lane Configurations	↑↑	
Traffic Volume (veh/h)	552	61
Future Volume (veh/h)	552	61
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1900	1900
Adj Flow Rate, veh/h	649	72
Peak Hour Factor	0.85	0.85
Percent Heavy Veh, %	0	0
Cap, veh/h	768	85
Arrive On Green	0.23	0.23
Sat Flow, veh/h	3277	363
Grp Volume(v), veh/h	357	364
Grp Sat Flow(s),veh/h/ln	1805	1835
Q Serve(g_s), s	15.1	15.2
Cycle Q Clear(g_c), s	15.1	15.2
Prop In Lane		0.20
Lane Grp Cap(c), veh/h	423	430
V/C Ratio(X)	0.84	0.85
Avail Cap(c_a), veh/h	474	482
HCM Platoon Ratio	1.00	1.00
Upstream Filter(l)	1.00	1.00
Uniform Delay (d), s/veh	29.2	29.2
Incr Delay (d2), s/veh	12.1	12.1
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.7	7.9
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	41.3	41.3
LnGrp LOS	D	D
Approach Vol, veh/h	939	
Approach Delay, s/veh	44.0	
Approach LOS	D	
Timer - Assigned Phs		

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖	↕↕	↕↕	↗
Traffic Vol, veh/h	7	67	68	636	817	41
Future Vol, veh/h	7	67	68	636	817	41
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	75	70	-	-	285
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	8	81	82	766	984	49

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1531	492	1033	0	-	0
Stage 1	984	-	-	-	-	-
Stage 2	547	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	196	*763	976	-	-	-
Stage 1	627	-	-	-	-	-
Stage 2	549	-	-	-	-	-
Platoon blocked, %	1	1	1	-	-	-
Mov Cap-1 Maneuver	180	*763	976	-	-	-
Mov Cap-2 Maneuver	180	-	-	-	-	-
Stage 1	574	-	-	-	-	-
Stage 2	549	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.8	0.9	0
HCM LOS	B		






















Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	976	-	180	763	-	-
HCM Lane V/C Ratio	0.084	-	0.047	0.106	-	-
HCM Control Delay (s)	9	-	26	10.3	-	-
HCM Lane LOS	A	-	D	B	-	-
HCM 95th %tile Q(veh)	0.3	-	0.1	0.4	-	-

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

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project

1: R Street & Loughborough Drive

Exist No Proj PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	102	121	35	104	168	81	29	91	528	135	4	44
Future Volume (veh/h)	102	121	35	104	168	81	29	91	528	135	4	44
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0		0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00		1.00
Parking Bus, Adj	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				
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900		1900	1900	1900		1900
Adj Flow Rate, veh/h	113	134	39	116	187	90		101	587	0		49
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90		0.90	0.90	0.90		0.90
Percent Heavy Veh, %	0	0	0	0	0	0		0	0	0		0
Cap, veh/h	144	170	50	156	241	204		581	1143			500
Arrive On Green	0.08	0.12	0.12	0.09	0.13	0.13		0.32	0.32	0.00		0.28
Sat Flow, veh/h	1810	1414	412	1810	1900	1610		1810	3610	1610		1810
Grp Volume(v), veh/h	113	0	173	116	187	90		101	587	0		49
Grp Sat Flow(s),veh/h/ln	1810	0	1826	1810	1900	1610		1810	1805	1610		1810
Q Serve(g_s), s	5.5	0.0	8.3	5.6	8.6	2.6		3.6	11.9	0.0		1.8
Cycle Q Clear(g_c), s	5.5	0.0	8.3	5.6	8.6	2.6		3.6	11.9	0.0		1.8
Prop In Lane	1.00		0.23	1.00		1.00		1.00		1.00		1.00
Lane Grp Cap(c), veh/h	144	0	220	156	241	204		581	1143			500
V/C Ratio(X)	0.78	0.00	0.79	0.74	0.78	0.44		0.17	0.51			0.10
Avail Cap(c_a), veh/h	271	0	396	271	412	349		581	1143			500
HCM Platoon Ratio	1.00	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	0.00		1.00
Uniform Delay (d), s/veh	40.6	0.0	38.4	40.2	38.0	11.7		22.0	25.1	0.0		24.2
Incr Delay (d2), s/veh	8.9	0.0	6.1	6.8	5.3	1.5		0.1	1.6	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
%ile BackOfQ(50%),veh/ln	2.8	0.0	4.0	2.8	4.3	1.8		1.5	5.2	0.0		0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.5	0.0	44.5	47.0	43.3	13.2		22.1	26.7	0.0		24.3
LnGrp LOS	D	A	D	D	D	B		C	C			C
Approach Vol, veh/h		286			393				688	A		
Approach Delay, s/veh		46.5			37.5				26.1			
Approach LOS		D			D				C			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	29.4	33.0	12.3	15.3	33.4	29.0	11.7	15.9				
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	10.5	28.5	13.5	19.5	14.5	24.5	13.5	19.5				
Max Q Clear Time (g_c+I1), s	3.8	13.9	7.6	10.3	5.6	12.7	7.5	10.6				
Green Ext Time (p_c), s	0.0	3.4	0.1	0.6	0.1	2.4	0.1	0.8				

Intersection Summary

HCM 6th Ctrl Delay	32.8
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

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

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project
 1: R Street & Loughborough Drive

Exist No Proj PM Peak Hour



Movement	SBT	SBR
Lane Configurations	↑↑	
Traffic Volume (veh/h)	360	87
Future Volume (veh/h)	360	87
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1900	1900
Adj Flow Rate, veh/h	400	97
Peak Hour Factor	0.90	0.90
Percent Heavy Veh, %	0	0
Cap, veh/h	786	189
Arrive On Green	0.27	0.27
Sat Flow, veh/h	2887	693
Grp Volume(v), veh/h	249	248
Grp Sat Flow(s),veh/h/ln	1805	1775
Q Serve(g_s), s	10.5	10.7
Cycle Q Clear(g_c), s	10.5	10.7
Prop In Lane		0.39
Lane Grp Cap(c), veh/h	491	483
V/C Ratio(X)	0.51	0.51
Avail Cap(c_a), veh/h	491	483
HCM Platoon Ratio	1.00	1.00
Upstream Filter(l)	1.00	1.00
Uniform Delay (d), s/veh	27.6	27.7
Incr Delay (d2), s/veh	3.7	3.9
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	4.9
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	31.3	31.6
LnGrp LOS	C	C
Approach Vol, veh/h	546	
Approach Delay, s/veh	30.8	
Approach LOS	C	
Timer - Assigned Phs		

HCM 6th TWSC
 2: R Street & 99 Cents Stores Driveway/Mall Driveway 1

Merced Mall Expansion and Redevelopment Project
 Exist No Proj PM Peak Hour

Intersection														
Int Delay, s/veh	2.1													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations			↗			↗		↘	↕			↘	↕	
Traffic Vol, veh/h	0	0	125	0	0	81	12	82	701	114	44	40	457	29
Future Vol, veh/h	0	0	125	0	0	81	12	82	701	114	44	40	457	29
Conflicting Peds, #/hr	0	0	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	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	-	None	-	-	-	None
Storage Length	-	-	0	-	-	0	-	35	-	-	-	130	-	-
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	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	137	0	0	89	13	90	770	125	48	44	502	32

Major/Minor	Minor2		Minor1		Major1			Major2						
Conflicting Flow All	-	-	267	-	-	448	534	534	0	0	896	895	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	6.4	4.1	-	-	6.4	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.5	2.2	-	-	2.5	2.2	-	-
Pot Cap-1 Maneuver	0	0	*904	0	0	*799	1145	1325	-	-	872	1076	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-	-	-
Platoon blocked, %			1			1	1	1	-	-	1	1	-	-
Mov Cap-1 Maneuver	-	-	*904	-	-	*799	1270	1270	-	-	900	900	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	9.7		10.1		0.8		1.4	
HCM LOS	A		B					

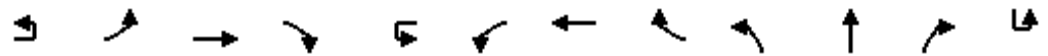
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1270	-	-	904	799	900	-	-
HCM Lane V/C Ratio	0.081	-	-	0.152	0.111	0.103	-	-
HCM Control Delay (s)	8.1	-	-	9.7	10.1	9.5	-	-
HCM Lane LOS	A	-	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0.3	-	-	0.5	0.4	0.3	-	-

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

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project

3: R Street & Olive Avenue

Exist No Proj PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU
Lane Configurations		↔	↑↑↑	↗		↔	↑↑↑	↗	↖	↑↑		
Traffic Volume (veh/h)	22	190	773	187	14	225	842	144	293	570	98	6
Future Volume (veh/h)	22	190	773	187	14	225	842	144	293	570	98	6
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		1900	1900	1900		1900	1900	1900	1900	1900	1900	
Adj Flow Rate, veh/h		198	805	195		234	877	150	305	594	102	
Peak Hour Factor		0.96	0.96	0.96		0.96	0.96	0.96	0.96	0.96	0.96	
Percent Heavy Veh, %		0	0	0		0	0	0	0	0	0	
Cap, veh/h		403	1652	513		275	1285	399	341	730	125	
Arrive On Green		0.22	0.32	0.32		0.05	0.08	0.08	0.19	0.24	0.24	
Sat Flow, veh/h		1810	5187	1610		1810	5187	1610	1810	3082	528	
Grp Volume(v), veh/h		198	805	195		234	877	150	305	347	349	
Grp Sat Flow(s),veh/h/ln		1810	1729	1610		1810	1729	1610	1810	1805	1805	
Q Serve(g_s), s		8.6	11.3	4.9		11.5	14.8	5.9	14.8	16.4	16.4	
Cycle Q Clear(g_c), s		8.6	11.3	4.9		11.5	14.8	5.9	14.8	16.4	16.4	
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.29	
Lane Grp Cap(c), veh/h		403	1652	513		275	1285	399	341	428	428	
V/C Ratio(X)		0.49	0.49	0.38		0.85	0.68	0.38	0.89	0.81	0.82	
Avail Cap(c_a), veh/h		403	1652	513		332	1285	399	372	531	531	
HCM Platoon Ratio		1.00	1.00	1.00		0.33	0.33	0.33	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	
Uniform Delay (d), s/veh		30.5	24.7	7.9		41.7	37.9	19.2	35.6	32.4	32.5	
Incr Delay (d2), s/veh		0.9	1.0	2.1		16.0	2.9	2.7	21.9	7.6	7.8	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		3.8	4.7	3.2		6.8	7.2	3.5	8.5	7.9	7.9	
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		31.4	25.8	10.0		57.8	40.8	21.9	57.5	40.1	40.3	
LnGrp LOS		C	C	B		E	D	C	E	D	D	
Approach Vol, veh/h			1198				1261			1001		
Approach Delay, s/veh			24.2				41.7			45.5		
Approach LOS			C				D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.2	33.2	21.5	17.2	24.6	26.8	12.8	25.8				
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	16.5	18.5	18.5	18.5	12.7	22.3	10.5	26.5				
Max Q Clear Time (g_c+I1), s	13.5	13.3	16.8	11.0	10.6	16.8	8.6	18.4				
Green Ext Time (p_c), s	0.2	2.7	0.2	1.6	0.1	3.0	0.1	2.7				

Intersection Summary

HCM 6th Ctrl Delay	38.1
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project

3: R Street & Olive Avenue

Exist No Proj PM Peak Hour



Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (veh/h)	128	352	111
Future Volume (veh/h)	128	352	111
Initial Q (Qb), veh	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00
Work Zone On Approach		No	
Adj Sat Flow, veh/h/ln	1900	1900	1900
Adj Flow Rate, veh/h	133	367	116
Peak Hour Factor	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0
Cap, veh/h	167	508	227
Arrive On Green	0.03	0.05	0.05
Sat Flow, veh/h	1810	3610	1610
Grp Volume(v), veh/h	133	367	116
Grp Sat Flow(s),veh/h/ln	1810	1805	1610
Q Serve(g_s), s	6.6	9.0	6.3
Cycle Q Clear(g_c), s	6.6	9.0	6.3
Prop In Lane	1.00		1.00
Lane Grp Cap(c), veh/h	167	508	227
V/C Ratio(X)	0.80	0.72	0.51
Avail Cap(c_a), veh/h	211	742	331
HCM Platoon Ratio	0.33	0.33	0.33
Upstream Filter(l)	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.8	41.2	39.9
Incr Delay (d2), s/veh	15.1	2.0	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	4.4	2.7
Unsig. Movement Delay, s/veh			
LnGrp Delay(d),s/veh	57.9	43.1	41.7
LnGrp LOS	E	D	D
Approach Vol, veh/h		616	
Approach Delay, s/veh		46.0	
Approach LOS		D	
Timer - Assigned Phs			

Intersection												
Int Delay, s/veh	3.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗	↗	↗↗	↗	↗	↗↗	↗
Traffic Vol, veh/h	0	0	319	0	0	181	249	793	116	43	663	37
Future Vol, veh/h	0	0	319	0	0	181	249	793	116	43	663	37
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	95	-	70	40	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	332	0	0	189	259	826	121	45	691	39

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	-	-	346	-	-	413	730	0	0	947	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	0	0	*834	0	0	594	1215	-	-	733	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %			1			1	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	*834	-	-	594	1215	-	-	733	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB			SB		
HCM Control Delay, s	12.1		13.9		1.9			0.6		
HCM LOS	B		B							

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1215	-	-	834	594	733	-	-
HCM Lane V/C Ratio	0.213	-	-	0.398	0.317	0.061	-	-
HCM Control Delay (s)	8.8	-	-	12.1	13.9	10.2	-	-
HCM Lane LOS	A	-	-	B	B	B	-	-
HCM 95th %tile Q(veh)	0.8	-	-	1.9	1.4	0.2	-	-

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

Level of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 Intersection 5

Average Delay (sec/veh): 4.5 Worst Case Level Of Service: F[63.5]

Street Name:Mall Driveway 2 - Pepperwood Lane Olive Avenue

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Stop Sign Stop Sign Uncontrolled Uncontrolled

Rights: Include Include Include Include

Lanes: 0 0 1! 0 0 0 0 1! 0 0 1 0 3 0 1 1 0 3 1 0

Volume Module: >> Count Date: 5 Jun 2018 <<

Table with 12 columns: Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, FinalVolume. Rows include values for each approach and movement.

Critical Gap Module:

Table with 12 columns: Critical Gp, FollowUpTim. Rows show gap values and follow-up times for each approach.

Capacity Module:

Table with 12 columns: Cnflct Vol, Potent Cap., Move Cap., Volume/Cap. Rows show capacity metrics for each approach.

Level of Service Module:

Table with 12 columns: 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., SharedQueue, Shrd ConDel, Shared LOS, ApproachDel, ApproachLOS. Rows show LOS metrics for each approach.

Note: Queue reported is the number of cars per lane.

 Level Of Service Detailed Computation Report
 2000 HCM Unsignalized Method
 Base Volume Alternative

 Intersection #1 Intersection 5

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed:	4.00 feet/sec											
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period:	0.25 hour											

Intersection

Int Delay, s/veh 2.3

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↑	↗	↖	↑	↗		↕			↕	
Traffic Vol, veh/h	1	10	332	18	39	320	10	29	1	69	9	1	2
Future Vol, veh/h	1	10	332	18	39	320	10	29	1	69	9	1	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	50	-	50	50	-	50	-	-	-	-	-	-
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	100	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	1	11	365	20	43	352	11	32	1	69	10	1	2

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	- 363	0 0	385 0	832 838
Stage 1	- -	- -	- -	387 389
Stage 2	- -	- -	- -	445 449
Critical Hdwy	- 4.1	- -	4.1 -	7.1 6.5
Critical Hdwy Stg 1	- -	- -	- -	6.1 5.5
Critical Hdwy Stg 2	- -	- -	- -	6.1 5.5
Follow-up Hdwy	- 2.2	- -	2.2 -	3.5 4
Pot Cap-1 Maneuver	- 1237	- -	1185 -	305 305
Stage 1	- -	- -	- -	641 612
Stage 2	- -	- -	- -	679 608
Platoon blocked, %	1	- -	- -	1 1
Mov Cap-1 Maneuver	~ -11 ~ -11	- -	1185 -	295 294
Mov Cap-2 Maneuver	- -	- -	- -	295 294
Stage 1	- -	- -	- -	641 612
Stage 2	- -	- -	- -	651 586

Approach	EB	WB	NB	SB
HCM Control Delay, s		0.9	14.5	18.3
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	480	+	-	-	1185	-	-	284
HCM Lane V/C Ratio	0.212	-	-	-	0.036	-	-	0.046
HCM Control Delay (s)	14.5	-	-	-	8.2	-	-	18.3
HCM Lane LOS	B	-	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.8	-	-	-	0.1	-	-	0.1

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

Level of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Intersection 7

Average Delay (sec/veh): 1.4 Worst Case Level Of Service: B[12.4]

Street Name: Mall Driveway 4 - Applewood Lane Olive Avenue

Table with columns for Approach (North Bound, South Bound, East Bound, West Bound) and Movement (L, T, R). Rows include Control (Stop Sign, Uncontrolled), Rights (Include), and Lanes (0, 0, 0, 0, 1).

Volume Module: Table with columns for Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Final Volume. Rows include various volume and adjustment factors.

Critical Gap Module: Table with columns for Critical Gp, FollowUpTim. Rows include gap and follow-up time values.

Capacity Module: Table with columns for Cnflct Vol, Potent Cap., Move Cap., Volume/Cap. Rows include capacity and volume/capacity values.

Level of Service Module: Table with columns for 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., SharedQueue, Shrd ConDel, Shared LOS, ApproachDel, ApproachLOS. Rows include level of service and delay values.

Note: Queue reported is the number of cars per lane.

 Level Of Service Detailed Computation Report
 2000 HCM Unsignalized Method
 Base Volume Alternative

 Intersection #2 Intersection 7

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed:	4.00 feet/sec											
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period:	0.25 hour											

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project
 8: M Street & Loughborough Drive/Collins Drive

Exist No Proj PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	223	29	196	44	78	110	1	137	499	16	27	450	150
Future Volume (veh/h)	223	29	196	44	78	110	1	137	499	16	27	450	150
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00
Parking Bus, Adj	1.00	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	1900	1900	1900	1900	1900	1900		1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	256	33	225	51	90	126		157	574	18	31	517	172
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, %	0	0	0	0	0	0		0	0	0	0	0	0
Cap, veh/h	299	273	231	310	107	150		415	1626	51	428	1107	366
Arrive On Green	0.17	0.14	0.14	0.17	0.15	0.15		0.07	0.45	0.45	0.03	0.42	0.42
Sat Flow, veh/h	1810	1900	1610	1810	716	1003		1810	3573	112	1810	2664	882
Grp Volume(v), veh/h	256	33	225	51	0	216		157	290	302	31	349	340
Grp Sat Flow(s),veh/h/ln	1810	1900	1610	1810	0	1719		1810	1805	1880	1810	1805	1741
Q Serve(g_s), s	12.4	1.4	10.0	2.2	0.0	11.0		4.3	9.4	9.4	0.9	12.6	12.7
Cycle Q Clear(g_c), s	12.4	1.4	10.0	2.2	0.0	11.0		4.3	9.4	9.4	0.9	12.6	12.7
Prop In Lane	1.00		1.00	1.00		0.58		1.00		0.06	1.00		0.51
Lane Grp Cap(c), veh/h	299	273	231	310	0	258		415	821	855	428	750	723
V/C Ratio(X)	0.86	0.12	0.97	0.16	0.00	0.84		0.38	0.35	0.35	0.07	0.47	0.47
Avail Cap(c_a), veh/h	470	735	623	310	0	346		461	821	855	474	750	723
HCM Platoon Ratio	1.00	1.00	1.00	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	36.5	33.6	24.7	31.8	0.0	37.2		13.8	15.9	15.9	14.3	19.1	19.1
Incr Delay (d2), s/veh	9.0	0.2	21.6	0.2	0.0	12.6		0.6	1.2	1.1	0.1	2.1	2.2
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	0.6	5.1	1.0	0.0	5.4		1.7	4.0	4.1	0.4	5.5	5.4
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	45.6	33.8	46.3	32.0	0.0	49.8		14.4	17.1	17.1	14.4	21.2	21.3
LnGrp LOS	D	C	D	C	A	D		B	B	B	B	C	C
Approach Vol, veh/h		514			267				749			720	
Approach Delay, s/veh		45.1			46.4				16.5			20.9	
Approach LOS		D			D				B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	7.2	45.4	19.9	17.4	10.8	41.9	19.4	18.0					
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	5.0	25.5	6.7	34.8	8.5	22.0	23.4	18.1					
Max Q Clear Time (g_c+1), s	12.0	11.4	4.2	12.0	6.3	14.7	14.4	13.0					
Green Ext Time (p_c), s	0.0	3.1	0.0	0.9	0.1	2.5	0.5	0.5					

Intersection Summary

HCM 6th Ctrl Delay	28.0
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

Intersection												
Int Delay, s/veh	1.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗		↕↔			↕↕↕	
Traffic Vol, veh/h	0	0	119	0	0	43	0	647	35	0	773	48
Future Vol, veh/h	0	0	119	0	0	43	0	647	35	0	773	48
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	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	135	0	0	49	0	735	40	0	878	55

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	-	467	-	-	388	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.1	-	-	6.9	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.9	-	-	3.3	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	*766	0	0	616	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %			1									
Mov Cap-1 Maneuver	-	-	*766	-	-	616	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

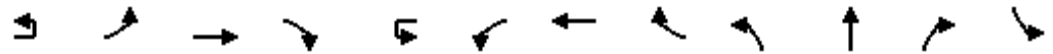
Approach	EB		WB		NB		SB				
HCM Control Delay, s	10.7		11.3		0		0				
HCM LOS	B		B								

Minor Lane/Major Mvmt	NBT	NBR	EBLn1WBLn1	SBT	SBR
Capacity (veh/h)	-	-	766	616	-
HCM Lane V/C Ratio	-	-	0.177	0.079	-
HCM Control Delay (s)	-	-	10.7	11.3	-
HCM Lane LOS	-	-	B	B	-
HCM 95th %tile Q(veh)	-	-	0.6	0.3	-

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

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project
 10: M Street & Olive Avenue

Exist No Proj PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		↔	↑↑↑	↗		↔	↑↑↑		↖	↑↑		↘
Traffic Volume (veh/h)	33	99	759	141	31	137	808	58	302	492	119	293
Future Volume (veh/h)	33	99	759	141	31	137	808	58	302	492	119	293
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	1.00
Parking Bus, Adj		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		
Adj Sat Flow, veh/h/ln		1900	1900	1900		1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h		104	799	148		144	851	61	318	518	125	308
Peak Hour Factor		0.95	0.95	0.95		0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %		0	0	0		0	0	0	0	0	0	0
Cap, veh/h		134	1181	367		301	1581	113	360	611	147	352
Arrive On Green		0.02	0.08	0.08		0.17	0.32	0.32	0.20	0.21	0.21	0.06
Sat Flow, veh/h		1810	5187	1610		1810	4941	353	1810	2887	693	1810
Grp Volume(v), veh/h		104	799	148		144	595	317	318	323	320	308
Grp Sat Flow(s),veh/h/ln		1810	1729	1610		1810	1729	1836	1810	1805	1775	1810
Q Serve(g_s), s		5.1	13.5	4.8		6.5	12.7	12.8	15.4	15.5	15.6	15.2
Cycle Q Clear(g_c), s		5.1	13.5	4.8		6.5	12.7	12.8	15.4	15.5	15.6	15.2
Prop In Lane		1.00		1.00		1.00		0.19	1.00		0.39	1.00
Lane Grp Cap(c), veh/h		134	1181	367		301	1107	588	360	382	376	352
V/C Ratio(X)		0.78	0.68	0.40		0.48	0.54	0.54	0.88	0.85	0.85	0.88
Avail Cap(c_a), veh/h		191	1181	367		301	1107	588	472	431	424	412
HCM Platoon Ratio		0.33	0.33	0.33		1.00	1.00	1.00	1.00	1.00	1.00	0.33
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		43.2	38.4	13.5		34.0	25.1	25.2	35.0	34.1	34.1	41.0
Incr Delay (d2), s/veh		12.0	3.1	3.3		1.2	1.9	3.5	14.6	13.1	14.0	16.7
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
%ile BackOfQ(50%),veh/ln		2.8	6.6	3.4		2.9	5.4	6.0	8.1	8.0	8.0	9.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		55.1	41.5	16.7		35.2	27.0	28.7	49.6	47.2	48.1	57.8
LnGrp LOS		E	D	B		D	C	C	D	D	D	E
Approach Vol, veh/h			1051			1056			961			
Approach Delay, s/veh			39.4			28.6			48.3			
Approach LOS			D			C			D			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.5	25.0	22.4	23.2	11.2	33.3	22.0	23.6				
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	9.5	20.5	23.5	18.5	9.5	20.5	20.5	21.5				
Max Q Clear Time (g_c+I1), s	8.5	15.5	17.4	17.6	7.1	14.8	17.2	17.6				
Green Ext Time (p_c), s	0.0	2.6	0.5	0.4	0.0	2.8	0.3	1.4				

Intersection Summary

HCM 6th Ctrl Delay	42.8
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project
 10: M Street & Olive Avenue

Exist No Proj PM Peak Hour



Movement	SBT	SBR
Lane Configurations	↑↑	
Traffic Volume (veh/h)	501	98
Future Volume (veh/h)	501	98
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1900	1900
Adj Flow Rate, veh/h	527	103
Peak Hour Factor	0.95	0.95
Percent Heavy Veh, %	0	0
Cap, veh/h	625	122
Arrive On Green	0.07	0.07
Sat Flow, veh/h	3013	586
Grp Volume(v), veh/h	315	315
Grp Sat Flow(s),veh/h/ln	1805	1794
Q Serve(g_s), s	15.5	15.6
Cycle Q Clear(g_c), s	15.5	15.6
Prop In Lane		0.33
Lane Grp Cap(c), veh/h	374	372
V/C Ratio(X)	0.84	0.85
Avail Cap(c_a), veh/h	374	372
HCM Platoon Ratio	0.33	0.33
Upstream Filter(l)	1.00	1.00
Uniform Delay (d), s/veh	40.5	40.5
Incr Delay (d2), s/veh	15.7	16.5
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.1	9.2
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	56.2	57.0
LnGrp LOS	E	E
Approach Vol, veh/h	938	
Approach Delay, s/veh	57.0	
Approach LOS	E	
Timer - Assigned Phs		

Intersection						
Int Delay, s/veh	1.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	13	180	102	897	727	51
Future Vol, veh/h	13	180	102	897	727	51
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	75	70	-	-	285
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	14	196	111	975	790	55

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1500	395	845	0	-	0
Stage 1	790	-	-	-	-	-
Stage 2	710	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	*190	*799	1138	-	-	-
Stage 1	*754	-	-	-	-	-
Stage 2	*454	-	-	-	-	-
Platoon blocked, %	1	1	1	-	-	-
Mov Cap-1 Maneuver	*172	*799	1138	-	-	-
Mov Cap-2 Maneuver	*172	-	-	-	-	-
Stage 1	*680	-	-	-	-	-
Stage 2	*454	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.1	0.9	0
HCM LOS	B		






















Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1138	-	172	799	-	-
HCM Lane V/C Ratio	0.097	-	0.082	0.245	-	-
HCM Control Delay (s)	8.5	-	27.8	11	-	-
HCM Lane LOS	A	-	D	B	-	-
HCM 95th %tile Q(veh)	0.3	-	0.3	1	-	-

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

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project

1: R Street & Loughborough Drive

Exist With Proj Ph I AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	86	167	45	78	98	49	10	33	272	122	6	57
Future Volume (veh/h)	86	167	45	78	98	49	10	33	272	122	6	57
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0		0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00		1.00
Parking Bus, Adj	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				
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900		1900	1900	1900		1900
Adj Flow Rate, veh/h	100	194	52	91	114	57		38	316	0		66
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86		0.86	0.86	0.86		0.86
Percent Heavy Veh, %	0	0	0	0	0	0		0	0	0		0
Cap, veh/h	129	238	64	118	302	256		413	1011			479
Arrive On Green	0.07	0.17	0.17	0.07	0.16	0.16		0.15	0.19	0.00		0.26
Sat Flow, veh/h	1810	1443	387	1810	1900	1610		1810	3610	1610		1810
Grp Volume(v), veh/h	100	0	246	91	114	57		38	316	0		66
Grp Sat Flow(s),veh/h/ln	1810	0	1830	1810	1900	1610		1810	1805	1610		1810
Q Serve(g_s), s	4.3	0.0	10.4	4.0	4.3	1.4		1.4	6.0	0.0		2.2
Cycle Q Clear(g_c), s	4.3	0.0	10.4	4.0	4.3	1.4		1.4	6.0	0.0		2.2
Prop In Lane	1.00		0.21	1.00		1.00		1.00		1.00		1.00
Lane Grp Cap(c), veh/h	129	0	302	118	302	256		413	1011			479
V/C Ratio(X)	0.77	0.00	0.81	0.77	0.38	0.22		0.09	0.31			0.14
Avail Cap(c_a), veh/h	238	0	469	219	468	397		413	1011			479
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		0.67	0.67	0.67		1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00		1.00	1.00	0.00		1.00
Uniform Delay (d), s/veh	36.5	0.0	32.2	36.8	30.1	8.9		26.7	25.9	0.0		22.4
Incr Delay (d2), s/veh	9.4	0.0	6.2	10.1	0.8	0.4		0.1	0.8	0.0		0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	5.0	2.0	2.0	0.9		0.6	2.7	0.0		0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.9	0.0	38.4	46.9	30.9	9.4		26.8	26.7	0.0		22.6
LnGrp LOS	D	A	D	D	C	A		C	C			C
Approach Vol, veh/h		346			262				354	A		
Approach Delay, s/veh		40.6			31.8				26.7			
Approach LOS		D			C				C			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	25.7	26.9	9.7	17.7	22.8	29.8	10.2	17.2				
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	9.4	22.4	9.7	20.5	6.5	25.3	10.5	19.7				
Max Q Clear Time (g_c+I1), s	4.2	8.0	6.0	12.4	3.4	14.2	6.3	6.3				
Green Ext Time (p_c), s	0.0	1.7	0.1	0.8	0.0	3.1	0.1	0.6				
Intersection Summary												
HCM 6th Ctrl Delay			30.3									
HCM 6th LOS			C									
Notes												
User approved ignoring U-Turning movement.												
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.												

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project
 1: R Street & Loughborough Drive

Exist With Proj Ph I AM Peak Hour



Movement	SBT	SBR
Lane Configurations	↑↑	
Traffic Volume (veh/h)	472	90
Future Volume (veh/h)	472	90
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1900	1900
Adj Flow Rate, veh/h	549	105
Peak Hour Factor	0.86	0.86
Percent Heavy Veh, %	0	0
Cap, veh/h	957	182
Arrive On Green	0.32	0.32
Sat Flow, veh/h	3025	576
Grp Volume(v), veh/h	327	327
Grp Sat Flow(s),veh/h/ln	1805	1796
Q Serve(g_s), s	12.1	12.2
Cycle Q Clear(g_c), s	12.1	12.2
Prop In Lane		0.32
Lane Grp Cap(c), veh/h	571	568
V/C Ratio(X)	0.57	0.58
Avail Cap(c_a), veh/h	571	568
HCM Platoon Ratio	1.00	1.00
Upstream Filter(l)	1.00	1.00
Uniform Delay (d), s/veh	22.8	22.9
Incr Delay (d2), s/veh	4.1	4.2
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	5.6
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	27.0	27.1
LnGrp LOS	C	C
Approach Vol, veh/h	720	
Approach Delay, s/veh	26.6	
Approach LOS	C	
Timer - Assigned Phs		

Intersection														
Int Delay, s/veh	0.9													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations			↗			↗		↘	↕			↘	↕	
Traffic Vol, veh/h	0	0	29	0	0	18	5	31	419	32	16	18	543	22
Future Vol, veh/h	0	0	29	0	0	18	5	31	419	32	16	18	543	22
Conflicting Peds, #/hr	0	0	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	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	-	None	-	-	-	None
Storage Length	-	-	0	-	-	0	-	35	-	-	-	130	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	33	0	0	20	6	35	471	36	18	20	610	25

Major/Minor	Minor2		Minor1		Major1			Major2						
Conflicting Flow All	-	-	318	-	-	254	635	635	0	0	507	507	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	6.4	4.1	-	-	6.4	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.5	2.2	-	-	2.5	2.2	-	-
Pot Cap-1 Maneuver	0	0	*881	0	0	*920	1043	1241	-	-	1132	1326	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-	-	-
Platoon blocked, %			1			1	1	1	-	-	1	1	-	-
Mov Cap-1 Maneuver	-	-	*881	-	-	*920	1203	1203	-	-	1215	1215	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	9.2		9		0.6		0.5	
HCM LOS	A		A					

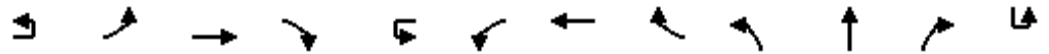
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1203	-	-	881	920	1215	-
HCM Lane V/C Ratio	0.034	-	-	0.037	0.022	0.031	-
HCM Control Delay (s)	8.1	-	-	9.2	9	8.1	-
HCM Lane LOS	A	-	-	A	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.1	0.1	-

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

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project

3: R Street & Olive Avenue

Exist With Proj Ph I AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU
Lane Configurations		↔	↑↑↑	↗		↔	↑↑↑	↗	↖	↑↑		
Traffic Volume (veh/h)	7	95	650	138	5	160	459	68	120	325	129	2
Future Volume (veh/h)	7	95	650	138	5	160	459	68	120	325	129	2
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		1900	1900	1900		1900	1900	1900	1900	1900	1900	
Adj Flow Rate, veh/h		109	747	159		184	528	78	138	374	148	
Peak Hour Factor		0.87	0.87	0.87		0.87	0.87	0.87	0.87	0.87	0.87	
Percent Heavy Veh, %		0	0	0		0	0	0	0	0	0	
Cap, veh/h		434	1991	618		228	1400	435	179	475	185	
Arrive On Green		0.24	0.38	0.38		0.04	0.09	0.09	0.10	0.19	0.19	
Sat Flow, veh/h		1810	5187	1610		1810	5187	1610	1810	2537	990	
Grp Volume(v), veh/h		109	747	159		184	528	78	138	264	258	
Grp Sat Flow(s),veh/h/ln		1810	1729	1610		1810	1729	1610	1810	1805	1722	
Q Serve(g_s), s		3.9	8.3	3.5		8.1	7.7	2.7	6.0	11.2	11.4	
Cycle Q Clear(g_c), s		3.9	8.3	3.5		8.1	7.7	2.7	6.0	11.2	11.4	
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.57	
Lane Grp Cap(c), veh/h		434	1991	618		228	1400	435	179	338	322	
V/C Ratio(X)		0.25	0.38	0.26		0.81	0.38	0.18	0.77	0.78	0.80	
Avail Cap(c_a), veh/h		434	1991	618		328	1400	435	238	429	409	
HCM Platoon Ratio		1.00	1.00	1.00		0.33	0.33	0.33	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	
Uniform Delay (d), s/veh		24.6	17.7	7.3		37.4	30.1	15.4	35.2	31.0	31.1	
Incr Delay (d2), s/veh		0.3	0.5	1.0		9.3	0.8	0.9	10.6	7.2	8.5	
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		1.7	3.2	2.0		4.3	3.4	1.5	3.1	5.4	5.4	
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		24.9	18.3	8.3		46.6	30.9	16.3	45.8	38.1	39.6	
LnGrp LOS		C	B	A		D	C	B	D	D	D	
Approach Vol, veh/h			1015				790			660		
Approach Delay, s/veh			17.4				33.1			40.3		
Approach LOS			B				C			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.6	35.2	12.4	17.8	23.7	26.1	10.7	19.5				
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	14.5	19.0	10.5	18.0	11.9	21.6	9.5	19.0				
Max Q Clear Time (g_c+I1), s	10.1	10.3	8.0	11.6	5.9	9.7	6.8	13.4				
Green Ext Time (p_c), s	0.2	3.7	0.1	1.7	0.1	3.0	0.1	1.5				

Intersection Summary

HCM 6th Ctrl Delay	30.1
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project

3: R Street & Olive Avenue

Exist With Proj Ph I AM Peak Hour



Movement	SBL	SBT	SBR
Lane Configurations	↔	↑↑	↔
Traffic Volume (veh/h)	96	396	55
Future Volume (veh/h)	96	396	55
Initial Q (Qb), veh	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00
Work Zone On Approach		No	
Adj Sat Flow, veh/h/ln	1900	1900	1900
Adj Flow Rate, veh/h	110	455	63
Peak Hour Factor	0.87	0.87	0.87
Percent Heavy Veh, %	0	0	0
Cap, veh/h	141	601	268
Arrive On Green	0.08	0.17	0.17
Sat Flow, veh/h	1810	3610	1610
Grp Volume(v), veh/h	110	455	63
Grp Sat Flow(s),veh/h/ln	1810	1805	1610
Q Serve(g_s), s	4.8	9.6	2.7
Cycle Q Clear(g_c), s	4.8	9.6	2.7
Prop In Lane	1.00		1.00
Lane Grp Cap(c), veh/h	141	601	268
V/C Ratio(X)	0.78	0.76	0.24
Avail Cap(c_a), veh/h	215	812	362
HCM Platoon Ratio	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.2	31.8	28.9
Incr Delay (d2), s/veh	9.6	2.8	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	4.3	1.1
Unsig. Movement Delay, s/veh			
LnGrp Delay(d),s/veh	45.9	34.6	29.4
LnGrp LOS	D	C	C
Approach Vol, veh/h		628	
Approach Delay, s/veh		36.1	
Approach LOS		D	
Timer - Assigned Phs			

Intersection													
Int Delay, s/veh	1.9												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations			↗			↗	↖	↗	↗		↘	↗	↗
Traffic Vol, veh/h	0	0	94	0	0	55	117	519	110	1	44	631	19
Future Vol, veh/h	0	0	94	0	0	55	117	519	110	1	44	631	19
Conflicting Peds, #/hr	0	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	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	-	None
Storage Length	-	-	0	-	-	0	95	-	70	-	40	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	116	0	0	68	144	641	136	1	54	779	23

Major/Minor	Minor2		Minor1		Major1		Major2						
Conflicting Flow All	-	-	390	-	-	321	802	0	0	641	777	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	4.1	-	-	6.4	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.2	-	-	2.5	2.2	-	-
Pot Cap-1 Maneuver	0	0	*842	0	0	681	1109	-	-	571	848	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-	-
Platoon blocked, %			1			1		-	-			-	-
Mov Cap-1 Maneuver	-	-	*842	-	-	681	1109	-	-	837	837	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	10		10.9		1.4		0.6	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1109	-	-	842	681	837	-	-
HCM Lane V/C Ratio	0.13	-	-	0.138	0.1	0.066	-	-
HCM Control Delay (s)	8.7	-	-	10	10.9	9.6	-	-
HCM Lane LOS	A	-	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0.4	-	-	0.5	0.3	0.2	-	-

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

Level Of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 Intersection 5

Average Delay (sec/veh): 1.2 Worst Case Level Of Service: D[25.3]

Street Name:Mall Driveway 2 - Pepperwood Lane Olive Avenue

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Stop Sign Stop Sign Uncontrolled Uncontrolled

Rights: Include Include Include Include

Lanes: 0 0 1! 0 0 0 0 1! 0 0 1 0 3 0 1 1 0 3 1 0

Volume Module: >> Count Date: 5 Jun 2018 <<

Table with 12 columns for traffic volume and delay metrics across four approaches. Rows include Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, and Final Volume.

Critical Gap Module:

Table with 12 columns for critical gap and follow-up time metrics across four approaches. Rows include Critical Gp and FollowUpTim.

Capacity Module:

Table with 12 columns for capacity and volume/capacity metrics across four approaches. Rows include Cnflct Vol, Potent Cap., Move Cap., and Volume/Cap.

Level Of Service Module:

Table with 12 columns for level of service metrics across four approaches. Rows include 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., Shared Queue, Shrd ConDel, Shared LOS, ApproachDel, and ApproachLOS.

Note: Queue reported is the number of cars per lane.

 Level Of Service Detailed Computation Report
 2000 HCM Unsignalized Method
 Base Volume Alternative

 Intersection #1 Intersection 5

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed:	4.00 feet/sec											
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period:	0.25 hour											

Intersection												
Int Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↑	↗		↕			↕	
Traffic Vol, veh/h	1	324	26	27	216	6	9	0	30	4	0	6
Future Vol, veh/h	1	324	26	27	216	6	9	0	30	4	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	50	50	-	50	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	1	421	34	35	281	8	12	0	39	5	0	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	289	0	0	455	0	0	782	782	421	811	808	281
Stage 1	-	-	-	-	-	-	423	423	-	351	351	-
Stage 2	-	-	-	-	-	-	359	359	-	460	457	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1308	-	-	1116	-	-	325	330	637	309	317	857
Stage 1	-	-	-	-	-	-	613	591	-	733	663	-
Stage 2	-	-	-	-	-	-	724	657	-	585	571	-
Platoon blocked, %	1	-	-	-	-	-	1	1	-	1	1	1
Mov Cap-1 Maneuver	1308	-	-	1116	-	-	315	320	637	283	307	857
Mov Cap-2 Maneuver	-	-	-	-	-	-	315	320	-	283	307	-
Stage 1	-	-	-	-	-	-	612	590	-	732	642	-
Stage 2	-	-	-	-	-	-	695	636	-	549	570	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.9			12.8			12.8		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	515	1308	-	-	1116	-	-	473
HCM Lane V/C Ratio	0.098	0.001	-	-	0.031	-	-	0.027
HCM Control Delay (s)	12.8	7.8	-	-	8.3	-	-	12.8
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.3	0	-	-	0.1	-	-	0.1

Level of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Intersection 7

Average Delay (sec/veh): 0.8 Worst Case Level Of Service: B[10.5]

Street Name: Mall Driveway 4 - Applewood Lane Olive Avenue

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Approach, Movement, Control, Rights, and Lanes.

Volume Module: Table with 12 columns representing traffic volumes and adjustments for different movements and approaches.

Critical Gap Module: Table showing critical gap and follow-up time for different movements.

Capacity Module: Table showing conflict volume, potential capacity, move capacity, and volume/capacity ratio.

Level of Service Module: Table showing delay, LOS by move, shared queue, shared delay, and shared LOS for various movements.

Note: Queue reported is the number of cars per lane.

 Level Of Service Detailed Computation Report
 2000 HCM Unsignalized Method
 Base Volume Alternative

 Intersection #2 Intersection 7

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed:	4.00 feet/sec											
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period:	0.25 hour											

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project
 8: M Street & Loughborough Drive/Collins Drive Exist With Proj Ph I AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	145	77	120	45	67	104	1	99	464	14	110	651	116
Future Volume (veh/h)	145	77	120	45	67	104	1	99	464	14	110	651	116
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00
Parking Bus, Adj	1.00	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	1900	1900	1900	1900	1900	1900		1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	191	101	158	59	88	137		130	611	18	145	857	153
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76		0.76	0.76	0.76	0.76	0.76	0.76
Percent Heavy Veh, %	0	0	0	0	0	0		0	0	0	0	0	0
Cap, veh/h	230	216	183	313	107	166		317	1506	44	456	1306	233
Arrive On Green	0.13	0.11	0.11	0.17	0.16	0.16		0.06	0.42	0.42	0.07	0.43	0.43
Sat Flow, veh/h	1810	1900	1610	1810	670	1043		1810	3581	105	1810	3060	546
Grp Volume(v), veh/h	191	101	158	59	0	225		130	308	321	145	505	505
Grp Sat Flow(s),veh/h/ln	1810	1900	1610	1810	0	1712		1810	1805	1881	1810	1805	1802
Q Serve(g_s), s	8.2	4.0	6.2	2.2	0.0	10.2		3.2	9.5	9.5	3.6	17.8	17.8
Cycle Q Clear(g_c), s	8.2	4.0	6.2	2.2	0.0	10.2		3.2	9.5	9.5	3.6	17.8	17.8
Prop In Lane	1.00		1.00	1.00		0.61		1.00		0.06	1.00		0.30
Lane Grp Cap(c), veh/h	230	216	183	313	0	273		317	759	791	456	770	769
V/C Ratio(X)	0.83	0.47	0.87	0.19	0.00	0.82		0.41	0.41	0.41	0.32	0.66	0.66
Avail Cap(c_a), veh/h	260	534	453	313	0	385		330	759	791	510	770	769
HCM Platoon Ratio	1.00	1.00	1.00	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	34.1	33.2	22.5	28.3	0.0	32.5		14.0	16.2	16.2	12.1	18.3	18.3
Incr Delay (d2), s/veh	18.2	1.6	11.5	0.3	0.0	9.5		0.9	1.6	1.5	0.4	4.3	4.3
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	1.9	3.5	1.0	0.0	4.8		1.3	4.0	4.2	1.4	7.8	7.8
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	52.2	34.8	34.0	28.6	0.0	42.0		14.8	17.8	17.7	12.5	22.6	22.6
LnGrp LOS	D	C	C	C	A	D		B	B	B	B	C	C
Approach Vol, veh/h		450			284			759			1155		
Approach Delay, s/veh		41.9			39.2			17.3			21.3		
Approach LOS		D			D			B			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	9.9	38.2	18.4	13.6	9.4	38.6	14.7	17.3					
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	7.8	24.7	7.0	22.5	5.5	27.0	11.5	18.0					
Max Q Clear Time (g_c+1/3), s	11.5	11.5	4.2	8.2	5.2	19.8	10.2	12.2					
Green Ext Time (p_c), s	0.1	3.2	0.0	0.9	0.0	3.7	0.1	0.6					

Intersection Summary

HCM 6th Ctrl Delay	25.6
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

Intersection												
Int Delay, s/veh	0.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗		↕			↕↕↕	
Traffic Vol, veh/h	0	0	50	0	0	50	0	575	46	0	751	51
Future Vol, veh/h	0	0	50	0	0	50	0	575	46	0	751	51
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	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	74	74	74	74	74	74	74	74	74	74	74	74
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	68	0	0	68	0	777	62	0	1015	69

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	-	542	-	-	420	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.1	-	-	6.9	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.9	-	-	3.3	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	*746	0	0	588	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %			1									
Mov Cap-1 Maneuver	-	-	*746	-	-	588	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

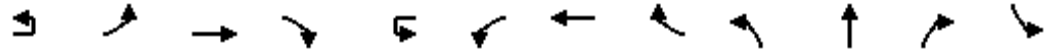
Approach	EB		WB		NB		SB			
HCM Control Delay, s	10.3		11.9		0		0			
HCM LOS	B		B							

Minor Lane/Major Mvmt	NBT	NBR	EBLn1WBLn1	SBT	SBR
Capacity (veh/h)	-	-	746	588	-
HCM Lane V/C Ratio	-	-	0.091	0.115	-
HCM Control Delay (s)	-	-	10.3	11.9	-
HCM Lane LOS	-	-	B	B	-
HCM 95th %tile Q(veh)	-	-	0.3	0.4	-

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

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project
 10: M Street & Olive Avenue

Exist With Proj Ph I AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		↔	↑↑↑	↗		↔	↑↑↑		↖	↑↑		↘
Traffic Volume (veh/h)	11	112	575	162	30	150	555	81	130	417	104	185
Future Volume (veh/h)	11	112	575	162	30	150	555	81	130	417	104	185
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	1.00
Parking Bus, Adj		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		
Adj Sat Flow, veh/h/ln		1900	1900	1900		1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h		132	676	191		176	653	95	153	491	122	218
Peak Hour Factor		0.85	0.85	0.85		0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %		0	0	0		0	0	0	0	0	0	0
Cap, veh/h		168	1232	382		347	1541	222	200	584	144	257
Arrive On Green		0.03	0.08	0.08		0.19	0.34	0.34	0.11	0.20	0.20	0.14
Sat Flow, veh/h		1810	5187	1610		1810	4580	659	1810	2869	709	1810
Grp Volume(v), veh/h		132	676	191		176	491	257	153	308	305	218
Grp Sat Flow(s),veh/h/ln		1810	1729	1610		1810	1729	1781	1810	1805	1772	1810
Q Serve(g_s), s		5.8	10.0	9.1		7.0	8.8	8.9	6.6	13.1	13.3	9.4
Cycle Q Clear(g_c), s		5.8	10.0	9.1		7.0	8.8	8.9	6.6	13.1	13.3	9.4
Prop In Lane		1.00		1.00		1.00		0.37	1.00		0.40	1.00
Lane Grp Cap(c), veh/h		168	1232	382		347	1163	599	200	367	361	257
V/C Ratio(X)		0.78	0.55	0.50		0.51	0.42	0.43	0.77	0.84	0.85	0.85
Avail Cap(c_a), veh/h		222	1232	382		347	1163	599	215	406	399	283
HCM Platoon Ratio		0.33	0.33	0.33		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
Uniform Delay (d), s/veh		38.0	32.7	32.3		28.9	20.5	20.6	34.6	30.6	30.7	33.5
Incr Delay (d2), s/veh		12.6	1.8	4.6		1.2	1.1	2.2	14.2	13.3	14.4	19.4
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
%ile BackOfQ(50%),veh/ln		3.2	4.7	4.3		3.1	3.6	3.9	3.6	6.9	6.9	5.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		50.6	34.5	36.9		30.1	21.7	22.8	48.8	44.0	45.0	52.8
LnGrp LOS		D	C	D		C	C	C	D	D	D	D
Approach Vol, veh/h			999				924			766		
Approach Delay, s/veh			37.1				23.6			45.3		
Approach LOS			D				C			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.8	23.5	13.3	23.3	11.9	31.4	15.9	20.8				
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	12.5	19.0	9.5	21.0	9.8	21.7	12.5	18.0				
Max Q Clear Time (g_c+I1), s	9.0	12.0	8.6	17.2	7.8	10.9	11.4	15.3				
Green Ext Time (p_c), s	0.1	3.0	0.0	1.6	0.1	3.6	0.1	1.0				

Intersection Summary

HCM 6th Ctrl Delay	37.2
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project
 10: M Street & Olive Avenue

Exist With Proj Ph I AM Peak Hour



Movement	SBT	SBR
Lane Configurations	↑↑	
Traffic Volume (veh/h)	555	61
Future Volume (veh/h)	555	61
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1900	1900
Adj Flow Rate, veh/h	653	72
Peak Hour Factor	0.85	0.85
Percent Heavy Veh, %	0	0
Cap, veh/h	771	85
Arrive On Green	0.24	0.24
Sat Flow, veh/h	3279	361
Grp Volume(v), veh/h	359	366
Grp Sat Flow(s),veh/h/ln	1805	1835
Q Serve(g_s), s	15.2	15.2
Cycle Q Clear(g_c), s	15.2	15.2
Prop In Lane		0.20
Lane Grp Cap(c), veh/h	425	432
V/C Ratio(X)	0.85	0.85
Avail Cap(c_a), veh/h	474	482
HCM Platoon Ratio	1.00	1.00
Upstream Filter(l)	1.00	1.00
Uniform Delay (d), s/veh	29.2	29.2
Incr Delay (d2), s/veh	12.3	12.3
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.8	7.9
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	41.5	41.5
LnGrp LOS	D	D
Approach Vol, veh/h	943	
Approach Delay, s/veh	44.1	
Approach LOS	D	
Timer - Assigned Phs		

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖	↕↕	↕↕	↗
Traffic Vol, veh/h	7	67	68	640	820	41
Future Vol, veh/h	7	67	68	640	820	41
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	75	70	-	-	285
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	8	81	82	771	988	49

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1538	494	1037	0	-	0
Stage 1	988	-	-	-	-	-
Stage 2	550	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	193	*763	971	-	-	-
Stage 1	623	-	-	-	-	-
Stage 2	547	-	-	-	-	-
Platoon blocked, %	1	1	1	-	-	-
Mov Cap-1 Maneuver	177	*763	971	-	-	-
Mov Cap-2 Maneuver	177	-	-	-	-	-
Stage 1	571	-	-	-	-	-
Stage 2	547	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.8	0.9	0
HCM LOS	B		

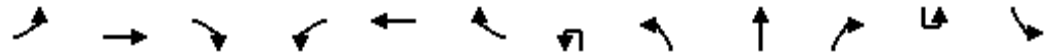
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	971	-	177	763	-	-
HCM Lane V/C Ratio	0.084	-	0.048	0.106	-	-
HCM Control Delay (s)	9	-	26.4	10.3	-	-
HCM Lane LOS	A	-	D	B	-	-
HCM 95th %tile Q(veh)	0.3	-	0.1	0.4	-	-

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

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project

1: R Street & Loughborough Drive

Exist With Proj Ph I PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	102	126	35	104	174	81	29	91	547	135	4	44
Future Volume (veh/h)	102	126	35	104	174	81	29	91	547	135	4	44
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0		0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00		1.00
Parking Bus, Adj	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				
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900		1900	1900	1900		1900
Adj Flow Rate, veh/h	113	140	39	116	193	90		101	608	0		49
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90		0.90	0.90	0.90		0.90
Percent Heavy Veh, %	0	0	0	0	0	0		0	0	0		0
Cap, veh/h	144	177	49	156	247	210		575	1143			495
Arrive On Green	0.08	0.12	0.12	0.09	0.13	0.13		0.32	0.32	0.00		0.27
Sat Flow, veh/h	1810	1430	398	1810	1900	1610		1810	3610	1610		1810
Grp Volume(v), veh/h	113	0	179	116	193	90		101	608	0		49
Grp Sat Flow(s),veh/h/ln	1810	0	1828	1810	1900	1610		1810	1805	1610		1810
Q Serve(g_s), s	5.5	0.0	8.6	5.6	8.9	2.6		3.6	12.5	0.0		1.8
Cycle Q Clear(g_c), s	5.5	0.0	8.6	5.6	8.9	2.6		3.6	12.5	0.0		1.8
Prop In Lane	1.00		0.22	1.00		1.00		1.00		1.00		1.00
Lane Grp Cap(c), veh/h	144	0	226	156	247	210		575	1143			495
V/C Ratio(X)	0.78	0.00	0.79	0.74	0.78	0.43		0.18	0.53			0.10
Avail Cap(c_a), veh/h	271	0	396	271	412	349		575	1143			495
HCM Platoon Ratio	1.00	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	0.00		1.00
Uniform Delay (d), s/veh	40.6	0.0	38.3	40.2	37.9	11.7		22.2	25.3	0.0		24.4
Incr Delay (d2), s/veh	8.9	0.0	6.1	6.8	5.3	1.4		0.1	1.8	0.0		0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0
%ile BackOfQ(50%),veh/ln	2.8	0.0	4.2	2.8	4.4	1.8		1.5	5.5	0.0		0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.5	0.0	44.4	47.0	43.2	13.1		22.3	27.0	0.0		24.5
LnGrp LOS	D	A	D	D	D	B		C	C			C
Approach Vol, veh/h		292			399				709	A		
Approach Delay, s/veh		46.4			37.5				26.4			
Approach LOS		D			D				C			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	29.1	33.0	12.3	15.6	33.1	29.0	11.7	16.2				
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	10.5	28.5	13.5	19.5	14.5	24.5	13.5	19.5				
Max Q Clear Time (g_c+I1), s	3.8	14.5	7.6	10.6	5.6	13.1	7.5	10.9				
Green Ext Time (p_c), s	0.0	3.5	0.1	0.6	0.1	2.4	0.1	0.9				

Intersection Summary

HCM 6th Ctrl Delay	33.0
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

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

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project
 1: R Street & Loughborough Drive

Exist With Proj Ph I PM Peak Hour



Movement	SBT	SBR
Lane Configurations	↑↑	
Traffic Volume (veh/h)	378	87
Future Volume (veh/h)	378	87
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1900	1900
Adj Flow Rate, veh/h	420	97
Peak Hour Factor	0.90	0.90
Percent Heavy Veh, %	0	0
Cap, veh/h	794	182
Arrive On Green	0.27	0.27
Sat Flow, veh/h	2917	668
Grp Volume(v), veh/h	259	258
Grp Sat Flow(s),veh/h/ln	1805	1780
Q Serve(g_s), s	10.9	11.1
Cycle Q Clear(g_c), s	10.9	11.1
Prop In Lane		0.38
Lane Grp Cap(c), veh/h	491	484
V/C Ratio(X)	0.53	0.53
Avail Cap(c_a), veh/h	491	484
HCM Platoon Ratio	1.00	1.00
Upstream Filter(l)	1.00	1.00
Uniform Delay (d), s/veh	27.8	27.9
Incr Delay (d2), s/veh	4.0	4.2
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	5.2
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	31.8	32.1
LnGrp LOS	C	C
Approach Vol, veh/h	566	
Approach Delay, s/veh	31.3	
Approach LOS	C	
Timer - Assigned Phs		

Intersection														
Int Delay, s/veh	2.3													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations			↗			↗		↘	↕			↘	↕	
Traffic Vol, veh/h	0	0	125	0	0	100	12	82	701	114	44	58	457	29
Future Vol, veh/h	0	0	125	0	0	100	12	82	701	114	44	58	457	29
Conflicting Peds, #/hr	0	0	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	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	-	None	-	-	-	None
Storage Length	-	-	0	-	-	0	-	35	-	-	-	130	-	-
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	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	137	0	0	110	13	90	770	125	48	64	502	32

Major/Minor	Minor2		Minor1		Major1			Major2						
Conflicting Flow All	-	-	267	-	-	448	534	534	0	0	896	895	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	6.4	4.1	-	-	6.4	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.5	2.2	-	-	2.5	2.2	-	-
Pot Cap-1 Maneuver	0	0	*904	0	0	*799	1145	1325	-	-	872	1076	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-	-	-
Platoon blocked, %			1			1	1	1	-	-	1	1	-	-
Mov Cap-1 Maneuver	-	-	*904	-	-	*799	1270	1270	-	-	914	914	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	9.7		10.2		0.8		1.6	
HCM LOS	A		B					

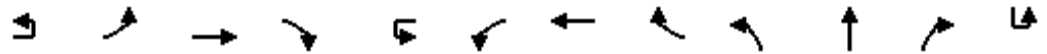
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1270	-	-	904	799	914	-	-
HCM Lane V/C Ratio	0.081	-	-	0.152	0.138	0.123	-	-
HCM Control Delay (s)	8.1	-	-	9.7	10.2	9.5	-	-
HCM Lane LOS	A	-	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0.3	-	-	0.5	0.5	0.4	-	-

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

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project

3: R Street & Olive Avenue

Exist With Proj Ph I PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU
Lane Configurations		↔	↑↑↑	↗		↔	↑↑↑	↗	↖	↑↑		
Traffic Volume (veh/h)	22	190	782	187	14	238	852	144	293	570	110	6
Future Volume (veh/h)	22	190	782	187	14	238	852	144	293	570	110	6
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		1900	1900	1900		1900	1900	1900	1900	1900	1900	
Adj Flow Rate, veh/h		198	815	195		248	888	150	305	594	115	
Peak Hour Factor		0.96	0.96	0.96		0.96	0.96	0.96	0.96	0.96	0.96	
Percent Heavy Veh, %		0	0	0		0	0	0	0	0	0	
Cap, veh/h		399	1602	497		289	1285	399	345	721	139	
Arrive On Green		0.22	0.31	0.31		0.05	0.08	0.08	0.19	0.24	0.24	
Sat Flow, veh/h		1810	5187	1610		1810	5187	1610	1810	3017	583	
Grp Volume(v), veh/h		198	815	195		248	888	150	305	355	354	
Grp Sat Flow(s),veh/h/ln		1810	1729	1610		1810	1729	1610	1810	1805	1795	
Q Serve(g_s), s		8.6	11.6	5.0		12.2	15.0	5.9	14.8	16.8	16.8	
Cycle Q Clear(g_c), s		8.6	11.6	5.0		12.2	15.0	5.9	14.8	16.8	16.8	
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.32	
Lane Grp Cap(c), veh/h		399	1602	497		289	1285	399	345	432	429	
V/C Ratio(X)		0.50	0.51	0.39		0.86	0.69	0.38	0.88	0.82	0.83	
Avail Cap(c_a), veh/h		399	1602	497		332	1285	399	372	531	529	
HCM Platoon Ratio		1.00	1.00	1.00		0.33	0.33	0.33	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	
Uniform Delay (d), s/veh		30.7	25.5	8.2		41.6	38.0	19.2	35.5	32.4	32.5	
Incr Delay (d2), s/veh		1.0	1.2	2.3		17.8	3.1	2.7	20.5	8.4	8.6	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		3.8	4.8	3.3		7.3	7.3	3.5	8.3	8.1	8.1	
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		31.6	26.7	10.5		59.4	41.0	21.9	55.9	40.8	41.1	
LnGrp LOS		C	C	B		E	D	C	E	D	D	
Approach Vol, veh/h			1208				1286			1014		
Approach Delay, s/veh			24.9				42.3			45.5		
Approach LOS			C				D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.9	32.3	21.7	17.2	24.4	26.8	12.8	26.0				
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	16.5	18.5	18.5	18.5	12.7	22.3	10.5	26.5				
Max Q Clear Time (g_c+I1), s	14.2	13.6	16.8	11.0	10.6	17.0	8.6	18.8				
Green Ext Time (p_c), s	0.2	2.6	0.2	1.6	0.1	2.9	0.1	2.7				

Intersection Summary

HCM 6th Ctrl Delay	38.5
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project

3: R Street & Olive Avenue

Exist With Proj Ph I PM Peak Hour



Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (veh/h)	128	352	111
Future Volume (veh/h)	128	352	111
Initial Q (Qb), veh	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00
Work Zone On Approach		No	
Adj Sat Flow, veh/h/ln	1900	1900	1900
Adj Flow Rate, veh/h	133	367	116
Peak Hour Factor	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0
Cap, veh/h	167	508	227
Arrive On Green	0.03	0.05	0.05
Sat Flow, veh/h	1810	3610	1610
Grp Volume(v), veh/h	133	367	116
Grp Sat Flow(s),veh/h/ln	1810	1805	1610
Q Serve(g_s), s	6.6	9.0	6.3
Cycle Q Clear(g_c), s	6.6	9.0	6.3
Prop In Lane	1.00		1.00
Lane Grp Cap(c), veh/h	167	508	227
V/C Ratio(X)	0.80	0.72	0.51
Avail Cap(c_a), veh/h	211	742	331
HCM Platoon Ratio	0.33	0.33	0.33
Upstream Filter(l)	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.8	41.2	39.9
Incr Delay (d2), s/veh	15.1	2.0	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	4.4	2.7
Unsig. Movement Delay, s/veh			
LnGrp Delay(d),s/veh	57.9	43.1	41.7
LnGrp LOS	E	D	D
Approach Vol, veh/h		616	
Approach Delay, s/veh		46.0	
Approach LOS		D	
Timer - Assigned Phs			

Intersection												
Int Delay, s/veh	3.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗	↗	↗↗	↗	↗	↗↗	↗
Traffic Vol, veh/h	0	0	319	0	0	181	249	805	116	43	676	37
Future Vol, veh/h	0	0	319	0	0	181	249	805	116	43	676	37
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	95	-	70	40	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	332	0	0	189	259	839	121	45	704	39

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	-	352	-	-	420	743	0	0	960	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	0	0	*834	0	0	588	1198	-	-	725	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %			1			1	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	*834	-	-	588	1198	-	-	725	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	12.1		14		1.9		0.6	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1198	-	-	834	588	725	-	-
HCM Lane V/C Ratio	0.217	-	-	0.398	0.321	0.062	-	-
HCM Control Delay (s)	8.8	-	-	12.1	14	10.3	-	-
HCM Lane LOS	A	-	-	B	B	B	-	-
HCM 95th %tile Q(veh)	0.8	-	-	1.9	1.4	0.2	-	-

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

Level of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 Intersection 5

Average Delay (sec/veh): 11.6 Worst Case Level Of Service: F[119.9]

Street Name:Mall Driveway 2 - Pepperwood Lane Olive Avenue

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Approach, Movement, Control, Rights, and Lanes.

Volume Module: >> Count Date: 5 Jun 2018 <<. Table with 12 columns for volume counts and 12 rows for various metrics like Base Vol, Growth Adj, etc.

Critical Gap Module: Table with 12 columns for gap metrics and 2 rows for Critical Gp and FollowUpTim.

Capacity Module: Table with 12 columns for capacity metrics and 4 rows for Cnflct Vol, Potent Cap., Move Cap., and Volume/Cap.

Level of Service Module: Table with 12 columns for LOS metrics and 10 rows for 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., SharedQueue, Shrd ConDel, Shared LOS, ApproachDel, and ApproachLOS.

Note: Queue reported is the number of cars per lane.

 Level Of Service Detailed Computation Report
 2000 HCM Unsignalized Method
 Base Volume Alternative

 Intersection #1 Intersection 5

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed:	4.00 feet/sec											
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period:	0.25 hour											

Intersection

Int Delay, s/veh 2.8

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↑	↗	↖	↑	↗		↕			↕	
Traffic Vol, veh/h	1	10	332	27	41	320	10	39	1	88	9	1	2
Future Vol, veh/h	1	10	332	27	41	320	10	39	1	88	9	1	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	50	-	50	50	-	50	-	-	-	-	-	-
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	100	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	1	11	365	30	45	352	11	43	1	88	10	1	2

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	- 363	0 0	395 0	836 842
Stage 1	- -	- -	- -	387 389
Stage 2	- -	- -	- -	449 453
Critical Hdwy	- 4.1	- -	4.1 -	7.1 6.5
Critical Hdwy Stg 1	- -	- -	- -	6.1 5.5
Critical Hdwy Stg 2	- -	- -	- -	6.1 5.5
Follow-up Hdwy	- 2.2	- -	2.2 -	3.5 4
Pot Cap-1 Maneuver	- 1237	- -	1175 -	303 303
Stage 1	- -	- -	- -	641 612
Stage 2	- -	- -	- -	674 605
Platoon blocked, %	1	- -	- -	1 1
Mov Cap-1 Maneuver	- -11	- -	1175 -	292 291
Mov Cap-2 Maneuver	- -	- -	- -	292 291
Stage 1	- -	- -	- -	641 612
Stage 2	- -	- -	- -	646 582

Approach	EB	WB	NB	SB
HCM Control Delay, s		0.9	15.5	19.2
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	473	+	-	-	1175	-	-	266
HCM Lane V/C Ratio	0.279	-	-	-	0.038	-	-	0.05
HCM Control Delay (s)	15.5	-	-	-	8.2	-	-	19.2
HCM Lane LOS	C	-	-	-	A	-	-	C
HCM 95th %tile Q(veh)	1.1	-	-	-	0.1	-	-	0.2

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

Level of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Intersection 7

Average Delay (sec/veh): 1.5 Worst Case Level Of Service: B[12.7]

Street Name: Mall Driveway 4 - Applewood Lane Olive Avenue
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R
Control: Stop Sign Stop Sign Uncontrolled Uncontrolled
Rights: Include Include Include Include
Lanes: 0 0 0 0 1 0 0 0 0 1 1 0 3 0 1 1 0 3 1 0

Volume Module:
Base Vol: 0 0 62 0 0 83 107 1043 41 77 1077 88
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 0 62 0 0 83 107 1043 41 77 1077 88
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.96 0.96 0.96 0.96 0.96 0.96 0.96 0.96 0.96 0.96 0.96 0.96
PHF Volume: 0 0 65 0 0 87 112 1089 43 80 1124 92
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
FinalVolume: 0 0 65 0 0 87 112 1089 43 80 1124 92

Critical Gap Module:
Critical Gp:xxxxx xxxx 6.9 xxxxx xxxx 6.9 4.1 xxxx xxxxxx 4.1 xxxx xxxxxx
FollowUpTim:xxxxx xxxx 3.3 xxxxxx xxxx 3.3 2.2 xxxx xxxxxx 2.2 xxxx xxxxxx

Capacity Module:
Cnflct Vol: xxxx xxxx 363 xxxx xxxx 327 1216 xxxx xxxxxx 1132 xxxx xxxxxx
Potent Cap.: xxxx xxxx 640 xxxx xxxx 675 581 xxxx xxxxxx 625 xxxx xxxxxx
Move Cap.: xxxx xxxx 640 xxxx xxxx 675 581 xxxx xxxxxx 625 xxxx xxxxxx
Volume/Cap: xxxx xxxx 0.10 xxxx xxxx 0.13 0.19 xxxx xxxx 0.13 xxxx xxxx

Level of Service Module:
2Way95thQ: xxxx xxxx 0.3 xxxx xxxx 0.4 0.7 xxxx xxxxxx 0.4 xxxx xxxxxx
Control Del:xxxxx xxxx 11.3 xxxxxx xxxx 11.1 12.7 xxxx xxxxxx 11.6 xxxx xxxxxx
LOS by Move: * * B * * B B * * B * *
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxxx xxxx xxxx xxxxxx xxxx xxxx xxxxxx xxxx xxxx xxxxxx
SharedQueue:xxxxxx xxxxx xxxxxx xxxxxx xxxxx xxxxxx xxxxxx xxxxx xxxxxx xxxxxx xxxxxx xxxxxx
Shrd ConDel:xxxxxx xxxxx xxxxxx xxxxxx xxxxx xxxxxx xxxxxx xxxxx xxxxxx xxxxxx xxxxxx xxxxxx
Shared LOS: * * * * * * * * * * * * * * * *
ApproachDel: 11.3 11.1 xxxxxxx xxxxxxx
ApproachLOS: B B * *

Note: Queue reported is the number of cars per lane.

 Level Of Service Detailed Computation Report
 2000 HCM Unsignalized Method
 Base Volume Alternative

 Intersection #2 Intersection 7

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed:	4.00 feet/sec											
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period:	0.25 hour											

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project
 8: M Street & Loughborough Drive/Collins Drive Exist With Proj Ph I PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	240	31	196	44	80	110	1	137	499	16	27	466	150
Future Volume (veh/h)	240	31	196	44	80	110	1	137	499	16	27	466	150
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00
Parking Bus, Adj	1.00	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	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900		1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	276	36	225	51	92	126		157	574	18	31	536	172
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, %	0	0	0	0	0	0		0	0	0	0	0	0
Cap, veh/h	319	273	231	332	110	150		398	1583	50	416	1083	346
Arrive On Green	0.18	0.14	0.14	0.18	0.15	0.15		0.07	0.44	0.44	0.03	0.40	0.40
Sat Flow, veh/h	1810	1900	1610	1810	726	995		1810	3573	112	1810	2690	860
Grp Volume(v), veh/h	276	36	225	51	0	218		157	290	302	31	359	349
Grp Sat Flow(s),veh/h/ln	1810	1900	1610	1810	0	1721		1810	1805	1880	1810	1805	1745
Q Serve(g_s), s	13.3	1.5	10.0	2.1	0.0	11.1		4.4	9.6	9.6	0.9	13.3	13.4
Cycle Q Clear(g_c), s	13.3	1.5	10.0	2.1	0.0	11.1		4.4	9.6	9.6	0.9	13.3	13.4
Prop In Lane	1.00		1.00	1.00		0.58		1.00		0.06	1.00		0.49
Lane Grp Cap(c), veh/h	319	273	231	332	0	260		398	800	833	416	726	702
V/C Ratio(X)	0.87	0.13	0.97	0.15	0.00	0.84		0.39	0.36	0.36	0.07	0.49	0.50
Avail Cap(c_a), veh/h	470	735	623	332	0	346		441	800	833	462	726	702
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.0	33.6	24.6	30.9	0.0	37.1		14.5	16.6	16.6	15.0	20.1	20.1
Incr Delay (d2), s/veh	10.9	0.2	21.6	0.2	0.0	12.8		0.6	1.3	1.2	0.1	2.4	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	6.7	0.7	5.1	0.9	0.0	5.5		1.8	4.1	4.3	0.4	5.9	5.7
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	47.0	33.8	46.2	31.1	0.0	50.0		15.2	17.9	17.9	15.0	22.5	22.6
LnGrp LOS	D	C	D	C	A	D		B	B	B	B	C	C
Approach Vol, veh/h		537			269			749				739	
Approach Delay, s/veh		45.8			46.4			17.3				22.2	
Approach LOS		D			D			B				C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	7.2	44.4	21.0	17.4	10.8	40.7	20.3	18.1					
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	25.5	6.7	34.8	8.5	22.0	23.4	18.1					
Max Q Clear Time (g_c+1/2), s	11.6	11.6	4.1	12.0	6.4	15.4	15.3	13.1					
Green Ext Time (p_c), s	0.0	3.1	0.0	0.9	0.1	2.4	0.5	0.5					

Intersection Summary

HCM 6th Ctrl Delay	29.0
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

Intersection												
Int Delay, s/veh	1.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗		↕↔			↕↕↕	
Traffic Vol, veh/h	0	0	132	0	0	43	0	647	35	0	773	64
Future Vol, veh/h	0	0	132	0	0	43	0	647	35	0	773	64
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	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	150	0	0	49	0	735	40	0	878	73

Major/Minor	Minor2		Minor1		Major1		Major2	
Conflicting Flow All	-	-	476	-	-	388	-	0
Stage 1	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.1	-	-	6.9	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.9	-	-	3.3	-	-
Pot Cap-1 Maneuver	0	0	*766	0	0	616	0	-
Stage 1	0	0	-	0	0	-	0	-
Stage 2	0	0	-	0	0	-	0	-
Platoon blocked, %			1					
Mov Cap-1 Maneuver	-	-	*766	-	-	616	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-

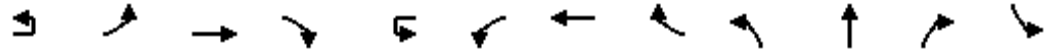
Approach	EB	WB	NB	SB
HCM Control Delay, s	10.8	11.3	0	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1WBLn1	SBT	SBR
Capacity (veh/h)	-	-	766	616	-
HCM Lane V/C Ratio	-	-	0.196	0.079	-
HCM Control Delay (s)	-	-	10.8	11.3	-
HCM Lane LOS	-	-	B	B	-
HCM 95th %tile Q(veh)	-	-	0.7	0.3	-

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

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project
 10: M Street & Olive Avenue

Exist With Proj Ph I PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		↔	↑↑↑	↗		↔	↑↑↑		↖	↑↑		↘
Traffic Volume (veh/h)	33	99	769	141	31	137	817	58	314	492	119	293
Future Volume (veh/h)	33	99	769	141	31	137	817	58	314	492	119	293
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	1.00
Parking Bus, Adj		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		
Adj Sat Flow, veh/h/ln		1900	1900	1900		1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h		104	809	148		144	860	61	331	518	125	308
Peak Hour Factor		0.95	0.95	0.95		0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %		0	0	0		0	0	0	0	0	0	0
Cap, veh/h		134	1181	367		297	1572	111	372	617	148	352
Arrive On Green		0.02	0.08	0.08		0.16	0.32	0.32	0.21	0.21	0.21	0.06
Sat Flow, veh/h		1810	5187	1610		1810	4945	350	1810	2887	693	1810
Grp Volume(v), veh/h		104	809	148		144	601	320	331	323	320	308
Grp Sat Flow(s),veh/h/ln		1810	1729	1610		1810	1729	1837	1810	1805	1775	1810
Q Serve(g_s), s		5.1	13.7	4.8		6.5	12.9	13.0	16.0	15.4	15.6	15.2
Cycle Q Clear(g_c), s		5.1	13.7	4.8		6.5	12.9	13.0	16.0	15.4	15.6	15.2
Prop In Lane		1.00		1.00		1.00		0.19	1.00		0.39	1.00
Lane Grp Cap(c), veh/h		134	1181	367		297	1099	584	372	386	379	352
V/C Ratio(X)		0.78	0.68	0.40		0.49	0.55	0.55	0.89	0.84	0.84	0.88
Avail Cap(c_a), veh/h		191	1181	367		297	1099	584	472	431	424	412
HCM Platoon Ratio		0.33	0.33	0.33		1.00	1.00	1.00	1.00	1.00	1.00	0.33
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		43.2	38.5	13.1		34.2	25.3	25.4	34.8	33.9	33.9	41.0
Incr Delay (d2), s/veh		12.0	3.2	3.3		1.2	2.0	3.7	15.7	12.4	13.2	16.7
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
%ile BackOfQ(50%),veh/ln		2.8	6.7	3.4		2.9	5.4	6.1	8.5	7.9	7.9	9.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		55.1	41.7	16.3		35.4	27.3	29.0	50.4	46.3	47.2	57.8
LnGrp LOS		E	D	B		D	C	C	D	D	D	E
Approach Vol, veh/h			1061				1065			974		
Approach Delay, s/veh			39.5				28.9			48.0		
Approach LOS			D				C			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.3	25.0	23.0	22.7	11.2	33.1	22.0	23.7				
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	9.5	20.5	23.5	18.5	9.5	20.5	20.5	21.5				
Max Q Clear Time (g_c+I1), s	8.5	15.7	18.0	18.0	7.1	15.0	17.2	17.6				
Green Ext Time (p_c), s	0.0	2.5	0.5	0.2	0.0	2.8	0.3	1.5				

Intersection Summary

HCM 6th Ctrl Delay	43.7
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project
 10: M Street & Olive Avenue

Exist With Proj Ph I PM Peak Hour



Movement	SBT	SBR
Lane Configurations	↑↑	↘
Traffic Volume (veh/h)	514	98
Future Volume (veh/h)	514	98
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1900	1900
Adj Flow Rate, veh/h	541	103
Peak Hour Factor	0.95	0.95
Percent Heavy Veh, %	0	0
Cap, veh/h	613	116
Arrive On Green	0.07	0.07
Sat Flow, veh/h	3027	574
Grp Volume(v), veh/h	322	322
Grp Sat Flow(s),veh/h/ln	1805	1797
Q Serve(g_s), s	15.9	16.0
Cycle Q Clear(g_c), s	15.9	16.0
Prop In Lane		0.32
Lane Grp Cap(c), veh/h	365	364
V/C Ratio(X)	0.88	0.89
Avail Cap(c_a), veh/h	371	369
HCM Platoon Ratio	0.33	0.33
Upstream Filter(l)	1.00	1.00
Uniform Delay (d), s/veh	40.9	41.0
Incr Delay (d2), s/veh	20.7	21.6
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.8	9.9
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	61.6	62.6
LnGrp LOS	E	E
Approach Vol, veh/h	952	
Approach Delay, s/veh	60.7	
Approach LOS	E	
Timer - Assigned Phs		

Intersection						
Int Delay, s/veh	1.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	13	180	102	909	740	51
Future Vol, veh/h	13	180	102	909	740	51
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	75	70	-	-	285
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	14	196	111	988	804	55

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1520	402	859	0	-	0
Stage 1	804	-	-	-	-	-
Stage 2	716	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	183	*799	1120	-	-	-
Stage 1	747	-	-	-	-	-
Stage 2	450	-	-	-	-	-
Platoon blocked, %	1	1	1	-	-	-
Mov Cap-1 Maneuver	165	*799	1120	-	-	-
Mov Cap-2 Maneuver	165	-	-	-	-	-
Stage 1	673	-	-	-	-	-
Stage 2	450	-	-	-	-	-

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






















Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1120	-	165	799	-	-
HCM Lane V/C Ratio	0.099	-	0.086	0.245	-	-
HCM Control Delay (s)	8.6	-	28.9	11	-	-
HCM Lane LOS	A	-	D	B	-	-
HCM 95th %tile Q(veh)	0.3	-	0.3	1	-	-

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

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project

1: R Street & Loughborough Drive

Exist With Proj Ph I-II (Alt I) AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	86	167	45	78	98	49	10	33	272	122	6	57
Future Volume (veh/h)	86	167	45	78	98	49	10	33	272	122	6	57
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0		0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00		1.00
Parking Bus, Adj	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				
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900		1900	1900	1900		1900
Adj Flow Rate, veh/h	100	194	52	91	114	57		38	316	0		66
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86		0.86	0.86	0.86		0.86
Percent Heavy Veh, %	0	0	0	0	0	0		0	0	0		0
Cap, veh/h	129	238	64	118	302	256		413	1011			479
Arrive On Green	0.07	0.17	0.17	0.07	0.16	0.16		0.15	0.19	0.00		0.26
Sat Flow, veh/h	1810	1443	387	1810	1900	1610		1810	3610	1610		1810
Grp Volume(v), veh/h	100	0	246	91	114	57		38	316	0		66
Grp Sat Flow(s),veh/h/ln	1810	0	1830	1810	1900	1610		1810	1805	1610		1810
Q Serve(g_s), s	4.3	0.0	10.4	4.0	4.3	1.4		1.4	6.0	0.0		2.2
Cycle Q Clear(g_c), s	4.3	0.0	10.4	4.0	4.3	1.4		1.4	6.0	0.0		2.2
Prop In Lane	1.00		0.21	1.00		1.00		1.00		1.00		1.00
Lane Grp Cap(c), veh/h	129	0	302	118	302	256		413	1011			479
V/C Ratio(X)	0.77	0.00	0.81	0.77	0.38	0.22		0.09	0.31			0.14
Avail Cap(c_a), veh/h	238	0	469	219	468	397		413	1011			479
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		0.67	0.67	0.67		1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00		1.00	1.00	0.00		1.00
Uniform Delay (d), s/veh	36.5	0.0	32.2	36.8	30.1	8.9		26.7	25.9	0.0		22.4
Incr Delay (d2), s/veh	9.4	0.0	6.2	10.1	0.8	0.4		0.1	0.8	0.0		0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	5.0	2.0	2.0	0.9		0.6	2.7	0.0		0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.9	0.0	38.4	46.9	30.9	9.4		26.8	26.7	0.0		22.6
LnGrp LOS	D	A	D	D	C	A		C	C			C
Approach Vol, veh/h		346			262				354	A		
Approach Delay, s/veh		40.6			31.8				26.7			
Approach LOS		D			C				C			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	25.7	26.9	9.7	17.7	22.8	29.8	10.2	17.2				
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	9.4	22.4	9.7	20.5	6.5	25.3	10.5	19.7				
Max Q Clear Time (g_c+I1), s	4.2	8.0	6.0	12.4	3.4	14.2	6.3	6.3				
Green Ext Time (p_c), s	0.0	1.7	0.1	0.8	0.0	3.1	0.1	0.6				

Intersection Summary

HCM 6th Ctrl Delay	30.3
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

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

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project
 1: R Street & Loughborough Drive

Exist With Proj Ph I+II (Alt I) AM Peak Hour



Movement	SBT	SBR
Lane Configurations	↑↑	
Traffic Volume (veh/h)	472	90
Future Volume (veh/h)	472	90
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1900	1900
Adj Flow Rate, veh/h	549	105
Peak Hour Factor	0.86	0.86
Percent Heavy Veh, %	0	0
Cap, veh/h	957	182
Arrive On Green	0.32	0.32
Sat Flow, veh/h	3025	576
Grp Volume(v), veh/h	327	327
Grp Sat Flow(s),veh/h/ln	1805	1796
Q Serve(g_s), s	12.1	12.2
Cycle Q Clear(g_c), s	12.1	12.2
Prop In Lane		0.32
Lane Grp Cap(c), veh/h	571	568
V/C Ratio(X)	0.57	0.58
Avail Cap(c_a), veh/h	571	568
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	22.8	22.9
Incr Delay (d2), s/veh	4.1	4.2
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	5.6
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	27.0	27.1
LnGrp LOS	C	C
Approach Vol, veh/h	720	
Approach Delay, s/veh	26.6	
Approach LOS	C	
Timer - Assigned Phs		

Intersection														
Int Delay, s/veh	0.9													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations			↗			↗		↘	↕			↘	↕	
Traffic Vol, veh/h	0	0	29	0	0	18	5	31	419	32	16	18	543	22
Future Vol, veh/h	0	0	29	0	0	18	5	31	419	32	16	18	543	22
Conflicting Peds, #/hr	0	0	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	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	-	None	-	-	-	None
Storage Length	-	-	0	-	-	0	-	35	-	-	-	130	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	33	0	0	20	6	35	471	36	18	20	610	25

Major/Minor	Minor2		Minor1		Major1			Major2						
Conflicting Flow All	-	-	318	-	-	254	635	635	0	0	507	507	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	6.4	4.1	-	-	6.4	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.5	2.2	-	-	2.5	2.2	-	-
Pot Cap-1 Maneuver	0	0	*881	0	0	*920	1043	1241	-	-	1132	1326	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-	-	-
Platoon blocked, %			1			1	1	1	-	-	1	1	-	-
Mov Cap-1 Maneuver	-	-	*881	-	-	*920	1203	1203	-	-	1215	1215	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	9.2		9		0.6		0.5	
HCM LOS	A		A					

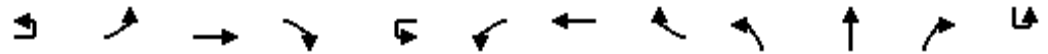
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1203	-	-	881	920	1215	-	-
HCM Lane V/C Ratio	0.034	-	-	0.037	0.022	0.031	-	-
HCM Control Delay (s)	8.1	-	-	9.2	9	8.1	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.1	0.1	-	-

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

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project

3: R Street & Olive Avenue

Exist With Proj Ph I-II (Alt I) AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU
Lane Configurations		↔	↑↑↑	↗		↔	↑↑↑	↗	↖	↑↑		
Traffic Volume (veh/h)	7	95	650	138	5	160	459	68	120	325	129	2
Future Volume (veh/h)	7	95	650	138	5	160	459	68	120	325	129	2
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		1900	1900	1900		1900	1900	1900	1900	1900	1900	
Adj Flow Rate, veh/h		109	747	159		184	528	78	138	374	148	
Peak Hour Factor		0.87	0.87	0.87		0.87	0.87	0.87	0.87	0.87	0.87	
Percent Heavy Veh, %		0	0	0		0	0	0	0	0	0	
Cap, veh/h		434	1991	618		228	1400	435	179	475	185	
Arrive On Green		0.24	0.38	0.38		0.04	0.09	0.09	0.10	0.19	0.19	
Sat Flow, veh/h		1810	5187	1610		1810	5187	1610	1810	2537	990	
Grp Volume(v), veh/h		109	747	159		184	528	78	138	264	258	
Grp Sat Flow(s),veh/h/ln		1810	1729	1610		1810	1729	1610	1810	1805	1722	
Q Serve(g_s), s		3.9	8.3	3.5		8.1	7.7	2.7	6.0	11.2	11.4	
Cycle Q Clear(g_c), s		3.9	8.3	3.5		8.1	7.7	2.7	6.0	11.2	11.4	
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.57	
Lane Grp Cap(c), veh/h		434	1991	618		228	1400	435	179	338	322	
V/C Ratio(X)		0.25	0.38	0.26		0.81	0.38	0.18	0.77	0.78	0.80	
Avail Cap(c_a), veh/h		434	1991	618		328	1400	435	238	429	409	
HCM Platoon Ratio		1.00	1.00	1.00		0.33	0.33	0.33	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	
Uniform Delay (d), s/veh		24.6	17.7	7.3		37.4	30.1	15.4	35.2	31.0	31.1	
Incr Delay (d2), s/veh		0.3	0.5	1.0		9.3	0.8	0.9	10.6	7.2	8.5	
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		1.7	3.2	2.0		4.3	3.4	1.5	3.1	5.4	5.4	
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		24.9	18.3	8.3		46.6	30.9	16.3	45.8	38.1	39.6	
LnGrp LOS		C	B	A		D	C	B	D	D	D	
Approach Vol, veh/h			1015				790			660		
Approach Delay, s/veh			17.4				33.1			40.3		
Approach LOS			B				C			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.6	35.2	12.4	17.8	23.7	26.1	10.7	19.5				
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	14.5	19.0	10.5	18.0	11.9	21.6	9.5	19.0				
Max Q Clear Time (g_c+I1), s	10.1	10.3	8.0	11.6	5.9	9.7	6.8	13.4				
Green Ext Time (p_c), s	0.2	3.7	0.1	1.7	0.1	3.0	0.1	1.5				

Intersection Summary

HCM 6th Ctrl Delay	30.1
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project

3: R Street & Olive Avenue

Exist With Proj Ph I+II (Alt I) AM Peak Hour



Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (veh/h)	96	396	55
Future Volume (veh/h)	96	396	55
Initial Q (Qb), veh	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00
Work Zone On Approach		No	
Adj Sat Flow, veh/h/ln	1900	1900	1900
Adj Flow Rate, veh/h	110	455	63
Peak Hour Factor	0.87	0.87	0.87
Percent Heavy Veh, %	0	0	0
Cap, veh/h	141	601	268
Arrive On Green	0.08	0.17	0.17
Sat Flow, veh/h	1810	3610	1610
Grp Volume(v), veh/h	110	455	63
Grp Sat Flow(s),veh/h/ln	1810	1805	1610
Q Serve(g_s), s	4.8	9.6	2.7
Cycle Q Clear(g_c), s	4.8	9.6	2.7
Prop In Lane	1.00		1.00
Lane Grp Cap(c), veh/h	141	601	268
V/C Ratio(X)	0.78	0.76	0.24
Avail Cap(c_a), veh/h	215	812	362
HCM Platoon Ratio	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.2	31.8	28.9
Incr Delay (d2), s/veh	9.6	2.8	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	4.3	1.1
Unsig. Movement Delay, s/veh			
LnGrp Delay(d),s/veh	45.9	34.6	29.4
LnGrp LOS	D	C	C
Approach Vol, veh/h		628	
Approach Delay, s/veh		36.1	
Approach LOS		D	
Timer - Assigned Phs			

Intersection													
Int Delay, s/veh	1.9												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations			↗			↗	↗	↕	↗		↘	↕	↗
Traffic Vol, veh/h	0	0	94	0	0	55	117	519	110	1	44	631	19
Future Vol, veh/h	0	0	94	0	0	55	117	519	110	1	44	631	19
Conflicting Peds, #/hr	0	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	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	-	None
Storage Length	-	-	0	-	-	0	95	-	70	-	40	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	116	0	0	68	144	641	136	1	54	779	23

Major/Minor	Minor2		Minor1		Major1		Major2						
Conflicting Flow All	-	-	390	-	-	321	802	0	0	641	777	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	4.1	-	-	6.4	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.2	-	-	2.5	2.2	-	-
Pot Cap-1 Maneuver	0	0	*842	0	0	681	1109	-	-	571	848	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-	-
Platoon blocked, %			1			1		-	-			-	-
Mov Cap-1 Maneuver	-	-	*842	-	-	681	1109	-	-	837	837	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10	10.9	1.4	0.6
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1109	-	-	842	681	837	-
HCM Lane V/C Ratio	0.13	-	-	0.138	0.1	0.066	-
HCM Control Delay (s)	8.7	-	-	10	10.9	9.6	-
HCM Lane LOS	A	-	-	B	B	A	-
HCM 95th %tile Q(veh)	0.4	-	-	0.5	0.3	0.2	-

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

Level Of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 Intersection 5

Average Delay (sec/veh): 1.2 Worst Case Level Of Service: D[25.3]

Street Name:Mall Driveway 2 - Pepperwood Lane Olive Avenue

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Stop Sign Stop Sign Uncontrolled Uncontrolled

Rights: Include Include Include Include

Lanes: 0 0 1! 0 0 0 0 1! 0 0 1 0 3 0 1 1 0 3 1 0

-----|-----|-----|-----|-----|

Volume Module: >> Count Date: 5 Jun 2018 <<

Base Vol: 8 3 56 6 1 6 22 846 14 27 672 6

Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Bse: 8 3 56 6 1 6 22 846 14 27 672 6

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.91 0.91 0.91 0.91 0.91 0.91 0.91 0.91 0.91 0.91 0.91 0.91

PHF Volume: 9 3 62 7 1 7 24 933 15 30 741 7

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

FinalVolume: 9 3 62 7 1 7 24 933 15 30 741 7

-----|-----|-----|-----|-----|

Critical Gap Module:

Critical Gp: 7.5 6.5 6.9 7.5 6.5 6.9 4.1 xxxx xxxxx 4.1 xxxx xxxxx

FollowUpTim: 3.5 4.0 3.3 3.5 4.0 3.3 2.2 xxxx xxxxx 2.2 xxxx xxxxx

-----|-----|-----|-----|-----|

Capacity Module:

Cnflct Vol: 1227 1788 311 1165 1800 189 748 xxxx xxxxx 948 xxxx xxxxx

Potent Cap.: 137 82 691 152 81 828 870 xxxx xxxxx 732 xxxx xxxxx

Move Cap.: 127 77 691 127 75 828 870 xxxx xxxxx 732 xxxx xxxxx

Volume/Cap: 0.07 0.04 0.09 0.05 0.01 0.01 0.03 xxxx xxxx 0.04 xxxx xxxx

-----|-----|-----|-----|-----|

Level Of Service Module:

2Way95thQ: xxxx xxxx xxxxx xxxx xxxx xxxxx 0.1 xxxx xxxxx 0.1 xxxx xxxxx

Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx 9.3 xxxx xxxxx 10.1 xxxx xxxxx

LOS by Move: * * * * * A * * B * *

Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT

Shared Cap.: xxxx 366 xxxxx xxxx 192 xxxxx xxxx xxxx xxxxx xxxx xxxx xxxxx

SharedQueue:xxxxx 0.7 xxxxx xxxxx 0.2 xxxxx xxxxx xxxx xxxxx xxxxx xxxxx xxxxx

Shrd ConDel:xxxxxx 17.3 xxxxx xxxxx 25.3 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx

Shared LOS: * C * * D * * * * * * * * *

ApproachDel: 17.3 25.3 xxxxxxx xxxxxxx

ApproachLOS: C D * *

Note: Queue reported is the number of cars per lane.

 Level Of Service Detailed Computation Report
 2000 HCM Unsignalized Method
 Base Volume Alternative

 Intersection #1 Intersection 5

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed:	4.00 feet/sec											
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period:	0.25 hour											

Intersection												
Int Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	324	26	27	216	6	9	0	30	4	0	6
Future Vol, veh/h	1	324	26	27	216	6	9	0	30	4	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	50	50	-	50	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	1	421	34	35	281	8	12	0	39	5	0	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	289	0	0	455	0	0	782	782	421	811	808	281
Stage 1	-	-	-	-	-	-	423	423	-	351	351	-
Stage 2	-	-	-	-	-	-	359	359	-	460	457	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1308	-	-	1116	-	-	325	330	637	309	317	857
Stage 1	-	-	-	-	-	-	613	591	-	733	663	-
Stage 2	-	-	-	-	-	-	724	657	-	585	571	-
Platoon blocked, %	1	-	-	-	-	-	1	1	-	1	1	1
Mov Cap-1 Maneuver	1308	-	-	1116	-	-	315	320	637	283	307	857
Mov Cap-2 Maneuver	-	-	-	-	-	-	315	320	-	283	307	-
Stage 1	-	-	-	-	-	-	612	590	-	732	642	-
Stage 2	-	-	-	-	-	-	695	636	-	549	570	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.9			12.8			12.8		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	515	1308	-	-	1116	-	-	473
HCM Lane V/C Ratio	0.098	0.001	-	-	0.031	-	-	0.027
HCM Control Delay (s)	12.8	7.8	-	-	8.3	-	-	12.8
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.3	0	-	-	0.1	-	-	0.1

Level of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Intersection 7

Average Delay (sec/veh): 0.8 Worst Case Level Of Service: B[10.5]

Street Name: Mall Driveway 4 - Applewood Lane Olive Avenue

Table with columns for Approach (North Bound, South Bound, East Bound, West Bound), Movement (L, T, R), Control (Stop Sign, Uncontrolled), Rights (Include), and Lanes (0, 0, 0, 0, 1).

Volume Module: Table with columns for Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, and Final Volume across various movement categories.

Critical Gap Module: Table with columns for Critical Gp, FollowUpTim, and various movement categories.

Capacity Module: Table with columns for Cnflct Vol, Potent Cap., Move Cap., and Volume/Cap. across movement categories.

Level of Service Module: Table with columns for 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., Shared Queue, Shrd ConDel, Shared LOS, ApproachDel, and ApproachLOS.

Note: Queue reported is the number of cars per lane.

Level Of Service Detailed Computation Report
2000 HCM Unsignalized Method
Base Volume Alternative

Intersection #2 Intersection 7

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed:	4.00 feet/sec											
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period:	0.25 hour											

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project
 8: M Street & Loughborough Drive/Collins Drive

Exist With Proj Ph I+II (Alt I) AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	145	77	120	45	67	104	1	99	464	14	110	651	116
Future Volume (veh/h)	145	77	120	45	67	104	1	99	464	14	110	651	116
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00
Parking Bus, Adj	1.00	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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	191	101	158	59	88	137	130	611	18	145	857	153	
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	230	216	183	313	107	166	317	1506	44	456	1306	233	
Arrive On Green	0.13	0.11	0.11	0.17	0.16	0.16	0.06	0.42	0.42	0.07	0.43	0.43	
Sat Flow, veh/h	1810	1900	1610	1810	670	1043	1810	3581	105	1810	3060	546	
Grp Volume(v), veh/h	191	101	158	59	0	225	130	308	321	145	505	505	
Grp Sat Flow(s),veh/h/ln	1810	1900	1610	1810	0	1712	1810	1805	1881	1810	1805	1802	
Q Serve(g_s), s	8.2	4.0	6.2	2.2	0.0	10.2	3.2	9.5	9.5	3.6	17.8	17.8	
Cycle Q Clear(g_c), s	8.2	4.0	6.2	2.2	0.0	10.2	3.2	9.5	9.5	3.6	17.8	17.8	
Prop In Lane	1.00		1.00	1.00		0.61	1.00		0.06	1.00		0.30	
Lane Grp Cap(c), veh/h	230	216	183	313	0	273	317	759	791	456	770	769	
V/C Ratio(X)	0.83	0.47	0.87	0.19	0.00	0.82	0.41	0.41	0.41	0.32	0.66	0.66	
Avail Cap(c_a), veh/h	260	534	453	313	0	385	330	759	791	510	770	769	
HCM Platoon Ratio	1.00	1.00	1.00	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	34.1	33.2	22.5	28.3	0.0	32.5	14.0	16.2	16.2	12.1	18.3	18.3	
Incr Delay (d2), s/veh	18.2	1.6	11.5	0.3	0.0	9.5	0.9	1.6	1.5	0.4	4.3	4.3	
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	1.9	3.5	1.0	0.0	4.8	1.3	4.0	4.2	1.4	7.8	7.8	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	52.2	34.8	34.0	28.6	0.0	42.0	14.8	17.8	17.7	12.5	22.6	22.6	
LnGrp LOS	D	C	C	C	A	D	B	B	B	B	C	C	
Approach Vol, veh/h		450			284			759			1155		
Approach Delay, s/veh		41.9			39.2			17.3			21.3		
Approach LOS		D			D			B			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	9.9	38.2	18.4	13.6	9.4	38.6	14.7	17.3					
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	7.8	24.7	7.0	22.5	5.5	27.0	11.5	18.0					
Max Q Clear Time (g_c+1/3), s	11.5	11.5	4.2	8.2	5.2	19.8	10.2	12.2					
Green Ext Time (p_c), s	0.1	3.2	0.0	0.9	0.0	3.7	0.1	0.6					

Intersection Summary

HCM 6th Ctrl Delay	25.6
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

Intersection												
Int Delay, s/veh	0.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗		↕↔			↕↕↕	
Traffic Vol, veh/h	0	0	50	0	0	50	0	575	46	0	751	51
Future Vol, veh/h	0	0	50	0	0	50	0	575	46	0	751	51
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	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	74	74	74	74	74	74	74	74	74	74	74	74
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	68	0	0	68	0	777	62	0	1015	69

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	-	542	-	-	420	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.1	-	-	6.9	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.9	-	-	3.3	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	*746	0	0	588	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %			1									
Mov Cap-1 Maneuver	-	-	*746	-	-	588	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	10.3		11.9		0		0	
HCM LOS	B		B					

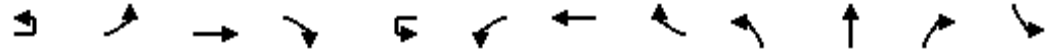
Minor Lane/Major Mvmt	NBT	NBR	EBLn1WBLn1	SBT	SBR
Capacity (veh/h)	-	-	746	588	-
HCM Lane V/C Ratio	-	-	0.091	0.115	-
HCM Control Delay (s)	-	-	10.3	11.9	-
HCM Lane LOS	-	-	B	B	-
HCM 95th %tile Q(veh)	-	-	0.3	0.4	-

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

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project

10: M Street & Olive Avenue

Exist With Proj Ph I-II (Alt I) AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		↔	↑↑↑	↗		↔	↑↑↑		↖	↑↑		↘
Traffic Volume (veh/h)	11	112	575	162	30	150	555	81	130	417	104	185
Future Volume (veh/h)	11	112	575	162	30	150	555	81	130	417	104	185
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	1.00
Parking Bus, Adj		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		
Adj Sat Flow, veh/h/ln		1900	1900	1900		1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h		132	676	191		176	653	95	153	491	122	218
Peak Hour Factor		0.85	0.85	0.85		0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %		0	0	0		0	0	0	0	0	0	0
Cap, veh/h		168	1232	382		347	1541	222	200	584	144	257
Arrive On Green		0.03	0.08	0.08		0.19	0.34	0.34	0.11	0.20	0.20	0.14
Sat Flow, veh/h		1810	5187	1610		1810	4580	659	1810	2869	709	1810
Grp Volume(v), veh/h		132	676	191		176	491	257	153	308	305	218
Grp Sat Flow(s),veh/h/ln		1810	1729	1610		1810	1729	1781	1810	1805	1772	1810
Q Serve(g_s), s		5.8	10.0	9.1		7.0	8.8	8.9	6.6	13.1	13.3	9.4
Cycle Q Clear(g_c), s		5.8	10.0	9.1		7.0	8.8	8.9	6.6	13.1	13.3	9.4
Prop In Lane		1.00		1.00		1.00		0.37	1.00		0.40	1.00
Lane Grp Cap(c), veh/h		168	1232	382		347	1163	599	200	367	361	257
V/C Ratio(X)		0.78	0.55	0.50		0.51	0.42	0.43	0.77	0.84	0.85	0.85
Avail Cap(c_a), veh/h		222	1232	382		347	1163	599	215	406	399	283
HCM Platoon Ratio		0.33	0.33	0.33		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
Uniform Delay (d), s/veh		38.0	32.7	32.3		28.9	20.5	20.6	34.6	30.6	30.7	33.5
Incr Delay (d2), s/veh		12.6	1.8	4.6		1.2	1.1	2.2	14.2	13.3	14.4	19.4
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
%ile BackOfQ(50%),veh/ln		3.2	4.7	4.3		3.1	3.6	3.9	3.6	6.9	6.9	5.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		50.6	34.5	36.9		30.1	21.7	22.8	48.8	44.0	45.0	52.8
LnGrp LOS		D	C	D		C	C	C	D	D	D	D
Approach Vol, veh/h			999				924			766		
Approach Delay, s/veh			37.1				23.6			45.3		
Approach LOS			D				C			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.8	23.5	13.3	23.3	11.9	31.4	15.9	20.8				
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	12.5	19.0	9.5	21.0	9.8	21.7	12.5	18.0				
Max Q Clear Time (g_c+I1), s	9.0	12.0	8.6	17.2	7.8	10.9	11.4	15.3				
Green Ext Time (p_c), s	0.1	3.0	0.0	1.6	0.1	3.6	0.1	1.0				

Intersection Summary

HCM 6th Ctrl Delay	37.2
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project
 10: M Street & Olive Avenue

Exist With Proj Ph I+II (Alt I) AM Peak Hour



Movement	SBT	SBR
Lane Configurations	↑↑	
Traffic Volume (veh/h)	555	61
Future Volume (veh/h)	555	61
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1900	1900
Adj Flow Rate, veh/h	653	72
Peak Hour Factor	0.85	0.85
Percent Heavy Veh, %	0	0
Cap, veh/h	771	85
Arrive On Green	0.24	0.24
Sat Flow, veh/h	3279	361
Grp Volume(v), veh/h	359	366
Grp Sat Flow(s),veh/h/ln	1805	1835
Q Serve(g_s), s	15.2	15.2
Cycle Q Clear(g_c), s	15.2	15.2
Prop In Lane		0.20
Lane Grp Cap(c), veh/h	425	432
V/C Ratio(X)	0.85	0.85
Avail Cap(c_a), veh/h	474	482
HCM Platoon Ratio	1.00	1.00
Upstream Filter(l)	1.00	1.00
Uniform Delay (d), s/veh	29.2	29.2
Incr Delay (d2), s/veh	12.3	12.3
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.8	7.9
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	41.5	41.5
LnGrp LOS	D	D
Approach Vol, veh/h	943	
Approach Delay, s/veh	44.1	
Approach LOS	D	
Timer - Assigned Phs		

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖	↕↕	↕↕	↗
Traffic Vol, veh/h	7	67	68	640	820	41
Future Vol, veh/h	7	67	68	640	820	41
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	75	70	-	-	285
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	8	81	82	771	988	49

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1538	494	1037	0	-	0
Stage 1	988	-	-	-	-	-
Stage 2	550	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	193	*763	971	-	-	-
Stage 1	623	-	-	-	-	-
Stage 2	547	-	-	-	-	-
Platoon blocked, %	1	1	1	-	-	-
Mov Cap-1 Maneuver	177	*763	971	-	-	-
Mov Cap-2 Maneuver	177	-	-	-	-	-
Stage 1	571	-	-	-	-	-
Stage 2	547	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.8	0.9	0
HCM LOS	B		

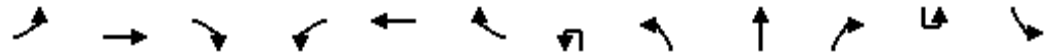
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	971	-	177	763	-	-
HCM Lane V/C Ratio	0.084	-	0.048	0.106	-	-
HCM Control Delay (s)	9	-	26.4	10.3	-	-
HCM Lane LOS	A	-	D	B	-	-
HCM 95th %tile Q(veh)	0.3	-	0.1	0.4	-	-

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

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project

1: R Street & Loughborough Drive

Exist With Proj Ph I-II (Alt I) PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	102	132	35	104	179	99	29	91	547	135	4	63
Future Volume (veh/h)	102	132	35	104	179	99	29	91	547	135	4	63
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0		0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00		1.00
Parking Bus, Adj	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				
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900		1900	1900	1900		1900
Adj Flow Rate, veh/h	113	147	39	116	199	110		101	608	0		70
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90		0.90	0.90	0.90		0.90
Percent Heavy Veh, %	0	0	0	0	0	0		0	0	0		0
Cap, veh/h	144	184	49	156	254	215		569	1143			488
Arrive On Green	0.08	0.13	0.13	0.09	0.13	0.13		0.31	0.32	0.00		0.27
Sat Flow, veh/h	1810	1447	384	1810	1900	1610		1810	3610	1610		1810
Grp Volume(v), veh/h	113	0	186	116	199	110		101	608	0		70
Grp Sat Flow(s),veh/h/ln	1810	0	1831	1810	1900	1610		1810	1805	1610		1810
Q Serve(g_s), s	5.5	0.0	8.9	5.6	9.1	3.3		3.6	12.5	0.0		2.6
Cycle Q Clear(g_c), s	5.5	0.0	8.9	5.6	9.1	3.3		3.6	12.5	0.0		2.6
Prop In Lane	1.00		0.21	1.00		1.00		1.00		1.00		1.00
Lane Grp Cap(c), veh/h	144	0	233	156	254	215		569	1143			488
V/C Ratio(X)	0.78	0.00	0.80	0.74	0.78	0.51		0.18	0.53			0.14
Avail Cap(c_a), veh/h	271	0	397	271	412	349		569	1143			488
HCM Platoon Ratio	1.00	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	0.00		1.00
Uniform Delay (d), s/veh	40.6	0.0	38.1	40.2	37.7	11.9		22.4	25.3	0.0		25.0
Incr Delay (d2), s/veh	8.9	0.0	6.1	6.9	5.2	1.9		0.1	1.8	0.0		0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0
%ile BackOfQ(50%),veh/ln	2.8	0.0	4.3	2.8	4.5	2.3		1.5	5.5	0.0		1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.5	0.0	44.3	47.0	42.9	13.8		22.6	27.0	0.0		25.1
LnGrp LOS	D	A	D	D	D	B		C	C			C
Approach Vol, veh/h		299			425				709	A		
Approach Delay, s/veh		46.3			36.5				26.4			
Approach LOS		D			D				C			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	28.8	33.0	12.2	16.0	32.8	29.0	11.7	16.5				
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	28.5	13.5	19.5	14.5	24.5	13.5	19.5				
Max Q Clear Time (g_c+I1), s	4.6	14.5	7.6	10.9	5.6	13.1	7.5	11.1				
Green Ext Time (p_c), s	0.1	3.5	0.1	0.6	0.1	2.4	0.1	0.9				

Intersection Summary

HCM 6th Ctrl Delay	32.8
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

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

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project
 1: R Street & Loughborough Drive

Exist With Proj Ph I+II (Alt I) PM Peak Hour



Movement	SBT	SBR
Lane Configurations	↑↑	
Traffic Volume (veh/h)	378	87
Future Volume (veh/h)	378	87
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1900	1900
Adj Flow Rate, veh/h	420	97
Peak Hour Factor	0.90	0.90
Percent Heavy Veh, %	0	0
Cap, veh/h	794	182
Arrive On Green	0.27	0.27
Sat Flow, veh/h	2917	668
Grp Volume(v), veh/h	259	258
Grp Sat Flow(s),veh/h/ln	1805	1780
Q Serve(g_s), s	10.9	11.1
Cycle Q Clear(g_c), s	10.9	11.1
Prop In Lane		0.38
Lane Grp Cap(c), veh/h	491	484
V/C Ratio(X)	0.53	0.53
Avail Cap(c_a), veh/h	491	484
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	27.8	27.9
Incr Delay (d2), s/veh	4.0	4.2
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	5.2
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	31.8	32.1
LnGrp LOS	C	C
Approach Vol, veh/h	587	
Approach Delay, s/veh	31.1	
Approach LOS	C	
Timer - Assigned Phs		

Intersection														
Int Delay, s/veh	2.3													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations			↗			↗		↘	↕			↘	↕	
Traffic Vol, veh/h	0	0	125	0	0	100	12	82	701	114	44	58	457	29
Future Vol, veh/h	0	0	125	0	0	100	12	82	701	114	44	58	457	29
Conflicting Peds, #/hr	0	0	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	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	-	None	-	-	-	None
Storage Length	-	-	0	-	-	0	-	35	-	-	-	130	-	-
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	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	137	0	0	110	13	90	770	125	48	64	502	32

Major/Minor	Minor2		Minor1		Major1			Major2						
Conflicting Flow All	-	-	267	-	-	448	534	534	0	0	896	895	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	6.4	4.1	-	-	6.4	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.5	2.2	-	-	2.5	2.2	-	-
Pot Cap-1 Maneuver	0	0	*904	0	0	*799	1145	1325	-	-	872	1076	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-	-	-
Platoon blocked, %			1			1	1	1	-	-	1	1	-	-
Mov Cap-1 Maneuver	-	-	*904	-	-	*799	1270	1270	-	-	914	914	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	9.7		10.2		0.8		1.6	
HCM LOS	A		B					

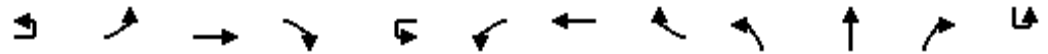
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1270	-	-	904	799	914	-	-
HCM Lane V/C Ratio	0.081	-	-	0.152	0.138	0.123	-	-
HCM Control Delay (s)	8.1	-	-	9.7	10.2	9.5	-	-
HCM Lane LOS	A	-	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0.3	-	-	0.5	0.5	0.4	-	-

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

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project

3: R Street & Olive Avenue

Exist With Proj Ph I-II (Alt I) PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU
Lane Configurations		↔	↑↑↑	↗		↔	↑↑↑	↗	↖	↑↑		
Traffic Volume (veh/h)	22	190	791	187	14	251	861	144	293	570	123	6
Future Volume (veh/h)	22	190	791	187	14	251	861	144	293	570	123	6
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		1900	1900	1900		1900	1900	1900	1900	1900	1900	
Adj Flow Rate, veh/h		198	824	195		261	897	150	305	594	128	
Peak Hour Factor		0.96	0.96	0.96		0.96	0.96	0.96	0.96	0.96	0.96	
Percent Heavy Veh, %		0	0	0		0	0	0	0	0	0	
Cap, veh/h		393	1547	480		301	1285	399	352	717	154	
Arrive On Green		0.22	0.30	0.30		0.05	0.08	0.08	0.19	0.24	0.24	
Sat Flow, veh/h		1810	5187	1610		1810	5187	1610	1810	2955	635	
Grp Volume(v), veh/h		198	824	195		261	897	150	305	362	360	
Grp Sat Flow(s),veh/h/ln		1810	1729	1610		1810	1729	1610	1810	1805	1786	
Q Serve(g_s), s		8.7	11.9	5.1		12.9	15.2	5.9	14.7	17.1	17.2	
Cycle Q Clear(g_c), s		8.7	11.9	5.1		12.9	15.2	5.9	14.7	17.1	17.2	
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.36	
Lane Grp Cap(c), veh/h		393	1547	480		301	1285	399	352	438	433	
V/C Ratio(X)		0.50	0.53	0.41		0.87	0.70	0.38	0.87	0.83	0.83	
Avail Cap(c_a), veh/h		393	1547	480		332	1285	399	372	531	526	
HCM Platoon Ratio		1.00	1.00	1.00		0.33	0.33	0.33	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	
Uniform Delay (d), s/veh		31.0	26.3	8.5		41.5	38.0	19.2	35.1	32.3	32.3	
Incr Delay (d2), s/veh		1.0	1.3	2.5		19.4	3.2	2.7	18.4	8.8	9.2	
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		3.8	5.0	3.4		7.8	7.4	3.5	8.1	8.3	8.3	
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		32.0	27.7	11.0		60.9	41.2	21.9	53.5	41.1	41.5	
LnGrp LOS		C	C	B		E	D	C	D	D	D	
Approach Vol, veh/h			1217				1308			1027		
Approach Delay, s/veh			25.7				42.9			44.9		
Approach LOS			C				D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.5	31.3	22.0	17.2	24.0	26.8	12.8	26.3				
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	16.5	18.5	18.5	18.5	12.7	22.3	10.5	26.5				
Max Q Clear Time (g_c+I1), s	14.9	13.9	16.7	11.0	10.7	17.2	8.6	19.2				
Green Ext Time (p_c), s	0.1	2.5	0.2	1.6	0.1	2.9	0.1	2.6				

Intersection Summary

HCM 6th Ctrl Delay	38.9
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project

3: R Street & Olive Avenue

Exist With Proj Ph I+II (Alt I) PM Peak Hour



Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (veh/h)	128	352	111
Future Volume (veh/h)	128	352	111
Initial Q (Qb), veh	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00
Work Zone On Approach		No	
Adj Sat Flow, veh/h/ln	1900	1900	1900
Adj Flow Rate, veh/h	133	367	116
Peak Hour Factor	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0
Cap, veh/h	167	508	227
Arrive On Green	0.03	0.05	0.05
Sat Flow, veh/h	1810	3610	1610
Grp Volume(v), veh/h	133	367	116
Grp Sat Flow(s),veh/h/ln	1810	1805	1610
Q Serve(g_s), s	6.6	9.0	6.3
Cycle Q Clear(g_c), s	6.6	9.0	6.3
Prop In Lane	1.00		1.00
Lane Grp Cap(c), veh/h	167	508	227
V/C Ratio(X)	0.80	0.72	0.51
Avail Cap(c_a), veh/h	211	742	331
HCM Platoon Ratio	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.8	41.2	39.9
Incr Delay (d2), s/veh	15.1	2.0	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	4.4	2.7
Unsig. Movement Delay, s/veh			
LnGrp Delay(d),s/veh	57.9	43.1	41.7
LnGrp LOS	E	D	D
Approach Vol, veh/h		616	
Approach Delay, s/veh		46.0	
Approach LOS		D	
Timer - Assigned Phs			

HCM 6th TWSC
4: R Street & Olivewood Drive

Merced Mall Expansion and Redevelopment Project
Exist With Proj Ph I+II (Alt I) PM Peak Hour

Intersection												
Int Delay, s/veh	3.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗	↗	↕	↗	↗	↕	↗
Traffic Vol, veh/h	0	0	319	0	0	181	249	818	116	43	689	37
Future Vol, veh/h	0	0	319	0	0	181	249	818	116	43	689	37
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	95	-	70	40	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	332	0	0	189	259	852	121	45	718	39

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	-	-	359	-	-	426	757	0	0	973	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	0	0	*799	0	0	582	*1200	-	-	717	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %			1			1	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	*799	-	-	582	*1200	-	-	717	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	12.7		14.1		1.9		0.6	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	* 1200	-	-	799	582	717	-	-
HCM Lane V/C Ratio	0.216	-	-	0.416	0.324	0.062	-	-
HCM Control Delay (s)	8.8	-	-	12.7	14.1	10.4	-	-
HCM Lane LOS	A	-	-	B	B	B	-	-
HCM 95th %tile Q(veh)	0.8	-	-	2.1	1.4	0.2	-	-

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

Level of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 Intersection 5

Average Delay (sec/veh): 31.7 Worst Case Level Of Service: F[418.3]

Street Name:Mall Driveway 2 - Pepperwood Lane Olive Avenue
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R
Control: Stop Sign Stop Sign Uncontrolled Uncontrolled
Rights: Include Include Include Include
Lanes: 0 0 1! 0 0 0 0 1! 0 0 1 0 3 0 1 1 0 3 1 0

Volume Module: >> Count Date: 5 Jun 2018 <<
Base Vol: 22 7 97 24 5 96 86 974 37 56 1140 27
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 22 7 97 24 5 96 86 974 37 56 1140 27
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.94 0.94 0.94 0.94 0.94 0.94 0.94 0.94 0.94 0.94 0.94 0.94
PHF Volume: 24 7 104 26 5 103 92 1041 40 60 1218 29
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
FinalVolume: 24 7 104 26 5 103 92 1041 40 60 1218 29

Critical Gap Module:
Critical Gp: 7.5 6.5 6.9 7.5 6.5 6.9 4.1 xxxx xxxxx 4.1 xxxx xxxxx
FollowUpTim: 3.5 4.0 3.3 3.5 4.0 3.3 2.2 xxxx xxxxx 2.2 xxxx xxxxx

Capacity Module:
Cnflct Vol: 1651 2591 347 1886 2616 319 1247 xxxx xxxxx 1080 xxxx xxxxx
Potent Cap.: 66 26 655 44 25 683 565 xxxx xxxxx 653 xxxx xxxxx
Move Cap.: 36 19 655 22 19 683 565 xxxx xxxxx 653 xxxx xxxxx
Volume/Cap: 0.65 0.39 0.16 1.19 0.29 0.15 0.16 xxxx xxxx 0.09 xxxx xxxx

Level of Service Module:
2Way95thQ: xxxx xxxx xxxxx xxxx xxxx xxxxx 0.6 xxxx xxxxx 0.3 xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx 12.6 xxxx xxxxx 11.1 xxxx xxxxx
LOS by Move: * * * * * B * * B * *
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap.: xxxx 113 xxxxx xxxx 82 xxxxx xxxx xxxx xxxxx xxxx xxxx xxxxx
SharedQueue:xxxxx 8.6 xxxxx xxxxx 11.0 xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
Shrd ConDel:xxxxx 218 xxxxx xxxxx 418 xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
Shared LOS: * F * * F * * * * * * * *
ApproachDel: 218.4 418.3 xxxxxx xxxxxx
ApproachLOS: F F * *

Note: Queue reported is the number of cars per lane.

 Level Of Service Detailed Computation Report
 2000 HCM Unsignalized Method
 Base Volume Alternative

 Intersection #1 Intersection 5

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed:	4.00 feet/sec											
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period:	0.25 hour											

Intersection

Int Delay, s/veh 4.2

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↑	↗	↖	↑	↗		↕			↕	
Traffic Vol, veh/h	1	10	332	55	60	320	10	66	1	106	9	1	2
Future Vol, veh/h	1	10	332	55	60	320	10	66	1	106	9	1	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	50	-	50	50	-	50	-	-	-	-	-	-
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	100	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	1	11	365	60	66	352	11	73	1	106	10	1	2

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	- 363	0 0	425 0	878 884
Stage 1	- -	- -	- -	387 389
Stage 2	- -	- -	- -	491 495
Critical Hdwy	- 4.1	- -	4.1 -	7.1 6.5
Critical Hdwy Stg 1	- -	- -	- -	6.1 5.5
Critical Hdwy Stg 2	- -	- -	- -	6.1 5.5
Follow-up Hdwy	- 2.2	- -	2.2 -	3.5 4
Pot Cap-1 Maneuver	- 1237	- -	1145 -	278 282
Stage 1	- -	- -	- -	641 612
Stage 2	- -	- -	- -	631 573
Platoon blocked, %	1	- -	- -	1 1
Mov Cap-1 Maneuver	~ -11 ~ -11	- -	1145 -	264 266
Mov Cap-2 Maneuver	- -	- -	- -	264 266
Stage 1	- -	- -	- -	641 612
Stage 2	- -	- -	- -	591 540

Approach	EB	WB	NB	SB
HCM Control Delay, s		1.3	20.2	22
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	414	+	-	-	1145	-	-	225
HCM Lane V/C Ratio	0.434	-	-	-	0.058	-	-	0.059
HCM Control Delay (s)	20.2	-	-	-	8.3	-	-	22
HCM Lane LOS	C	-	-	-	A	-	-	C
HCM 95th %tile Q(veh)	2.1	-	-	-	0.2	-	-	0.2

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

Level of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Intersection 7

Average Delay (sec/veh): 1.6 Worst Case Level Of Service: B[13.2]

Street Name: Mall Driveway 4 - Applewood Lane Olive Avenue

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Approach, Movement, Control, Rights, and Lanes.

Volume Module: Table with 12 columns for traffic volumes and adjustment factors like Base Vol, Growth Adj, PHF Adj, etc.

Critical Gap Module: Table with 12 columns for critical gap values and follow-up times.

Capacity Module: Table with 12 columns for capacity-related metrics like Cnflct Vol, Potent Cap., Move Cap., etc.

Level of Service Module: Table with 12 columns for LOS metrics like 2Way95thQ, Control Del, LOS by Move, etc.

Note: Queue reported is the number of cars per lane.

 Level Of Service Detailed Computation Report
 2000 HCM Unsignalized Method
 Base Volume Alternative

 Intersection #2 Intersection 7

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed:	4.00 feet/sec											
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period:	0.25 hour											

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project

8: M Street & Loughborough Drive/Collins Drive

Exist With Proj Ph I+II (Alt I) PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	256	33	196	44	82	110	1	137	499	16	27	466	167
Future Volume (veh/h)	256	33	196	44	82	110	1	137	499	16	27	466	167
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00
Parking Bus, Adj	1.00	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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	294	38	225	51	94	126	157	574	18	31	536	192	
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	0.87
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	336	273	231	351	112	150	381	1544	48	405	1019	363	
Arrive On Green	0.19	0.14	0.14	0.19	0.15	0.15	0.07	0.43	0.43	0.03	0.39	0.39	
Sat Flow, veh/h	1810	1900	1610	1810	736	986	1810	3573	112	1810	2607	930	
Grp Volume(v), veh/h	294	38	225	51	0	220	157	290	302	31	370	358	
Grp Sat Flow(s),veh/h/ln	1810	1900	1610	1810	0	1722	1810	1805	1880	1810	1805	1733	
Q Serve(g_s), s	14.2	1.6	10.0	2.1	0.0	11.2	4.5	9.8	9.8	0.9	14.2	14.3	
Cycle Q Clear(g_c), s	14.2	1.6	10.0	2.1	0.0	11.2	4.5	9.8	9.8	0.9	14.2	14.3	
Prop In Lane	1.00		1.00	1.00		0.57	1.00		0.06	1.00		0.54	
Lane Grp Cap(c), veh/h	336	273	231	351	0	262	381	780	812	405	705	677	
V/C Ratio(X)	0.87	0.14	0.97	0.15	0.00	0.84	0.41	0.37	0.37	0.08	0.53	0.53	
Avail Cap(c_a), veh/h	470	735	623	351	0	346	422	780	812	452	705	677	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	35.6	33.7	24.5	30.1	0.0	37.1	15.2	17.3	17.3	15.6	21.0	21.0	
Incr Delay (d2), s/veh	12.6	0.2	21.6	0.2	0.0	13.1	0.7	1.4	1.3	0.1	2.8	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	7.3	0.7	5.1	0.9	0.0	5.6	1.8	4.2	4.4	0.4	6.3	6.1	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	48.2	33.9	46.1	30.3	0.0	50.2	15.9	18.6	18.6	15.7	23.8	24.0	
LnGrp LOS	D	C	D	C	A	D	B	B	B	B	C	C	
Approach Vol, veh/h		557			271			749			759		
Approach Delay, s/veh		46.4			46.4			18.1			23.6		
Approach LOS		D			D			B			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	7.2	43.4	22.0	17.4	10.9	39.7	21.2	18.2					
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	5.0	25.5	6.7	34.8	8.5	22.0	23.4	18.1					
Max Q Clear Time (g_c+1), s	11.8	11.8	4.1	12.0	6.5	16.3	16.2	13.2					
Green Ext Time (p_c), s	0.0	3.0	0.0	0.9	0.1	2.3	0.5	0.5					

Intersection Summary

HCM 6th Ctrl Delay	29.9
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗		↕↔			↕↕↕	
Traffic Vol, veh/h	0	0	145	0	0	43	0	647	35	0	773	64
Future Vol, veh/h	0	0	145	0	0	43	0	647	35	0	773	64
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	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	165	0	0	49	0	735	40	0	878	73

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	-	476	-	-	388	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.1	-	-	6.9	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.9	-	-	3.3	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	*766	0	0	616	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %			1									
Mov Cap-1 Maneuver	-	-	*766	-	-	616	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	11		11.3		0		0	
HCM LOS	B		B					

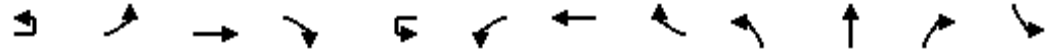
Minor Lane/Major Mvmt	NBT	NBR	EBLn1WBLn1	SBT	SBR
Capacity (veh/h)	-	-	766	616	-
HCM Lane V/C Ratio	-	-	0.215	0.079	-
HCM Control Delay (s)	-	-	11	11.3	-
HCM Lane LOS	-	-	B	B	-
HCM 95th %tile Q(veh)	-	-	0.8	0.3	-

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

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project

10: M Street & Olive Avenue

Exist With Proj Ph I-II (Alt I) PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		↔	↑↑↑	↗		↔	↑↑↑		↖	↑↑		↘
Traffic Volume (veh/h)	33	99	778	141	31	137	826	58	327	492	119	293
Future Volume (veh/h)	33	99	778	141	31	137	826	58	327	492	119	293
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	1.00
Parking Bus, Adj		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		
Adj Sat Flow, veh/h/ln		1900	1900	1900		1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h		104	819	148		144	869	61	344	518	125	308
Peak Hour Factor		0.95	0.95	0.95		0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %		0	0	0		0	0	0	0	0	0	0
Cap, veh/h		134	1181	367		281	1529	107	385	643	154	352
Arrive On Green		0.02	0.08	0.08		0.16	0.31	0.31	0.21	0.22	0.22	0.06
Sat Flow, veh/h		1810	5187	1610		1810	4949	346	1810	2887	693	1810
Grp Volume(v), veh/h		104	819	148		144	606	324	344	323	320	308
Grp Sat Flow(s),veh/h/ln		1810	1729	1610		1810	1729	1838	1810	1805	1775	1810
Q Serve(g_s), s		5.1	13.9	4.7		6.6	13.2	13.3	16.6	15.2	15.4	15.2
Cycle Q Clear(g_c), s		5.1	13.9	4.7		6.6	13.2	13.3	16.6	15.2	15.4	15.2
Prop In Lane		1.00		1.00		1.00		0.19	1.00		0.39	1.00
Lane Grp Cap(c), veh/h		134	1181	367		281	1068	568	385	402	395	352
V/C Ratio(X)		0.78	0.69	0.40		0.51	0.57	0.57	0.89	0.80	0.81	0.88
Avail Cap(c_a), veh/h		191	1181	367		281	1068	568	472	431	424	412
HCM Platoon Ratio		0.33	0.33	0.33		1.00	1.00	1.00	1.00	1.00	1.00	0.33
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		43.2	38.5	12.7		34.9	26.1	26.1	34.5	33.1	33.2	41.0
Incr Delay (d2), s/veh		12.0	3.4	3.3		1.6	2.2	4.1	16.8	10.0	10.6	16.7
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
%ile BackOfQ(50%),veh/ln		2.8	6.7	3.4		3.0	5.6	6.3	8.9	7.6	7.6	9.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		55.1	41.9	16.0		36.5	28.3	30.2	51.3	43.1	43.7	57.8
LnGrp LOS		E	D	B		D	C	C	D	D	D	E
Approach Vol, veh/h			1071				1074			987		
Approach Delay, s/veh			39.6				29.9			46.1		
Approach LOS			D				C			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.5	25.0	23.6	22.9	11.2	32.3	22.0	24.5				
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	9.5	20.5	23.5	18.5	9.5	20.5	20.5	21.5				
Max Q Clear Time (g_c+I1), s	8.6	15.9	18.6	18.4	7.1	15.3	17.2	17.4				
Green Ext Time (p_c), s	0.0	2.4	0.5	0.1	0.0	2.7	0.3	1.5				

Intersection Summary

HCM 6th Ctrl Delay	43.9
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project
 10: M Street & Olive Avenue

Exist With Proj Ph I+II (Alt I) PM Peak Hour



Movement	SBT	SBR
Lane Configurations	↑↑	
Traffic Volume (veh/h)	527	98
Future Volume (veh/h)	527	98
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1900	1900
Adj Flow Rate, veh/h	555	103
Peak Hour Factor	0.95	0.95
Percent Heavy Veh, %	0	0
Cap, veh/h	622	115
Arrive On Green	0.07	0.07
Sat Flow, veh/h	3041	563
Grp Volume(v), veh/h	329	329
Grp Sat Flow(s),veh/h/ln	1805	1799
Q Serve(g_s), s	16.3	16.4
Cycle Q Clear(g_c), s	16.3	16.4
Prop In Lane		0.31
Lane Grp Cap(c), veh/h	369	368
V/C Ratio(X)	0.89	0.89
Avail Cap(c_a), veh/h	371	370
HCM Platoon Ratio	0.33	0.33
Upstream Filter(l)	1.00	1.00
Uniform Delay (d), s/veh	41.0	41.0
Incr Delay (d2), s/veh	22.3	23.1
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.1	10.2
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	63.2	64.1
LnGrp LOS	E	E
Approach Vol, veh/h	966	
Approach Delay, s/veh	61.8	
Approach LOS	E	
Timer - Assigned Phs		

Intersection						
Int Delay, s/veh	1.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	13	180	102	922	753	51
Future Vol, veh/h	13	180	102	922	753	51
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	75	70	-	-	285
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	14	196	111	1002	818	55

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1541	409	873	0	-	0
Stage 1	818	-	-	-	-	-
Stage 2	723	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	175	*799	1103	-	-	-
Stage 1	732	-	-	-	-	-
Stage 2	447	-	-	-	-	-
Platoon blocked, %	1	1	1	-	-	-
Mov Cap-1 Maneuver	158	*799	1103	-	-	-
Mov Cap-2 Maneuver	158	-	-	-	-	-
Stage 1	658	-	-	-	-	-
Stage 2	447	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.3	0.9	0
HCM LOS	B		






















Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1103	-	158	799	-	-
HCM Lane V/C Ratio	0.101	-	0.089	0.245	-	-
HCM Control Delay (s)	8.6	-	30	11	-	-
HCM Lane LOS	A	-	D	B	-	-
HCM 95th %tile Q(veh)	0.3	-	0.3	1	-	-

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

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project

1: R Street & Loughborough Drive

Exist With Proj Ph I+II (Alt II) AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	86	166	45	78	97	47	10	33	272	122	6	54
Future Volume (veh/h)	86	166	45	78	97	47	10	33	272	122	6	54
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0		0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00		1.00
Parking Bus, Adj	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				
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900		1900	1900	1900		1900
Adj Flow Rate, veh/h	100	193	52	91	113	55		38	316	0		63
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86		0.86	0.86	0.86		0.86
Percent Heavy Veh, %	0	0	0	0	0	0		0	0	0		0
Cap, veh/h	129	237	64	118	301	255		414	1798			85
Arrive On Green	0.07	0.16	0.16	0.07	0.16	0.16		0.08	0.16	0.00		0.05
Sat Flow, veh/h	1810	1442	388	1810	1900	1610		1810	3610	1610		1810
Grp Volume(v), veh/h	100	0	245	91	113	55		38	316	0		63
Grp Sat Flow(s),veh/h/ln	1810	0	1830	1810	1900	1610		1810	1805	1610		1810
Q Serve(g_s), s	4.3	0.0	10.3	4.0	4.3	2.4		1.6	6.0	0.0		2.7
Cycle Q Clear(g_c), s	4.3	0.0	10.3	4.0	4.3	2.4		1.6	6.0	0.0		2.7
Prop In Lane	1.00		0.21	1.00		1.00		1.00		1.00		1.00
Lane Grp Cap(c), veh/h	129	0	301	118	301	255		414	1798			85
V/C Ratio(X)	0.77	0.00	0.81	0.77	0.38	0.22		0.09	0.18			0.74
Avail Cap(c_a), veh/h	238	0	469	219	468	397		414	1798			215
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		0.33	0.33	0.33		1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00		1.00	1.00	0.00		1.00
Uniform Delay (d), s/veh	36.5	0.0	32.2	36.8	30.1	29.3		29.2	19.3	0.0		37.6
Incr Delay (d2), s/veh	9.4	0.0	6.1	10.1	0.8	0.4		0.1	0.2	0.0		11.8
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
%ile BackOfQ(50%),veh/ln	2.2	0.0	4.9	2.0	2.0	0.9		0.7	2.6	0.0		1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.9	0.0	38.4	46.9	30.9	29.8		29.3	19.5	0.0		49.4
LnGrp LOS	D	A	D	D	C	C		C	B			D
Approach Vol, veh/h		345			259				354	A		
Approach Delay, s/veh		40.5			36.3				20.6			
Approach LOS		D			D				C			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.3	44.4	9.7	17.7	22.8	29.8	10.2	17.2				
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	9.5	22.3	9.7	20.5	6.5	25.3	10.5	19.7				
Max Q Clear Time (g_c+I1), s	4.7	8.0	6.0	12.3	3.6	14.2	6.3	6.3				
Green Ext Time (p_c), s	0.0	1.7	0.1	0.8	0.0	3.1	0.1	0.6				
Intersection Summary												
HCM 6th Ctrl Delay			30.7									
HCM 6th LOS			C									
Notes												
User approved ignoring U-Turning movement.												
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.												

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project
 1: R Street & Loughborough Drive

Exist With Proj Ph I+II (Alt II) AM Peak Hour



Movement	SBT	SBR
Lane Configurations	↑↑	
Traffic Volume (veh/h)	472	90
Future Volume (veh/h)	472	90
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1900	1900
Adj Flow Rate, veh/h	549	105
Peak Hour Factor	0.86	0.86
Percent Heavy Veh, %	0	0
Cap, veh/h	957	182
Arrive On Green	0.32	0.32
Sat Flow, veh/h	3025	576
Grp Volume(v), veh/h	327	327
Grp Sat Flow(s),veh/h/ln	1805	1796
Q Serve(g_s), s	12.1	12.2
Cycle Q Clear(g_c), s	12.1	12.2
Prop In Lane		0.32
Lane Grp Cap(c), veh/h	571	568
V/C Ratio(X)	0.57	0.58
Avail Cap(c_a), veh/h	571	568
HCM Platoon Ratio	1.00	1.00
Upstream Filter(l)	1.00	1.00
Uniform Delay (d), s/veh	22.8	22.9
Incr Delay (d2), s/veh	4.1	4.2
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	5.6
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	27.0	27.1
LnGrp LOS	C	C
Approach Vol, veh/h	717	
Approach Delay, s/veh	29.0	
Approach LOS	C	
Timer - Assigned Phs		

Intersection														
Int Delay, s/veh	0.9													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations			↗			↗		↘	↕			↘	↕	
Traffic Vol, veh/h	0	0	29	0	0	18	5	31	419	32	16	18	543	22
Future Vol, veh/h	0	0	29	0	0	18	5	31	419	32	16	18	543	22
Conflicting Peds, #/hr	0	0	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	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	-	None	-	-	-	None
Storage Length	-	-	0	-	-	0	-	38	-	-	-	130	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	33	0	0	20	6	35	471	36	18	20	610	25

Major/Minor	Minor2		Minor1		Major1			Major2						
Conflicting Flow All	-	-	318	-	-	254	635	635	0	0	507	507	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	6.4	4.1	-	-	6.4	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.5	2.2	-	-	2.5	2.2	-	-
Pot Cap-1 Maneuver	0	0	*881	0	0	*920	1043	1241	-	-	1132	1326	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-	-	-
Platoon blocked, %			1			1	1	1	-	-	1	1	-	-
Mov Cap-1 Maneuver	-	-	*881	-	-	*920	1203	1203	-	-	1215	1215	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	9.2		9		0.6		0.5	
HCM LOS	A		A					

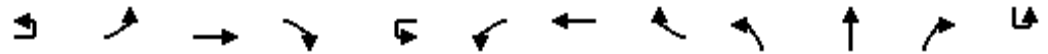
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1203	-	-	881	920	1215	-	-
HCM Lane V/C Ratio	0.034	-	-	0.037	0.022	0.031	-	-
HCM Control Delay (s)	8.1	-	-	9.2	9	8.1	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.1	0.1	-	-

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

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project

3: R Street & Olive Avenue

Exist With Proj Ph I+II (Alt II) AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU
Lane Configurations		↔	↑↑↑	↗		↔	↑↑↑	↗	↖	↑↑		
Traffic Volume (veh/h)	7	95	648	138	5	159	458	68	120	325	127	2
Future Volume (veh/h)	7	95	648	138	5	159	458	68	120	325	127	2
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		1900	1900	1900		1900	1900	1900	1900	1900	1900	
Adj Flow Rate, veh/h		109	745	159		183	526	78	138	374	146	
Peak Hour Factor		0.87	0.87	0.87		0.87	0.87	0.87	0.87	0.87	0.87	
Percent Heavy Veh, %		0	0	0		0	0	0	0	0	0	
Cap, veh/h		437	2002	621		227	1400	435	185	475	183	
Arrive On Green		0.24	0.39	0.39		0.04	0.09	0.09	0.10	0.19	0.19	
Sat Flow, veh/h		1810	5187	1610		1810	5187	1610	1810	2548	980	
Grp Volume(v), veh/h		109	745	159		183	526	78	138	263	257	
Grp Sat Flow(s),veh/h/ln		1810	1729	1610		1810	1729	1610	1810	1805	1724	
Q Serve(g_s), s		3.9	8.2	3.5		8.0	7.6	2.7	5.9	11.1	11.4	
Cycle Q Clear(g_c), s		3.9	8.2	3.5		8.0	7.6	2.7	5.9	11.1	11.4	
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.57	
Lane Grp Cap(c), veh/h		437	2002	621		227	1400	435	185	337	322	
V/C Ratio(X)		0.25	0.37	0.26		0.81	0.38	0.18	0.75	0.78	0.80	
Avail Cap(c_a), veh/h		437	2002	621		328	1400	435	238	429	409	
HCM Platoon Ratio		1.00	1.00	1.00		0.33	0.33	0.33	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	
Uniform Delay (d), s/veh		24.5	17.6	7.1		37.4	30.1	15.5	34.9	31.0	31.1	
Incr Delay (d2), s/veh		0.3	0.5	1.0		9.1	0.8	0.9	9.1	7.1	8.4	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		1.7	3.2	2.0		4.3	3.4	1.5	3.0	5.3	5.3	
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		24.8	18.1	8.1		46.5	30.9	16.4	44.0	38.1	39.5	
LnGrp LOS		C	B	A		D	C	B	D	D	D	
Approach Vol, veh/h			1013				787			658		
Approach Delay, s/veh			17.3				33.1			39.9		
Approach LOS			B				C			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.5	35.4	12.7	17.4	23.8	26.1	10.7	19.4				
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	14.5	19.0	10.5	18.0	11.9	21.6	9.5	19.0				
Max Q Clear Time (g_c+I1), s	10.0	10.2	7.9	11.1	5.9	9.6	6.7	13.4				
Green Ext Time (p_c), s	0.2	3.7	0.1	1.8	0.1	3.0	0.1	1.5				

Intersection Summary

HCM 6th Ctrl Delay	28.9
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project

3: R Street & Olive Avenue

Exist With Proj Ph I+II (Alt II) AM Peak Hour



Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (veh/h)	96	396	55
Future Volume (veh/h)	96	396	55
Initial Q (Qb), veh	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00
Work Zone On Approach		No	
Adj Sat Flow, veh/h/ln	1900	1900	1900
Adj Flow Rate, veh/h	110	455	63
Peak Hour Factor	0.87	0.87	0.87
Percent Heavy Veh, %	0	0	0
Cap, veh/h	139	583	260
Arrive On Green	0.15	0.32	0.32
Sat Flow, veh/h	1810	3610	1610
Grp Volume(v), veh/h	110	455	63
Grp Sat Flow(s),veh/h/ln	1810	1805	1610
Q Serve(g_s), s	4.7	9.1	2.3
Cycle Q Clear(g_c), s	4.7	9.1	2.3
Prop In Lane	1.00		1.00
Lane Grp Cap(c), veh/h	139	583	260
V/C Ratio(X)	0.79	0.78	0.24
Avail Cap(c_a), veh/h	215	812	362
HCM Platoon Ratio	2.00	2.00	2.00
Upstream Filter(l)	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.2	25.8	23.5
Incr Delay (d2), s/veh	10.3	3.3	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	3.5	0.9
Unsig. Movement Delay, s/veh			
LnGrp Delay(d),s/veh	43.5	29.1	24.0
LnGrp LOS	D	C	C
Approach Vol, veh/h		628	
Approach Delay, s/veh		31.1	
Approach LOS		C	
Timer - Assigned Phs			

Intersection													
Int Delay, s/veh	1.9												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations			↗			↗	↗	↗	↗		↘	↗	↗
Traffic Vol, veh/h	0	0	94	0	0	55	117	517	110	1	44	630	19
Future Vol, veh/h	0	0	94	0	0	55	117	517	110	1	44	630	19
Conflicting Peds, #/hr	0	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	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	-	None
Storage Length	-	-	0	-	-	0	95	-	70	-	40	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	116	0	0	68	144	638	136	1	54	778	23

Major/Minor	Minor2		Minor1		Major1		Major2						
Conflicting Flow All	-	-	389	-	-	319	801	0	0	638	774	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	4.1	-	-	6.4	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.2	-	-	2.5	2.2	-	-
Pot Cap-1 Maneuver	0	0	*842	0	0	683	1111	-	-	573	851	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-	-
Platoon blocked, %			1			1	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	*842	-	-	683	1111	-	-	840	840	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	10		10.9		1.4		0.6	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1111	-	-	842	683	840	-	-
HCM Lane V/C Ratio	0.13	-	-	0.138	0.099	0.066	-	-
HCM Control Delay (s)	8.7	-	-	10	10.9	9.6	-	-
HCM Lane LOS	A	-	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0.4	-	-	0.5	0.3	0.2	-	-

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

Level Of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 Intersection 5

Average Delay (sec/veh): 1.1 Worst Case Level Of Service: D[25.4]

Street Name:Mall Driveway 2 - Pepperwood Lane Olive Avenue

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Stop Sign Stop Sign Uncontrolled Uncontrolled

Rights: Include Include Include Include

Lanes: 0 0 1! 0 0 0 0 1! 0 0 1 0 3 0 1 1 0 3 1 0

Volume Module: >> Count Date: 5 Jun 2018 <<

Table with 12 columns: Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, FinalVolume. Rows include values for each approach and movement.

Critical Gap Module:

Table with 12 columns: Critical Gp, FollowUpTim. Rows show values for each approach and movement.

Capacity Module:

Table with 12 columns: Cnflct Vol, Potent Cap., Move Cap., Volume/Cap. Rows show values for each approach and movement.

Level Of Service Module:

Table with 12 columns: 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., SharedQueue, Shrd ConDel, Shared LOS, ApproachDel, ApproachLOS. Rows show values for each approach and movement.

Note: Queue reported is the number of cars per lane.

 Level Of Service Detailed Computation Report
 2000 HCM Unsignalized Method
 Base Volume Alternative

 Intersection #1 Intersection 5

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed:	4.00 feet/sec											
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period:	0.25 hour											

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↑	↗	↙	↑	↗		↕			↕	
Traffic Vol, veh/h	1	324	21	27	216	6	6	0	28	4	0	6
Future Vol, veh/h	1	324	21	27	216	6	6	0	28	4	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	50	50	-	50	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	1	421	27	35	281	8	8	0	36	5	0	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	289	0	0	448	0	0	782	782	421	806	801	281
Stage 1	-	-	-	-	-	-	423	423	-	351	351	-
Stage 2	-	-	-	-	-	-	359	359	-	455	450	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1308	-	-	1123	-	-	325	330	637	311	320	857
Stage 1	-	-	-	-	-	-	613	591	-	733	663	-
Stage 2	-	-	-	-	-	-	724	657	-	589	575	-
Platoon blocked, %	1	-	-	-	-	-	1	1	-	1	1	1
Mov Cap-1 Maneuver	1308	-	-	1123	-	-	315	320	637	286	310	857
Mov Cap-2 Maneuver	-	-	-	-	-	-	315	320	-	286	310	-
Stage 1	-	-	-	-	-	-	612	590	-	732	642	-
Stage 2	-	-	-	-	-	-	695	636	-	555	574	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.9			12.3			12.8		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	540	1308	-	-	1123	-	-	476
HCM Lane V/C Ratio	0.082	0.001	-	-	0.031	-	-	0.027
HCM Control Delay (s)	12.3	7.8	-	-	8.3	-	-	12.8
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.3	0	-	-	0.1	-	-	0.1

Level of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Intersection 7

Average Delay (sec/veh): 0.8 Worst Case Level Of Service: B[10.5]

Street Name: Mall Driveway 4 - Applewood Lane Olive Avenue
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R
Control: Stop Sign Stop Sign Uncontrolled Uncontrolled
Rights: Include Include Include Include
Lanes: 0 0 0 0 1 0 0 0 0 1 1 0 3 0 1 1 0 3 1 0

Volume Module:
Base Vol: 0 0 29 0 0 7 46 858 18 45 680 20
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 0 29 0 0 7 46 858 18 45 680 20
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90
PHF Volume: 0 0 32 0 0 8 51 955 20 50 757 22
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
FinalVolume: 0 0 32 0 0 8 51 955 20 50 757 22

Critical Gap Module:
Critical Gp:xxxxx xxxx 6.9 xxxxx xxxx 6.9 4.1 xxxx xxxxxx 4.1 xxxx xxxxxx
FollowUpTim:xxxxx xxxx 3.3 xxxxx xxxx 3.3 2.2 xxxx xxxxxx 2.2 xxxx xxxxxx

Capacity Module:
Cnflct Vol: xxxx xxxx 318 xxxx xxxx 200 780 xxxx xxxxxx 976 xxxx xxxxxx
Potent Cap.: xxxx xxxx 683 xxxx xxxx 813 847 xxxx xxxxxx 715 xxxx xxxxxx
Move Cap.: xxxx xxxx 683 xxxx xxxx 813 847 xxxx xxxxxx 715 xxxx xxxxxx
Volume/Cap: xxxx xxxx 0.05 xxxx xxxx 0.01 0.06 xxxx xxxx 0.07 xxxx xxxx

Level of Service Module:
2Way95thQ: xxxx xxxx 0.1 xxxx xxxx 0.0 0.2 xxxx xxxxxx 0.2 xxxx xxxxxx
Control Del:xxxxx xxxx 10.5 xxxxxx xxxx 9.5 9.5 xxxx xxxxxx 10.4 xxxx xxxxxx
LOS by Move: * * B * * A A * * B * *
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxxx xxxx xxxx xxxxxx xxxx xxxx xxxxxx xxxx xxxx xxxxxx
SharedQueue:xxxxxx xxxxx xxxxxx xxxxxx xxxxx xxxxxx xxxxxx xxxxx xxxxxx xxxxxx xxxxxx xxxxxx
Shrd ConDel:xxxxxx xxxxx xxxxxx xxxxxx xxxxx xxxxxx xxxxxx xxxxx xxxxxx xxxxxx xxxxxx xxxxxx
Shared LOS: * * * * * * * * * * * * *
ApproachDel: 10.5 9.5 xxxxxxx xxxxxxx
ApproachLOS: B A * *

Note: Queue reported is the number of cars per lane.

 Level Of Service Detailed Computation Report
 2000 HCM Unsignalized Method
 Base Volume Alternative

 Intersection #2 Intersection 7

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed:	4.00 feet/sec											
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period:	0.25 hour											

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project
 8: M Street & Loughborough Drive/Collins Drive

Exist With Proj Ph I+II (Alt II) AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	143	77	120	45	67	104	1	99	464	14	110	648	116
Future Volume (veh/h)	143	77	120	45	67	104	1	99	464	14	110	648	116
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00
Parking Bus, Adj	1.00	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	1900	1900	1900	1900	1900	1900		1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	188	101	158	59	88	137		130	611	18	145	853	153
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76		0.76	0.76	0.76	0.76	0.76	0.76
Percent Heavy Veh, %	0	0	0	0	0	0		0	0	0	0	0	0
Cap, veh/h	227	247	209	280	107	166		397	1110	33	552	1032	185
Arrive On Green	0.13	0.13	0.13	0.15	0.16	0.16		0.15	0.31	0.31	0.18	0.34	0.34
Sat Flow, veh/h	1810	1900	1610	1810	670	1043		1810	3581	105	1810	3058	548
Grp Volume(v), veh/h	188	101	158	59	0	225		130	308	321	145	504	502
Grp Sat Flow(s),veh/h/ln	1810	1900	1610	1810	0	1712		1810	1805	1881	1810	1805	1801
Q Serve(g_s), s	8.1	3.9	7.6	2.3	0.0	10.2		0.0	11.3	11.4	0.0	20.5	20.5
Cycle Q Clear(g_c), s	8.1	3.9	7.6	2.3	0.0	10.2		0.0	11.3	11.4	0.0	20.5	20.5
Prop In Lane	1.00		1.00	1.00		0.61		1.00		0.06	1.00		0.30
Lane Grp Cap(c), veh/h	227	247	209	280	0	273		397	560	583	552	609	608
V/C Ratio(X)	0.83	0.41	0.75	0.21	0.00	0.82		0.33	0.55	0.55	0.26	0.83	0.83
Avail Cap(c_a), veh/h	260	534	453	280	0	385		397	560	583	552	609	608
HCM Platoon Ratio	1.00	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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.1	32.0	33.6	29.5	0.0	32.5		28.2	23.0	23.0	20.7	24.3	24.3
Incr Delay (d2), s/veh	17.7	1.1	5.4	0.4	0.0	9.5		0.5	3.9	3.7	0.3	12.2	12.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	1.8	3.2	1.0	0.0	4.8		2.1	5.2	5.4	2.1	10.3	10.3
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	51.8	33.1	39.0	29.9	0.0	42.0		28.7	26.8	26.7	21.0	36.5	36.6
LnGrp LOS	D	C	D	C	A	D		C	C	C	C	D	D
Approach Vol, veh/h		447			284				759			1151	
Approach Delay, s/veh		43.1			39.5				27.1			34.6	
Approach LOS		D			D				C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	18.9	29.3	16.9	14.9	16.7	31.5	14.5	17.3					
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	24.8	7.0	22.5	5.5	27.0	11.5	18.0						
Max Q Clear Time (g_c+1/2), s	13.4	4.3	9.6	2.0	22.5	10.1	12.2						
Green Ext Time (p_c), s	0.2	3.0	0.0	0.8	0.1	2.5	0.1	0.6					

Intersection Summary

HCM 6th Ctrl Delay	34.4
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

Intersection												
Int Delay, s/veh	0.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗		↕			↕↕↕	
Traffic Vol, veh/h	0	0	49	0	0	50	0	575	46	0	751	48
Future Vol, veh/h	0	0	49	0	0	50	0	575	46	0	751	48
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	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	74	74	74	74	74	74	74	74	74	74	74	74
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	66	0	0	68	0	777	62	0	1015	65

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	-	-	540	-	-	420	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.1	-	-	6.9	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.9	-	-	3.3	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	*746	0	0	588	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %			1									
Mov Cap-1 Maneuver	-	-	*746	-	-	588	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

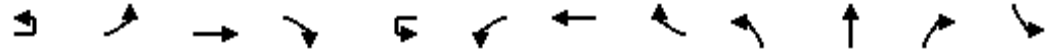
Approach	EB		WB		NB		SB	
HCM Control Delay, s	10.3		11.9		0		0	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBT	NBR	EBLn1WBLn1	SBT	SBR
Capacity (veh/h)	-	-	746	588	-
HCM Lane V/C Ratio	-	-	0.089	0.115	-
HCM Control Delay (s)	-	-	10.3	11.9	-
HCM Lane LOS	-	-	B	B	-
HCM 95th %tile Q(veh)	-	-	0.3	0.4	-

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

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project
 10: M Street & Olive Avenue

Exist With Proj Ph I+II (Alt II) AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		↔	↑↑↑	↗		↔	↑↑↑		↖	↑↑		↖
Traffic Volume (veh/h)	11	112	574	162	30	150	553	81	128	417	104	185
Future Volume (veh/h)	11	112	574	162	30	150	553	81	128	417	104	185
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	1.00
Parking Bus, Adj		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		
Adj Sat Flow, veh/h/ln		1900	1900	1900		1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h		132	675	191		176	651	95	151	491	122	218
Peak Hour Factor		0.85	0.85	0.85		0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %		0	0	0		0	0	0	0	0	0	0
Cap, veh/h		168	1232	382		347	1540	222	197	584	144	257
Arrive On Green		0.03	0.08	0.08		0.19	0.34	0.34	0.11	0.20	0.20	0.14
Sat Flow, veh/h		1810	5187	1610		1810	4579	661	1810	2869	709	1810
Grp Volume(v), veh/h		132	675	191		176	490	256	151	308	305	218
Grp Sat Flow(s),veh/h/ln		1810	1729	1610		1810	1729	1781	1810	1805	1772	1810
Q Serve(g_s), s		5.8	10.0	9.1		7.0	8.8	8.9	6.5	13.1	13.3	9.4
Cycle Q Clear(g_c), s		5.8	10.0	9.1		7.0	8.8	8.9	6.5	13.1	13.3	9.4
Prop In Lane		1.00		1.00		1.00		0.37	1.00		0.40	1.00
Lane Grp Cap(c), veh/h		168	1232	382		347	1163	599	197	367	361	257
V/C Ratio(X)		0.78	0.55	0.50		0.51	0.42	0.43	0.77	0.84	0.85	0.85
Avail Cap(c_a), veh/h		222	1232	382		347	1163	599	204	406	399	283
HCM Platoon Ratio		0.33	0.33	0.33		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
Uniform Delay (d), s/veh		38.0	32.7	32.3		28.9	20.5	20.6	34.7	30.6	30.7	33.5
Incr Delay (d2), s/veh		12.6	1.8	4.6		1.2	1.1	2.2	15.6	13.3	14.4	19.4
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
%ile BackOfQ(50%),veh/ln		3.2	4.7	4.3		3.1	3.6	3.9	3.6	6.9	6.9	5.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		50.6	34.5	36.9		30.1	21.6	22.8	50.2	44.0	45.0	52.8
LnGrp LOS		D	C	D		C	C	C	D	D	D	D
Approach Vol, veh/h			998				922			764		
Approach Delay, s/veh			37.1				23.6			45.6		
Approach LOS			D				C			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.8	23.5	13.2	23.4	11.9	31.4	15.9	20.8				
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	12.5	19.0	9.0	21.5	9.8	21.7	12.5	18.0				
Max Q Clear Time (g_c+I1), s	9.0	12.0	8.5	17.2	7.8	10.9	11.4	15.3				
Green Ext Time (p_c), s	0.1	3.0	0.0	1.8	0.1	3.6	0.1	1.0				

Intersection Summary

HCM 6th Ctrl Delay	37.0
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project
 10: M Street & Olive Avenue

Exist With Proj Ph I+II (Alt II) AM Peak Hour



Movement	SBT	SBR
Lane Configurations	↑↑	↘
Traffic Volume (veh/h)	554	61
Future Volume (veh/h)	554	61
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1900	1900
Adj Flow Rate, veh/h	652	72
Peak Hour Factor	0.85	0.85
Percent Heavy Veh, %	0	0
Cap, veh/h	776	86
Arrive On Green	0.24	0.24
Sat Flow, veh/h	3278	362
Grp Volume(v), veh/h	359	365
Grp Sat Flow(s),veh/h/ln	1805	1835
Q Serve(g_s), s	15.1	15.2
Cycle Q Clear(g_c), s	15.1	15.2
Prop In Lane		0.20
Lane Grp Cap(c), veh/h	427	435
V/C Ratio(X)	0.84	0.84
Avail Cap(c_a), veh/h	485	493
HCM Platoon Ratio	1.00	1.00
Upstream Filter(l)	1.00	1.00
Uniform Delay (d), s/veh	29.1	29.1
Incr Delay (d2), s/veh	11.2	11.2
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.6	7.8
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	40.3	40.3
LnGrp LOS	D	D
Approach Vol, veh/h	942	
Approach Delay, s/veh	43.2	
Approach LOS	D	
Timer - Assigned Phs		

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↙	↗	↙	↑↑	↑↑	↗
Traffic Vol, veh/h	7	67	68	638	819	41
Future Vol, veh/h	7	67	68	638	819	41
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	75	70	-	-	285
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	8	81	82	769	987	49

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1536	494	1036	0	-	0
Stage 1	987	-	-	-	-	-
Stage 2	549	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	194	*763	972	-	-	-
Stage 1	624	-	-	-	-	-
Stage 2	548	-	-	-	-	-
Platoon blocked, %	1	1	1	-	-	-
Mov Cap-1 Maneuver	178	*763	972	-	-	-
Mov Cap-2 Maneuver	178	-	-	-	-	-
Stage 1	571	-	-	-	-	-
Stage 2	548	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.8	0.9	0
HCM LOS	B		






















Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	972	-	178	763	-	-
HCM Lane V/C Ratio	0.084	-	0.047	0.106	-	-
HCM Control Delay (s)	9	-	26.2	10.3	-	-
HCM Lane LOS	A	-	D	B	-	-
HCM 95th %tile Q(veh)	0.3	-	0.1	0.4	-	-

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

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project

1: R Street & Loughborough Drive

Exist With Proj Ph I+II (Alt II) PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	102	127	35	104	173	78	29	91	547	135	4	45
Future Volume (veh/h)	102	127	35	104	173	78	29	91	547	135	4	45
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0		0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00		1.00
Parking Bus, Adj	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				
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900		1900	1900	1900		1900
Adj Flow Rate, veh/h	113	141	39	116	192	87		101	608	0		50
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90		0.90	0.90	0.90		0.90
Percent Heavy Veh, %	0	0	0	0	0	0		0	0	0		0
Cap, veh/h	145	183	51	156	254	215		575	1196			416
Arrive On Green	0.08	0.13	0.13	0.09	0.13	0.13		0.21	0.22	0.00		0.23
Sat Flow, veh/h	1810	1432	396	1810	1900	1610		1810	3610	1610		1810
Grp Volume(v), veh/h	113	0	180	116	192	87		101	608	0		50
Grp Sat Flow(s),veh/h/ln	1810	0	1829	1810	1900	1610		1810	1805	1610		1810
Q Serve(g_s), s	4.9	0.0	7.6	5.0	7.8	2.4		3.7	11.8	0.0		1.8
Cycle Q Clear(g_c), s	4.9	0.0	7.6	5.0	7.8	2.4		3.7	11.8	0.0		1.8
Prop In Lane	1.00		0.22	1.00		1.00		1.00		1.00		1.00
Lane Grp Cap(c), veh/h	145	0	233	156	254	215		575	1196			416
V/C Ratio(X)	0.78	0.00	0.77	0.74	0.76	0.40		0.18	0.51			0.12
Avail Cap(c_a), veh/h	238	0	423	253	456	386		575	1196			416
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		0.67	0.67	0.67		1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00		1.00	1.00	0.00		1.00
Uniform Delay (d), s/veh	36.1	0.0	33.8	35.7	33.4	11.6		22.9	25.4	0.0		24.4
Incr Delay (d2), s/veh	8.7	0.0	5.4	6.8	4.6	1.2		0.1	1.5	0.0		0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	3.6	2.5	3.8	1.5		1.6	5.5	0.0		0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.8	0.0	39.1	42.5	38.0	12.8		23.1	27.0	0.0		24.5
LnGrp LOS	D	A	D	D	D	B		C	C			C
Approach Vol, veh/h		293			395				709	A		
Approach Delay, s/veh		41.3			33.8				26.4			
Approach LOS		D			C				C			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	22.9	31.0	11.4	14.7	29.9	24.0	10.9	15.2				
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	5.8	26.5	11.2	18.5	12.8	19.5	10.5	19.2				
Max Q Clear Time (g_c+I1), s	3.8	13.8	7.0	9.6	5.7	12.3	6.9	9.8				
Green Ext Time (p_c), s	0.0	3.3	0.1	0.6	0.1	1.8	0.1	0.9				

Intersection Summary

HCM 6th Ctrl Delay	31.7
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.
 Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project
 1: R Street & Loughborough Drive

Exist With Proj Ph I+II (Alt II) PM Peak Hour



Movement	SBT	SBR
Lane Configurations	↑↑	
Traffic Volume (veh/h)	378	87
Future Volume (veh/h)	378	87
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1900	1900
Adj Flow Rate, veh/h	420	97
Peak Hour Factor	0.90	0.90
Percent Heavy Veh, %	0	0
Cap, veh/h	711	163
Arrive On Green	0.24	0.24
Sat Flow, veh/h	2917	668
Grp Volume(v), veh/h	259	258
Grp Sat Flow(s),veh/h/ln	1805	1780
Q Serve(g_s), s	10.1	10.3
Cycle Q Clear(g_c), s	10.1	10.3
Prop In Lane		0.38
Lane Grp Cap(c), veh/h	440	434
V/C Ratio(X)	0.59	0.60
Avail Cap(c_a), veh/h	440	434
HCM Platoon Ratio	1.00	1.00
Upstream Filter(l)	1.00	1.00
Uniform Delay (d), s/veh	26.7	26.8
Incr Delay (d2), s/veh	5.7	5.9
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	4.9
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	32.4	32.7
LnGrp LOS	C	C
Approach Vol, veh/h	567	
Approach Delay, s/veh	31.8	
Approach LOS	C	
Timer - Assigned Phs		

Intersection														
Int Delay, s/veh	2.3													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations			↗			↗		↘	↕			↘	↕	
Traffic Vol, veh/h	0	0	125	0	0	100	12	82	701	114	44	58	457	29
Future Vol, veh/h	0	0	125	0	0	100	12	82	701	114	44	58	457	29
Conflicting Peds, #/hr	0	0	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	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	-	None	-	-	-	None
Storage Length	-	-	0	-	-	0	-	35	-	-	-	130	-	-
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	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	137	0	0	110	13	90	770	125	48	64	502	32

Major/Minor	Minor2		Minor1		Major1			Major2						
Conflicting Flow All	-	-	267	-	-	448	534	534	0	0	896	895	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	6.4	4.1	-	-	6.4	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.5	2.2	-	-	2.5	2.2	-	-
Pot Cap-1 Maneuver	0	0	*920	0	0	*803	1081	1291	-	-	862	1069	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-	-	-
Platoon blocked, %			1			1	1	1	-	-	1	1	-	-
Mov Cap-1 Maneuver	-	-	*920	-	-	*803	1231	1231	-	-	906	906	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	9.6		10.2		0.8		1.7	
HCM LOS	A		B					

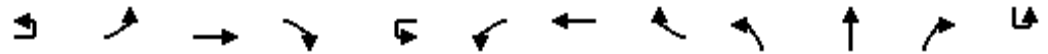
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1231	-	-	920	803	906	-	-
HCM Lane V/C Ratio	0.084	-	-	0.149	0.137	0.124	-	-
HCM Control Delay (s)	8.2	-	-	9.6	10.2	9.5	-	-
HCM Lane LOS	A	-	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0.3	-	-	0.5	0.5	0.4	-	-

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

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project

3: R Street & Olive Avenue

Exist With Proj Ph I+II (Alt II) PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU
Lane Configurations		↔	↑↑↑	↗		↔	↑↑↑	↗	↖	↑↑		
Traffic Volume (veh/h)	22	190	782	187	14	237	851	144	293	570	111	6
Future Volume (veh/h)	22	190	782	187	14	237	851	144	293	570	111	6
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		1900	1900	1900		1900	1900	1900	1900	1900	1900	
Adj Flow Rate, veh/h		198	815	195		247	886	150	305	594	116	
Peak Hour Factor		0.96	0.96	0.96		0.96	0.96	0.96	0.96	0.96	0.96	
Percent Heavy Veh, %		0	0	0		0	0	0	0	0	0	
Cap, veh/h		365	1525	474		274	1264	392	343	719	140	
Arrive On Green		0.20	0.29	0.29		0.05	0.08	0.08	0.19	0.24	0.24	
Sat Flow, veh/h		1810	5187	1610		1810	5187	1610	1810	3012	587	
Grp Volume(v), veh/h		198	815	195		247	886	150	305	355	355	
Grp Sat Flow(s),veh/h/ln		1810	1729	1610		1810	1729	1610	1810	1805	1794	
Q Serve(g_s), s		7.8	10.5	4.5		10.9	13.3	5.2	13.1	14.9	15.0	
Cycle Q Clear(g_c), s		7.8	10.5	4.5		10.9	13.3	5.2	13.1	14.9	15.0	
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.33	
Lane Grp Cap(c), veh/h		365	1525	474		274	1264	392	343	431	428	
V/C Ratio(X)		0.54	0.53	0.41		0.90	0.70	0.38	0.89	0.83	0.83	
Avail Cap(c_a), veh/h		365	1525	474		274	1264	392	343	505	502	
HCM Platoon Ratio		1.00	1.00	1.00		0.33	0.33	0.33	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	
Uniform Delay (d), s/veh		28.6	23.6	7.4		37.4	33.9	16.6	31.6	28.9	28.9	
Incr Delay (d2), s/veh		1.6	1.3	2.6		30.4	3.3	2.8	23.7	9.4	9.7	
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		3.5	4.3	3.0		7.5	6.5	3.1	7.8	7.3	7.4	
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		30.3	25.0	10.1		67.9	37.2	19.4	55.3	38.3	38.6	
LnGrp LOS		C	C	B		E	D	B	E	D	D	
Approach Vol, veh/h			1208				1283			1015		
Approach Delay, s/veh			23.4				41.0			43.5		
Approach LOS			C				D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.6	28.0	19.7	15.7	20.6	24.0	11.8	23.6				
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	12.1	18.0	13.4	18.5	10.6	19.5	9.5	22.4				
Max Q Clear Time (g_c+I1), s	12.9	12.5	15.1	9.3	9.8	15.3	7.6	17.0				
Green Ext Time (p_c), s	0.0	2.9	0.0	1.9	0.0	2.4	0.1	2.1				

Intersection Summary

HCM 6th Ctrl Delay	35.3
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project

3: R Street & Olive Avenue

Exist With Proj Ph I+II (Alt II) PM Peak Hour



Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (veh/h)	128	352	111
Future Volume (veh/h)	128	352	111
Initial Q (Qb), veh	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00
Work Zone On Approach		No	
Adj Sat Flow, veh/h/ln	1900	1900	1900
Adj Flow Rate, veh/h	133	367	116
Peak Hour Factor	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0
Cap, veh/h	165	506	226
Arrive On Green	0.18	0.28	0.28
Sat Flow, veh/h	1810	3610	1610
Grp Volume(v), veh/h	133	367	116
Grp Sat Flow(s),veh/h/ln	1810	1805	1610
Q Serve(g_s), s	5.6	7.3	4.8
Cycle Q Clear(g_c), s	5.6	7.3	4.8
Prop In Lane	1.00		1.00
Lane Grp Cap(c), veh/h	165	506	226
V/C Ratio(X)	0.81	0.72	0.51
Avail Cap(c_a), veh/h	215	835	372
HCM Platoon Ratio	2.00	2.00	2.00
Upstream Filter(l)	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.0	27.4	26.5
Incr Delay (d2), s/veh	15.5	2.0	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	2.9	1.8
Unsig. Movement Delay, s/veh			
LnGrp Delay(d),s/veh	47.6	29.4	28.3
LnGrp LOS	D	C	C
Approach Vol, veh/h		616	
Approach Delay, s/veh		33.1	
Approach LOS		C	
Timer - Assigned Phs			

Intersection												
Int Delay, s/veh	3.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗	↗	↕	↗	↗	↕	↗
Traffic Vol, veh/h	0	0	319	0	0	181	249	806	116	43	675	37
Future Vol, veh/h	0	0	319	0	0	181	249	806	116	43	675	37
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	95	-	70	40	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	332	0	0	189	259	840	121	45	703	39

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	-	-	352	-	-	420	742	0	0	961	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	0	0	*803	0	0	588	*1205	-	-	724	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %			1			1	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	*803	-	-	588	*1205	-	-	724	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	12.6		14		1.9		0.6	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	* 1205	-	-	803	588	724	-	-
HCM Lane V/C Ratio	0.215	-	-	0.414	0.321	0.062	-	-
HCM Control Delay (s)	8.8	-	-	12.6	14	10.3	-	-
HCM Lane LOS	A	-	-	B	B	B	-	-
HCM 95th %tile Q(veh)	0.8	-	-	2	1.4	0.2	-	-

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

Level of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 Intersection 5

Average Delay (sec/veh): 11.1 Worst Case Level Of Service: F[121.0]

Street Name:Mall Driveway 2 - Pepperwood Lane Olive Avenue

Table with columns for Approach (North Bound, South Bound, East Bound, West Bound), Movement (L, T, R), Control (Stop Sign, Uncontrolled), Rights (Include), and Lanes (0, 1, 3).

Volume Module: >> Count Date: 5 Jun 2018 <<

Table with columns for Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, and Final Volume across four approaches.

Critical Gap Module:

Table with columns for Critical Gp and FollowUpTim across four approaches.

Capacity Module:

Table with columns for Cnflct Vol, Potent Cap., Move Cap., and Volume/Cap across four approaches.

Level of Service Module:

Table with columns for 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., SharedQueue, Shrd ConDel, Shared LOS, ApproachDel, and ApproachLOS across four approaches.

Note: Queue reported is the number of cars per lane.

 Level Of Service Detailed Computation Report
 2000 HCM Unsignalized Method
 Base Volume Alternative

 Intersection #1 Intersection 5

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed:	4.00 feet/sec											
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period:	0.25 hour											

Intersection

Int Delay, s/veh 2.7

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↑	↗	↖	↑	↗		↕			↕	
Traffic Vol, veh/h	1	10	332	29	41	320	10	35	1	85	9	1	2
Future Vol, veh/h	1	10	332	29	41	320	10	35	1	85	9	1	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	50	-	50	50	-	50	-	-	-	-	-	-
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	91
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	1	11	365	32	45	352	11	38	1	93	10	1	2

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	- 363	0 0 397	0 0 836	842 365 892 863 352
Stage 1	- - -	- - -	- - 387	389 - 442 442 -
Stage 2	- - -	- - -	- - 449	453 - 450 421 -
Critical Hdwy	- 4.1	- - 4.1	- - 7.1	6.5 6.2 7.1 6.5 6.2
Critical Hdwy Stg 1	- - -	- - -	- - 6.1	5.5 - 6.1 5.5 -
Critical Hdwy Stg 2	- - -	- - -	- - 6.1	5.5 - 6.1 5.5 -
Follow-up Hdwy	- 2.2	- - 2.2	- - 3.5	4 3.3 3.5 4 3.3
Pot Cap-1 Maneuver	- 1235	- - 1173	- - 302	302 685 270 292 827
Stage 1	- - -	- - -	- - 641	612 - 678 612 -
Stage 2	- - -	- - -	- - 670	603 - 592 592 -
Platoon blocked, %	1	- - -	- - 1	1 1 1 1 1
Mov Cap-1 Maneuver	- -11 - -11	- - 1173	- - 291	291 685 226 281 827
Mov Cap-2 Maneuver	- - -	- - -	- - 291	291 - 226 281 -
Stage 1	- - -	- - -	- - 641	612 - 678 588 -
Stage 2	- - -	- - -	- - 642	580 - 510 592 -

Approach	EB	WB	NB	SB
HCM Control Delay, s		0.9	15.1	19.5
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	488	+	-	-	1173	-	-	262
HCM Lane V/C Ratio	0.272	-	-	-	0.038	-	-	0.05
HCM Control Delay (s)	15.1	-	-	-	8.2	-	-	19.5
HCM Lane LOS	C	-	-	-	A	-	-	C
HCM 95th %tile Q(veh)	1.1	-	-	-	0.1	-	-	0.2

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

Level of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Intersection 7

Average Delay (sec/veh): 1.5 Worst Case Level Of Service: B[12.7]

Street Name: Mall Driveway 4 - Applewood Lane Olive Avenue

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Approach, Movement, Control, Rights, and Lanes.

Volume Module: Table with 12 columns for traffic flow directions. Rows include Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, and Final Volume.

Critical Gap Module: Table with 12 columns. Rows include Critical Gp and FollowUpTim.

Capacity Module: Table with 12 columns. Rows include Cnflct Vol, Potent Cap., Move Cap., and Volume/Cap.

Level of Service Module: Table with 12 columns. Rows include 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., Shared Queue, Shrd ConDel, Shared LOS, ApproachDel, and ApproachLOS.

Note: Queue reported is the number of cars per lane.

 Level Of Service Detailed Computation Report
 2000 HCM Unsignalized Method
 Base Volume Alternative

 Intersection #2 Intersection 7

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed:	4.00 feet/sec											
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period:	0.25 hour											

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project

8: M Street & Loughborough Drive/Collins Drive

Exist With Proj Ph I+II (Alt II) PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	237	31	196	44	80	110	1	137	499	16	27	467	150
Future Volume (veh/h)	237	31	196	44	80	110	1	137	499	16	27	467	150
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00
Parking Bus, Adj	1.00	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	1900	1900	1900	1900	1900	1900		1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	272	36	225	51	92	126		157	574	18	31	537	172
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, %	0	0	0	0	0	0		0	0	0	0	0	0
Cap, veh/h	314	323	274	287	113	154		492	1005	31	483	673	215
Arrive On Green	0.17	0.17	0.17	0.16	0.16	0.16		0.20	0.28	0.28	0.17	0.25	0.25
Sat Flow, veh/h	1810	1900	1610	1810	726	995		1810	3573	112	1810	2692	859
Grp Volume(v), veh/h	272	36	225	51	0	218		157	290	302	31	359	350
Grp Sat Flow(s),veh/h/ln	1810	1900	1610	1810	0	1721		1810	1805	1880	1810	1805	1745
Q Serve(g_s), s	11.7	1.3	10.8	2.0	0.0	9.8		0.0	11.0	11.0	0.0	14.9	15.0
Cycle Q Clear(g_c), s	11.7	1.3	10.8	2.0	0.0	9.8		0.0	11.0	11.0	0.0	14.9	15.0
Prop In Lane	1.00		1.00	1.00		0.58		1.00		0.06	1.00		0.49
Lane Grp Cap(c), veh/h	314	323	274	287	0	267		492	508	529	483	451	436
V/C Ratio(X)	0.87	0.11	0.82	0.18	0.00	0.82		0.32	0.57	0.57	0.06	0.80	0.80
Avail Cap(c_a), veh/h	373	667	566	287	0	387		492	508	529	483	451	436
HCM Platoon Ratio	1.00	1.00	1.00	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	32.1	28.1	32.0	29.1	0.0	32.7		25.1	24.6	24.6	21.7	28.1	28.1
Incr Delay (d2), s/veh	16.6	0.2	6.1	0.3	0.0	8.6		0.4	4.6	4.4	0.1	13.6	14.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.4	0.6	4.5	0.9	0.0	4.6		2.4	5.2	5.4	0.4	7.9	7.8
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	48.8	28.2	38.2	29.4	0.0	41.3		25.5	29.2	29.1	21.7	41.7	42.5
LnGrp LOS	D	C	D	C	A	D		C	C	C	C	D	D
Approach Vol, veh/h		533			269				749			740	
Approach Delay, s/veh		42.9			39.0				28.4			41.2	
Approach LOS		D			D				C			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	17.7	27.0	17.2	18.1	20.2	24.5	18.4	16.9					
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	5.0	22.5	6.4	28.1	7.5	20.0	16.5	18.0					
Max Q Clear Time (g_c+1/2), s	12.0	13.0	4.0	12.8	2.0	17.0	13.7	11.8					
Green Ext Time (p_c), s	0.0	2.5	0.0	0.8	0.2	1.3	0.2	0.6					

Intersection Summary

HCM 6th Ctrl Delay	37.2
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

Intersection												
Int Delay, s/veh	1.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗		↕↔			↕↕↕	
Traffic Vol, veh/h	0	0	131	0	0	43	0	647	35	0	773	65
Future Vol, veh/h	0	0	131	0	0	43	0	647	35	0	773	65
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	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	149	0	0	49	0	735	40	0	878	74

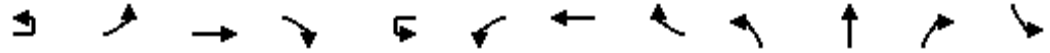
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	-	476	-	-	388	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.1	-	-	6.9	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.9	-	-	3.3	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	*746	0	0	616	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %			1									
Mov Cap-1 Maneuver	-	-	*746	-	-	616	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	11		11.3		0		0	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBT	NBR	EBLn1WBLn1	SBT	SBR
Capacity (veh/h)	-	-	746	616	-
HCM Lane V/C Ratio	-	-	0.2	0.079	-
HCM Control Delay (s)	-	-	11	11.3	-
HCM Lane LOS	-	-	B	B	-
HCM 95th %tile Q(veh)	-	-	0.7	0.3	-

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

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project
 10: M Street & Olive Avenue Exist With Proj Ph I+II (Alt II) PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		↔	↑↑↑	↗		↔	↑↑↑		↖	↑↑		↘
Traffic Volume (veh/h)	33	99	768	141	31	137	817	58	315	492	119	293
Future Volume (veh/h)	33	99	768	141	31	137	817	58	315	492	119	293
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	1.00
Parking Bus, Adj		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		
Adj Sat Flow, veh/h/ln		1900	1900	1900		1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h		104	808	148		144	860	61	332	518	125	308
Peak Hour Factor		0.95	0.95	0.95		0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %		0	0	0		0	0	0	0	0	0	0
Cap, veh/h		134	1180	366		244	1424	101	369	640	154	346
Arrive On Green		0.02	0.08	0.08		0.13	0.29	0.29	0.20	0.22	0.22	0.19
Sat Flow, veh/h		1810	5187	1610		1810	4945	350	1810	2887	693	1810
Grp Volume(v), veh/h		104	808	148		144	601	320	332	323	320	308
Grp Sat Flow(s),veh/h/ln		1810	1729	1610		1810	1729	1837	1810	1805	1775	1810
Q Serve(g_s), s		4.6	12.2	7.0		6.0	12.0	12.0	14.3	13.6	13.7	13.3
Cycle Q Clear(g_c), s		4.6	12.2	7.0		6.0	12.0	12.0	14.3	13.6	13.7	13.3
Prop In Lane		1.00		1.00		1.00		0.19	1.00		0.39	1.00
Lane Grp Cap(c), veh/h		134	1180	366		244	996	529	369	400	394	346
V/C Ratio(X)		0.77	0.68	0.40		0.59	0.60	0.61	0.90	0.81	0.81	0.89
Avail Cap(c_a), veh/h		170	1180	366		244	996	529	375	431	424	351
HCM Platoon Ratio		0.33	0.33	0.33		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
Uniform Delay (d), s/veh		38.4	34.2	31.8		32.5	24.5	24.6	31.0	29.5	29.6	31.5
Incr Delay (d2), s/veh		15.7	3.2	3.3		3.7	2.7	5.1	23.4	10.2	10.9	23.3
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
%ile BackOfQ(50%),veh/ln		2.6	5.9	3.2		2.8	5.1	5.8	8.4	6.8	6.8	7.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		54.0	37.4	35.1		36.3	27.2	29.6	54.4	39.7	40.4	54.9
LnGrp LOS		D	D	D		D	C	C	D	D	D	D
Approach Vol, veh/h			1060				1065			975		
Approach Delay, s/veh			38.7				29.2			45.0		
Approach LOS			D				C			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.3	22.7	20.8	21.2	10.4	27.5	19.8	22.2				
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	9.2	18.2	16.6	18.0	7.5	19.9	15.5	19.1				
Max Q Clear Time (g_c+I1), s	8.0	14.2	16.3	15.8	6.6	14.0	15.3	15.7				
Green Ext Time (p_c), s	0.0	2.2	0.0	0.9	0.0	2.9	0.0	1.3				

Intersection Summary

HCM 6th Ctrl Delay	40.1
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project
 10: M Street & Olive Avenue

Exist With Proj Ph I+II (Alt II) PM Peak Hour



Movement	SBT	SBR
Lane Configurations	↑↑	↔
Traffic Volume (veh/h)	513	98
Future Volume (veh/h)	513	98
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1900	1900
Adj Flow Rate, veh/h	540	103
Peak Hour Factor	0.95	0.95
Percent Heavy Veh, %	0	0
Cap, veh/h	631	120
Arrive On Green	0.21	0.21
Sat Flow, veh/h	3026	575
Grp Volume(v), veh/h	321	322
Grp Sat Flow(s),veh/h/ln	1805	1796
Q Serve(g_s), s	13.7	13.8
Cycle Q Clear(g_c), s	13.7	13.8
Prop In Lane		0.32
Lane Grp Cap(c), veh/h	377	375
V/C Ratio(X)	0.85	0.86
Avail Cap(c_a), veh/h	406	404
HCM Platoon Ratio	1.00	1.00
Upstream Filter(l)	1.00	1.00
Uniform Delay (d), s/veh	30.5	30.5
Incr Delay (d2), s/veh	15.2	15.9
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.3	7.4
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	45.7	46.4
LnGrp LOS	D	D
Approach Vol, veh/h	951	
Approach Delay, s/veh	48.9	
Approach LOS	D	
Timer - Assigned Phs		

Intersection						
Int Delay, s/veh	1.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	13	180	102	910	739	51
Future Vol, veh/h	13	180	102	910	739	51
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	75	70	-	-	285
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	14	196	111	989	803	55

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1520	402	858	0	-	0
Stage 1	803	-	-	-	-	-
Stage 2	717	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	181	*803	1115	-	-	-
Stage 1	742	-	-	-	-	-
Stage 2	450	-	-	-	-	-
Platoon blocked, %	1	1	1	-	-	-
Mov Cap-1 Maneuver	163	*803	1115	-	-	-
Mov Cap-2 Maneuver	163	-	-	-	-	-
Stage 1	668	-	-	-	-	-
Stage 2	450	-	-	-	-	-






















Approach	EB	NB	SB
HCM Control Delay, s	12.1	0.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1115	-	163	803	-	-
HCM Lane V/C Ratio	0.099	-	0.087	0.244	-	-
HCM Control Delay (s)	8.6	-	29.2	10.9	-	-
HCM Lane LOS	A	-	D	B	-	-
HCM 95th %tile Q(veh)	0.3	-	0.3	1	-	-

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

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project 1: R Street & Loughborough Drive

Cumul (2023) No Proj AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	90	176	47	82	104	55	10	35	287	128	6	69
Future Volume (veh/h)	90	176	47	82	104	55	10	35	287	128	6	69
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0		0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00		1.00
Parking Bus, Adj	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				
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900		1900	1900	1900		1900
Adj Flow Rate, veh/h	105	205	55	95	121	64		41	334	0		80
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86		0.86	0.86	0.86		0.86
Percent Heavy Veh, %	0	0	0	0	0	0		0	0	0		0
Cap, veh/h	135	249	67	123	315	267		395	1011			460
Arrive On Green	0.07	0.17	0.17	0.07	0.17	0.17		0.15	0.19	0.00		0.25
Sat Flow, veh/h	1810	1443	387	1810	1900	1610		1810	3610	1610		1810
Grp Volume(v), veh/h	105	0	260	95	121	64		41	334	0		80
Grp Sat Flow(s),veh/h/ln	1810	0	1830	1810	1900	1610		1810	1805	1610		1810
Q Serve(g_s), s	4.6	0.0	11.0	4.1	4.5	1.5		1.6	6.4	0.0		2.8
Cycle Q Clear(g_c), s	4.6	0.0	11.0	4.1	4.5	1.5		1.6	6.4	0.0		2.8
Prop In Lane	1.00		0.21	1.00		1.00		1.00		1.00		1.00
Lane Grp Cap(c), veh/h	135	0	316	123	315	267		395	1011			460
V/C Ratio(X)	0.77	0.00	0.82	0.77	0.38	0.24		0.10	0.33			0.17
Avail Cap(c_a), veh/h	238	0	469	219	468	397		395	1011			460
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		0.67	0.67	0.67		1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00		1.00	1.00	0.00		1.00
Uniform Delay (d), s/veh	36.3	0.0	31.9	36.7	29.7	9.1		27.4	26.0	0.0		23.3
Incr Delay (d2), s/veh	9.1	0.0	7.3	9.8	0.8	0.5		0.1	0.9	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
%ile BackOfQ(50%),veh/ln	2.3	0.0	5.3	2.1	2.1	1.1		0.7	2.9	0.0		1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.4	0.0	39.2	46.4	30.5	9.6		27.5	26.9	0.0		23.4
LnGrp LOS	D	A	D	D	C	A		C	C			C
Approach Vol, veh/h		365			280				375	A		
Approach Delay, s/veh		41.0			31.1				26.9			
Approach LOS		D			C				C			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	24.9	26.9	9.9	18.3	22.0	29.8	10.5	17.8				
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	9.4	22.4	9.7	20.5	6.5	25.3	10.5	19.7				
Max Q Clear Time (g_c+I1), s	4.8	8.4	6.1	13.0	3.6	15.2	6.6	6.5				
Green Ext Time (p_c), s	0.1	1.8	0.1	0.8	0.0	3.1	0.1	0.6				
Intersection Summary												
HCM 6th Ctrl Delay			30.7									
HCM 6th LOS			C									
Notes												
User approved ignoring U-Turning movement.												
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.												

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project
 1: R Street & Loughborough Drive

Cumul (2023) No Proj AM Peak Hour



Movement	SBT	SBR
Lane Configurations	↑↑	
Traffic Volume (veh/h)	506	95
Future Volume (veh/h)	506	95
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1900	1900
Adj Flow Rate, veh/h	588	110
Peak Hour Factor	0.86	0.86
Percent Heavy Veh, %	0	0
Cap, veh/h	960	179
Arrive On Green	0.32	0.32
Sat Flow, veh/h	3036	567
Grp Volume(v), veh/h	349	349
Grp Sat Flow(s),veh/h/ln	1805	1798
Q Serve(g_s), s	13.1	13.2
Cycle Q Clear(g_c), s	13.1	13.2
Prop In Lane		0.32
Lane Grp Cap(c), veh/h	571	569
V/C Ratio(X)	0.61	0.61
Avail Cap(c_a), veh/h	571	569
HCM Platoon Ratio	1.00	1.00
Upstream Filter(l)	1.00	1.00
Uniform Delay (d), s/veh	23.2	23.2
Incr Delay (d2), s/veh	4.8	4.9
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.1	6.1
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	28.0	28.1
LnGrp LOS	C	C
Approach Vol, veh/h	778	
Approach Delay, s/veh	27.6	
Approach LOS	C	
Timer - Assigned Phs		

Intersection														
Int Delay, s/veh	0.8													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations			↗			↗		↘	↗			↘	↗	
Traffic Vol, veh/h	0	0	30	0	0	17	5	33	444	34	16	19	582	23
Future Vol, veh/h	0	0	30	0	0	17	5	33	444	34	16	19	582	23
Conflicting Peds, #/hr	0	0	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	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	-	None	-	-	-	None
Storage Length	-	-	0	-	-	0	-	35	-	-	-	130	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	34	0	0	19	6	37	499	38	18	21	654	26

Major/Minor	Minor2		Minor1		Major1			Major2						
Conflicting Flow All	-	-	340	-	-	269	680	680	0	0	537	537	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	6.4	4.1	-	-	6.4	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.5	2.2	-	-	2.5	2.2	-	-
Pot Cap-1 Maneuver	0	0	*881	0	0	*920	963	1185	-	-	1076	1287	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-	-	-
Platoon blocked, %			1			1	1	1	-	-	1	1	-	-
Mov Cap-1 Maneuver	-	-	*881	-	-	*920	1144	1144	-	-	1170	1170	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	9.2		9		0.6		0.4	
HCM LOS	A		A					

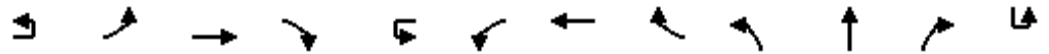
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1144	-	-	881	920	1170	-
HCM Lane V/C Ratio	0.037	-	-	0.038	0.021	0.034	-
HCM Control Delay (s)	8.3	-	-	9.2	9	8.2	-
HCM Lane LOS	A	-	-	A	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.1	0.1	-

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

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project

3: R Street & Olive Avenue

Cumul (2023) No Proj AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU
Lane Configurations		↔	↑↑↑	↗		↔	↑↑↑	↗	↖	↑↑		
Traffic Volume (veh/h)	7	102	685	146	5	175	487	73	127	341	141	2
Future Volume (veh/h)	7	102	685	146	5	175	487	73	127	341	141	2
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		1900	1900	1900		1900	1900	1900	1900	1900	1900	
Adj Flow Rate, veh/h		117	787	168		201	560	84	146	392	162	
Peak Hour Factor		0.87	0.87	0.87		0.87	0.87	0.87	0.87	0.87	0.87	
Percent Heavy Veh, %		0	0	0		0	0	0	0	0	0	
Cap, veh/h		405	1856	576		246	1400	435	200	489	199	
Arrive On Green		0.22	0.36	0.36		0.04	0.09	0.09	0.11	0.20	0.20	
Sat Flow, veh/h		1810	5187	1610		1810	5187	1610	1810	2501	1020	
Grp Volume(v), veh/h		117	787	168		201	560	84	146	281	273	
Grp Sat Flow(s),veh/h/ln		1810	1729	1610		1810	1729	1610	1810	1805	1716	
Q Serve(g_s), s		4.3	9.2	3.9		8.8	8.2	2.8	6.2	11.9	12.2	
Cycle Q Clear(g_c), s		4.3	9.2	3.9		8.8	8.2	2.8	6.2	11.9	12.2	
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.59	
Lane Grp Cap(c), veh/h		405	1856	576		246	1400	435	200	353	335	
V/C Ratio(X)		0.29	0.42	0.29		0.82	0.40	0.19	0.73	0.80	0.81	
Avail Cap(c_a), veh/h		405	1856	576		328	1400	435	238	429	408	
HCM Platoon Ratio		1.00	1.00	1.00		0.33	0.33	0.33	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	
Uniform Delay (d), s/veh		25.8	19.4	7.9		37.2	30.3	15.0	34.4	30.7	30.8	
Incr Delay (d2), s/veh		0.4	0.7	1.3		11.3	0.9	1.0	9.0	8.5	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	
%ile BackOfQ(50%),veh/ln		1.8	3.6	2.2		4.9	3.7	1.6	3.2	5.8	5.8	
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		26.2	20.2	9.1		48.5	31.2	16.0	43.5	39.2	40.8	
LnGrp LOS		C	C	A		D	C	B	D	D	D	
Approach Vol, veh/h			1072				845			700		
Approach Delay, s/veh			19.1				33.8			40.7		
Approach LOS			B				C			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.4	33.1	13.3	18.2	22.4	26.1	11.4	20.1				
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	14.5	19.0	10.5	18.0	11.9	21.6	9.5	19.0				
Max Q Clear Time (g_c+I1), s	10.8	11.2	8.2	11.9	6.3	10.2	7.3	14.2				
Green Ext Time (p_c), s	0.2	3.6	0.1	1.7	0.1	3.1	0.1	1.5				

Intersection Summary

HCM 6th Ctrl Delay	30.7
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project

3: R Street & Olive Avenue

Cumul (2023) No Proj AM Peak Hour



Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (veh/h)	107	416	64
Future Volume (veh/h)	107	416	64
Initial Q (Qb), veh	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00
Work Zone On Approach		No	
Adj Sat Flow, veh/h/ln	1900	1900	1900
Adj Flow Rate, veh/h	123	478	74
Peak Hour Factor	0.87	0.87	0.87
Percent Heavy Veh, %	0	0	0
Cap, veh/h	155	617	275
Arrive On Green	0.11	0.23	0.23
Sat Flow, veh/h	1810	3610	1610
Grp Volume(v), veh/h	123	478	74
Grp Sat Flow(s),veh/h/ln	1810	1805	1610
Q Serve(g_s), s	5.3	9.9	3.0
Cycle Q Clear(g_c), s	5.3	9.9	3.0
Prop In Lane	1.00		1.00
Lane Grp Cap(c), veh/h	155	617	275
V/C Ratio(X)	0.79	0.77	0.27
Avail Cap(c_a), veh/h	215	812	362
HCM Platoon Ratio	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.7	29.5	26.8
Incr Delay (d2), s/veh	12.7	3.4	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	4.2	1.2
Unsig. Movement Delay, s/veh			
LnGrp Delay(d),s/veh	47.5	32.9	27.3
LnGrp LOS	D	C	C
Approach Vol, veh/h		675	
Approach Delay, s/veh		34.9	
Approach LOS		C	
Timer - Assigned Phs			

Intersection													
Int Delay, s/veh	1.9												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations			↗			↗	↗	↗	↗		↘	↗	↗
Traffic Vol, veh/h	0	0	99	0	0	58	123	552	116	1	46	670	20
Future Vol, veh/h	0	0	99	0	0	58	123	552	116	1	46	670	20
Conflicting Peds, #/hr	0	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	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	-	None
Storage Length	-	-	0	-	-	0	95	-	70	-	40	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	122	0	0	72	152	681	143	1	57	827	25

Major/Minor	Minor2	Minor1	Major1	Major2
Conflicting Flow All	-	-	414	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	6.9	4.1
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	3.3	2.2
Pot Cap-1 Maneuver	0	0	*842	0
Stage 1	0	0	-	0
Stage 2	0	0	-	0
Platoon blocked, %			1	1
Mov Cap-1 Maneuver	-	-	*842	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10	11.1	1.4	0.6
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1051	-	-	842	661	804	-
HCM Lane V/C Ratio	0.144	-	-	0.145	0.108	0.072	-
HCM Control Delay (s)	9	-	-	10	11.1	9.8	-
HCM Lane LOS	A	-	-	B	B	A	-
HCM 95th %tile Q(veh)	0.5	-	-	0.5	0.4	0.2	-

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

Level of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 Intersection 5

Average Delay (sec/veh): 1.1 Worst Case Level Of Service: D[32.6]

Street Name:Mall Driveway 2 - Pepperwood Lane Olive Avenue

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Stop Sign Stop Sign Uncontrolled Uncontrolled

Rights: Include Include Include Include

Lanes: 0 0 1! 0 0 0 0 1! 0 0 1 0 3 0 1 1 0 3 1 0

Volume Module: >> Count Date: 5 Jun 2018 <<

Base Vol: 8 2 59 5 1 3 18 908 15 28 724 5

Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Bse: 8 2 59 5 1 3 18 908 15 28 724 5

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.91 0.91 0.91 0.91 0.91 0.91 0.91 0.91 0.91 0.91 0.91 0.91

PHF Volume: 9 2 65 6 1 3 20 1001 17 31 798 6

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

FinalVolume: 9 2 65 6 1 3 20 1001 17 31 798 6

Critical Gap Module:

Critical Gp: 7.5 6.5 6.9 7.5 6.5 6.9 4.1 xxxx xxxxx 4.1 xxxx xxxxx

FollowUpTim: 3.5 4.0 3.3 3.5 4.0 3.3 2.2 xxxx xxxxx 2.2 xxxx xxxxx

Capacity Module:

Cnflct Vol: 1303 1906 334 1237 1920 202 804 xxxx xxxxx 1018 xxxx xxxxx

Potent Cap.: 120 69 668 134 68 811 829 xxxx xxxxx 690 xxxx xxxxx

Move Cap.: 112 65 668 112 63 811 829 xxxx xxxxx 690 xxxx xxxxx

Volume/Cap: 0.08 0.03 0.10 0.05 0.02 0.00 0.02 xxxx xxxx 0.04 xxxx xxxx

Level of Service Module:

2Way95thQ: xxxx xxxx xxxxx xxxx xxxx xxxxx 0.1 xxxx xxxxx 0.1 xxxx xxxxx

Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx 9.4 xxxx xxxxx 10.5 xxxx xxxxx

LOS by Move: * * * * * A * * B * *

Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT

Shared Cap.: xxxx 362 xxxxx xxxx 140 xxxxx xxxx xxxx xxxxx xxxx xxxx xxxxx

SharedQueue:xxxxx 0.8 xxxxx xxxxx 0.2 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx

Shrd ConDel:xxxxx 17.6 xxxxx xxxxx 32.6 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx

Shared LOS: * C * * D * * * * * * * * *

ApproachDel: 17.6 32.6 xxxxxxx xxxxxxx

ApproachLOS: C D * *

Note: Queue reported is the number of cars per lane.

 Level Of Service Detailed Computation Report
 2000 HCM Unsignalized Method
 Base Volume Alternative

 Intersection #1 Intersection 5

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed:	4.00 feet/sec											
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period:	0.25 hour											

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	1	343	32	27	228	6	13	0	37	4	0	6
Future Vol, veh/h	1	343	32	27	228	6	13	0	37	4	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	50	50	-	50	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	1	445	42	35	296	8	17	0	48	5	0	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	304	0	0	487	0	0	821	821	445	858	855	296
Stage 1	-	-	-	-	-	-	447	447	-	366	366	-
Stage 2	-	-	-	-	-	-	374	374	-	492	489	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1288	-	-	1086	-	-	303	310	617	283	294	838
Stage 1	-	-	-	-	-	-	595	577	-	718	652	-
Stage 2	-	-	-	-	-	-	709	645	-	562	553	-
Platoon blocked, %	1	-	-	-	-	-	1	1	-	1	1	1
Mov Cap-1 Maneuver	1288	-	-	1086	-	-	292	300	617	255	284	838
Mov Cap-2 Maneuver	-	-	-	-	-	-	292	300	-	255	284	-
Stage 1	-	-	-	-	-	-	594	576	-	717	631	-
Stage 2	-	-	-	-	-	-	680	624	-	518	552	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.9	13.7	13.5
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	479	1288	-	-	1086	-	-	438
HCM Lane V/C Ratio	0.136	0.001	-	-	0.032	-	-	0.03
HCM Control Delay (s)	13.7	7.8	-	-	8.4	-	-	13.5
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.5	0	-	-	0.1	-	-	0.1

Level of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Intersection 7

Average Delay (sec/veh): 0.8 Worst Case Level Of Service: B[10.7]

Street Name: Mall Driveway 4 - Applewood Lane Olive Avenue
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R
Control: Stop Sign Stop Sign Uncontrolled Uncontrolled
Rights: Include Include Include Include
Lanes: 0 0 0 0 1 0 0 0 0 1 1 0 3 0 1 1 0 3 1 0

Volume Module:
Base Vol: 0 0 30 0 0 7 63 907 19 47 731 22
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 0 30 0 0 7 63 907 19 47 731 22
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90
PHF Volume: 0 0 33 0 0 8 70 1010 21 52 814 24
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
FinalVolume: 0 0 33 0 0 8 70 1010 21 52 814 24

Critical Gap Module:
Critical Gp:xxxxx xxxx 6.9 xxxxx xxxx 6.9 4.1 xxxx xxxxxx 4.1 xxxx xxxxxx
FollowUpTim:xxxxx xxxx 3.3 xxxxx xxxx 3.3 2.2 xxxx xxxxxx 2.2 xxxx xxxxxx

Capacity Module:
Cnflct Vol: xxxx xxxx 337 xxxx xxxx 216 839 xxxx xxxxxx 1031 xxxx xxxxxx
Potent Cap.: xxxx xxxx 665 xxxx xxxx 795 805 xxxx xxxxxx 682 xxxx xxxxxx
Move Cap.: xxxx xxxx 665 xxxx xxxx 795 805 xxxx xxxxxx 682 xxxx xxxxxx
Volume/Cap: xxxx xxxx 0.05 xxxx xxxx 0.01 0.09 xxxx xxxx 0.08 xxxx xxxx

Level of Service Module:
2Way95thQ: xxxx xxxx 0.2 xxxx xxxx 0.0 0.3 xxxx xxxxxx 0.2 xxxx xxxxxx
Control Del:xxxxx xxxx 10.7 xxxxxx xxxx 9.6 9.9 xxxx xxxxxx 10.7 xxxx xxxxxx
LOS by Move: * * B * * A A * * B * *
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxxx xxxx xxxx xxxxxx xxxx xxxx xxxxxx xxxx xxxx xxxxxx
SharedQueue:xxxxxx xxxxx xxxxxx xxxxxx xxxxx xxxxxx xxxxxx xxxxx xxxxxx xxxxxx xxxxxx xxxxxx
Shrd ConDel:xxxxxx xxxxx xxxxxx xxxxxx xxxxx xxxxxx xxxxxx xxxxx xxxxxx xxxxxx xxxxxx xxxxxx
Shared LOS: * * * * * * * * * * * * *
ApproachDel: 10.7 9.6 xxxxxxx xxxxxxx
ApproachLOS: B A * *

Note: Queue reported is the number of cars per lane.

 Level Of Service Detailed Computation Report
 2000 HCM Unsignalized Method
 Base Volume Alternative

 Intersection #2 Intersection 7

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed:	4.00 feet/sec											
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period:	0.25 hour											

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project
 8: M Street & Loughborough Drive/Collins Drive

Cumul (2023) No Proj AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	158	83	127	48	69	109	1	104	487	15	116	687	122
Future Volume (veh/h)	158	83	127	48	69	109	1	104	487	15	116	687	122
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00
Parking Bus, Adj	1.00	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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	208	109	167	63	91	143	137	641	20	153	904	161	
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	247	225	190	331	110	172	295	1437	45	433	1251	223	
Arrive On Green	0.14	0.12	0.12	0.18	0.16	0.16	0.07	0.40	0.40	0.07	0.41	0.41	
Sat Flow, veh/h	1810	1900	1610	1810	666	1046	1810	3574	111	1810	3062	545	
Grp Volume(v), veh/h	208	109	167	63	0	234	137	324	337	153	533	532	
Grp Sat Flow(s),veh/h/ln	1810	1900	1610	1810	0	1712	1810	1805	1880	1810	1805	1802	
Q Serve(g_s), s	9.0	4.3	6.5	2.4	0.0	10.6	3.5	10.4	10.5	3.9	19.8	19.8	
Cycle Q Clear(g_c), s	9.0	4.3	6.5	2.4	0.0	10.6	3.5	10.4	10.5	3.9	19.8	19.8	
Prop In Lane	1.00		1.00	1.00		0.61	1.00		0.06	1.00		0.30	
Lane Grp Cap(c), veh/h	247	225	190	331	0	282	295	726	756	433	738	736	
V/C Ratio(X)	0.84	0.49	0.88	0.19	0.00	0.83	0.46	0.45	0.45	0.35	0.72	0.72	
Avail Cap(c_a), veh/h	260	534	453	331	0	385	301	726	756	480	738	736	
HCM Platoon Ratio	1.00	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	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	33.7	33.0	22.1	27.7	0.0	32.3	15.4	17.4	17.4	12.9	19.8	19.9	
Incr Delay (d2), s/veh	20.9	1.6	12.0	0.3	0.0	10.5	1.1	2.0	1.9	0.5	6.1	6.1	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	5.3	2.0	3.0	1.0	0.0	5.1	1.4	4.5	4.7	1.5	9.0	9.0	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	54.6	34.6	34.2	28.0	0.0	42.8	16.5	19.4	19.3	13.4	25.9	25.9	
LnGrp LOS	D	C	C	C	A	D	B	B	B	B	C	C	
Approach Vol, veh/h		484			297			798			1218		
Approach Delay, s/veh		43.0			39.7			18.9			24.3		
Approach LOS		D			D			B			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	10.3	36.7	19.1	14.0	9.7	37.2	15.4	17.7					
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	7.8	24.7	7.0	22.5	5.5	27.0	11.5	18.0					
Max Q Clear Time (g_c+1), s	11.8	12.5	4.4	8.5	5.5	21.8	11.0	12.6					
Green Ext Time (p_c), s	0.1	3.3	0.0	0.9	0.0	3.0	0.0	0.6					

Intersection Summary

HCM 6th Ctrl Delay	27.7
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

Intersection												
Int Delay, s/veh	0.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗		↕↔			↕↕↕	
Traffic Vol, veh/h	0	0	69	0	0	53	0	605	48	0	789	58
Future Vol, veh/h	0	0	69	0	0	53	0	605	48	0	789	58
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	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	74	74	74	74	74	74	74	74	74	74	74	74
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	93	0	0	72	0	818	65	0	1066	78

Major/Minor	Minor2		Minor1		Major1		Major2	
Conflicting Flow All	-	-	572	-	-	442	-	0
Stage 1	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.1	-	-	6.9	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.9	-	-	3.3	-	-
Pot Cap-1 Maneuver	0	0	*746	0	0	569	0	-
Stage 1	0	0	-	0	0	-	0	-
Stage 2	0	0	-	0	0	-	0	-
Platoon blocked, %			1					
Mov Cap-1 Maneuver	-	-	*746	-	-	569	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-

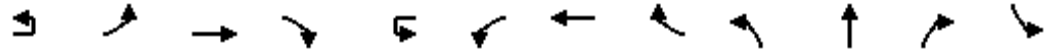
Approach	EB	WB	NB	SB
HCM Control Delay, s	10.5	12.2	0	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1WBLn1	SBT	SBR
Capacity (veh/h)	-	-	746	569	-
HCM Lane V/C Ratio	-	-	0.125	0.126	-
HCM Control Delay (s)	-	-	10.5	12.2	-
HCM Lane LOS	-	-	B	B	-
HCM 95th %tile Q(veh)	-	-	0.4	0.4	-

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

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project
 10: M Street & Olive Avenue

Cumul (2023) No Proj AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		↔	↑↑↑	↗		↔	↑↑↑		↖	↑↑		↘
Traffic Volume (veh/h)	11	118	609	170	30	159	596	86	142	438	109	204
Future Volume (veh/h)	11	118	609	170	30	159	596	86	142	438	109	204
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	1.00
Parking Bus, Adj		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		
Adj Sat Flow, veh/h/ln		1900	1900	1900		1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h		139	716	200		187	701	101	167	515	128	240
Peak Hour Factor		0.85	0.85	0.85		0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %		0	0	0		0	0	0	0	0	0	0
Cap, veh/h		176	1232	382		317	1446	206	218	601	149	276
Arrive On Green		0.03	0.08	0.08		0.18	0.32	0.32	0.12	0.21	0.21	0.20
Sat Flow, veh/h		1810	5187	1610		1810	4586	654	1810	2868	709	1810
Grp Volume(v), veh/h		139	716	200		187	527	275	167	323	320	240
Grp Sat Flow(s),veh/h/ln		1810	1729	1610		1810	1729	1782	1810	1805	1772	1810
Q Serve(g_s), s		6.1	10.7	9.5		7.6	9.8	10.0	7.2	13.8	13.9	10.3
Cycle Q Clear(g_c), s		6.1	10.7	9.5		7.6	9.8	10.0	7.2	13.8	13.9	10.3
Prop In Lane		1.00		1.00		1.00		0.37	1.00		0.40	1.00
Lane Grp Cap(c), veh/h		176	1232	382		317	1091	562	218	378	371	276
V/C Ratio(X)		0.79	0.58	0.52		0.59	0.48	0.49	0.77	0.85	0.86	0.87
Avail Cap(c_a), veh/h		222	1232	382		317	1091	562	218	406	399	283
HCM Platoon Ratio		0.33	0.33	0.33		1.00	1.00	1.00	1.00	1.00	1.00	1.33
Upstream Filter(I)		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		37.9	33.0	32.5		30.3	22.1	22.2	34.1	30.4	30.5	31.1
Incr Delay (d2), s/veh		13.9	2.0	5.0		2.9	1.5	3.0	15.0	15.4	16.4	23.4
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
%ile BackOfQ(50%),veh/ln		3.5	5.1	4.5		3.5	4.1	4.5	4.0	7.4	7.4	5.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		51.8	35.0	37.6		33.2	23.7	25.2	49.1	45.8	46.9	54.5
LnGrp LOS		D	D	D		C	C	C	D	D	D	D
Approach Vol, veh/h			1055				989			810		
Approach Delay, s/veh			37.7				25.9			46.9		
Approach LOS			D				C			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.5	23.5	14.1	23.9	12.3	29.7	16.7	21.3				
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	12.5	19.0	9.5	21.0	9.8	21.7	12.5	18.0				
Max Q Clear Time (g_c+I1), s	9.6	12.7	9.2	18.0	8.1	12.0	12.3	15.9				
Green Ext Time (p_c), s	0.1	2.9	0.0	1.4	0.1	3.7	0.0	0.8				

Intersection Summary

HCM 6th Ctrl Delay	38.4
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project
 10: M Street & Olive Avenue

Cumul (2023) No Proj AM Peak Hour



Movement	SBT	SBR
Lane Configurations	↑↑	
Traffic Volume (veh/h)	590	64
Future Volume (veh/h)	590	64
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1900	1900
Adj Flow Rate, veh/h	694	75
Peak Hour Factor	0.85	0.85
Percent Heavy Veh, %	0	0
Cap, veh/h	795	86
Arrive On Green	0.32	0.32
Sat Flow, veh/h	3286	355
Grp Volume(v), veh/h	381	388
Grp Sat Flow(s),veh/h/ln	1805	1836
Q Serve(g_s), s	15.9	16.0
Cycle Q Clear(g_c), s	15.9	16.0
Prop In Lane		0.19
Lane Grp Cap(c), veh/h	437	444
V/C Ratio(X)	0.87	0.87
Avail Cap(c_a), veh/h	474	482
HCM Platoon Ratio	1.33	1.33
Upstream Filter(l)	1.00	1.00
Uniform Delay (d), s/veh	26.0	26.0
Incr Delay (d2), s/veh	15.4	15.3
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.8	8.0
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	41.4	41.3
LnGrp LOS	D	D
Approach Vol, veh/h	1009	
Approach Delay, s/veh	44.5	
Approach LOS	D	
Timer - Assigned Phs		

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	7	70	71	678	868	43
Future Vol, veh/h	7	70	71	678	868	43
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	75	70	-	-	285
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	8	84	86	817	1046	52

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1627	523	1098	0	-	0
Stage 1	1046	-	-	-	-	-
Stage 2	581	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	178	*724	969	-	-	-
Stage 1	638	-	-	-	-	-
Stage 2	528	-	-	-	-	-
Platoon blocked, %	1	1	1	-	-	-
Mov Cap-1 Maneuver	162	*724	969	-	-	-
Mov Cap-2 Maneuver	162	-	-	-	-	-
Stage 1	581	-	-	-	-	-
Stage 2	528	-	-	-	-	-

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

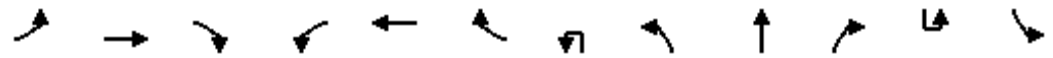
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	969	-	162	724	-	-
HCM Lane V/C Ratio	0.088	-	0.052	0.116	-	-
HCM Control Delay (s)	9.1	-	28.4	10.6	-	-
HCM Lane LOS	A	-	D	B	-	-
HCM 95th %tile Q(veh)	0.3	-	0.2	0.4	-	-

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

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project

1: R Street & Loughborough Drive

Cumul (2023) No Proj PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	107	128	37	109	177	92	29	97	572	142	4	51
Future Volume (veh/h)	107	128	37	109	177	92	29	97	572	142	4	51
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0		0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00		1.00
Parking Bus, Adj	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				
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900		1900	1900	1900		1900
Adj Flow Rate, veh/h	116	139	40	118	192	100		105	622	0		55
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		0.92	0.92	0.92		0.92
Percent Heavy Veh, %	0	0	0	0	0	0		0	0	0		0
Cap, veh/h	148	176	51	159	247	209		572	1143			492
Arrive On Green	0.08	0.12	0.12	0.09	0.13	0.13		0.32	0.32	0.00		0.27
Sat Flow, veh/h	1810	1418	408	1810	1900	1610		1810	3610	1610		1810
Grp Volume(v), veh/h	116	0	179	118	192	100		105	622	0		55
Grp Sat Flow(s),veh/h/ln	1810	0	1827	1810	1900	1610		1810	1805	1610		1810
Q Serve(g_s), s	5.7	0.0	8.6	5.7	8.8	3.0		3.8	12.8	0.0		2.1
Cycle Q Clear(g_c), s	5.7	0.0	8.6	5.7	8.8	3.0		3.8	12.8	0.0		2.1
Prop In Lane	1.00		0.22	1.00		1.00		1.00		1.00		1.00
Lane Grp Cap(c), veh/h	148	0	226	159	247	209		572	1143			492
V/C Ratio(X)	0.78	0.00	0.79	0.74	0.78	0.48		0.18	0.54			0.11
Avail Cap(c_a), veh/h	271	0	396	271	412	349		572	1143			492
HCM Platoon Ratio	1.00	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	0.00		1.00
Uniform Delay (d), s/veh	40.5	0.0	38.3	40.1	37.9	11.9		22.3	25.4	0.0		24.6
Incr Delay (d2), s/veh	8.8	0.0	6.1	6.7	5.3	1.7		0.2	1.9	0.0		0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0
%ile BackOfQ(50%),veh/ln	2.8	0.0	4.2	2.8	4.4	2.0		1.6	5.6	0.0		0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.3	0.0	44.4	46.8	43.2	13.6		22.5	27.2	0.0		24.7
LnGrp LOS	D	A	D	D	D	B		C	C			C
Approach Vol, veh/h		295			410				727	A		
Approach Delay, s/veh		46.3			37.0				26.6			
Approach LOS		D			D				C			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	29.0	33.0	12.4	15.6	33.0	29.0	11.9	16.2				
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	10.5	28.5	13.5	19.5	14.5	24.5	13.5	19.5				
Max Q Clear Time (g_c+I1), s	4.1	14.8	7.7	10.6	5.8	13.3	7.7	10.8				
Green Ext Time (p_c), s	0.0	3.6	0.1	0.6	0.1	2.4	0.1	0.9				

Intersection Summary

HCM 6th Ctrl Delay	33.0
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

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

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project

1: R Street & Loughborough Drive

Cumul (2023) No Proj PM Peak Hour



Movement	SBT	SBR
Lane Configurations	↑↑	
Traffic Volume (veh/h)	389	91
Future Volume (veh/h)	389	91
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1900	1900
Adj Flow Rate, veh/h	423	99
Peak Hour Factor	0.92	0.92
Percent Heavy Veh, %	0	0
Cap, veh/h	792	184
Arrive On Green	0.27	0.27
Sat Flow, veh/h	2909	675
Grp Volume(v), veh/h	261	261
Grp Sat Flow(s),veh/h/ln	1805	1779
Q Serve(g_s), s	11.1	11.3
Cycle Q Clear(g_c), s	11.1	11.3
Prop In Lane		0.38
Lane Grp Cap(c), veh/h	491	484
V/C Ratio(X)	0.53	0.54
Avail Cap(c_a), veh/h	491	484
HCM Platoon Ratio	1.00	1.00
Upstream Filter(l)	1.00	1.00
Uniform Delay (d), s/veh	27.9	27.9
Incr Delay (d2), s/veh	4.1	4.3
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	5.2
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	31.9	32.2
LnGrp LOS	C	C
Approach Vol, veh/h	577	
Approach Delay, s/veh	31.4	
Approach LOS	C	
Timer - Assigned Phs		

HCM 6th TWSC
 2: R Street & 99 Cents Stores Driveway/Mall Driveway 1

Merced Mall Expansion and Redevelopment Project
 Cumul (2023) No Proj PM Peak Hour

Intersection														
Int Delay, s/veh	2.2													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations			↗			↗		↘	↕			↘	↕	
Traffic Vol, veh/h	0	0	131	0	0	91	12	87	748	120	44	48	487	30
Future Vol, veh/h	0	0	131	0	0	91	12	87	748	120	44	48	487	30
Conflicting Peds, #/hr	0	0	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	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	-	None	-	-	-	None
Storage Length	-	-	0	-	-	0	-	35	-	-	-	130	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	142	0	0	99	13	95	813	130	48	52	529	33

Major/Minor	Minor2		Minor1		Major1			Major2						
Conflicting Flow All	-	-	281	-	-	472	562	562	0	0	943	943	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	6.4	4.1	-	-	6.4	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.5	2.2	-	-	2.5	2.2	-	-
Pot Cap-1 Maneuver	0	0	*904	0	0	*799	1091	1288	-	-	796	1018	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-	-	-
Platoon blocked, %			1			1	1	1	-	-	1	1	-	-
Mov Cap-1 Maneuver	-	-	*904	-	-	*799	1231	1231	-	-	840	840	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	9.7		10.1		0.8		1.5	
HCM LOS	A		B					

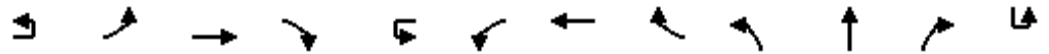
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1231	-	-	904	799	840	-	-
HCM Lane V/C Ratio	0.087	-	-	0.158	0.124	0.119	-	-
HCM Control Delay (s)	8.2	-	-	9.7	10.1	9.9	-	-
HCM Lane LOS	A	-	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0.3	-	-	0.6	0.4	0.4	-	-

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

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project

3: R Street & Olive Avenue

Cumul (2023) No Proj PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU
Lane Configurations		↔	↑↑↑	↗		↔	↑↑↑	↗	↖	↑↑		
Traffic Volume (veh/h)	22	207	816	199	14	242	887	157	311	599	108	6
Future Volume (veh/h)	22	207	816	199	14	242	887	157	311	599	108	6
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		1900	1900	1900		1900	1900	1900	1900	1900	1900	
Adj Flow Rate, veh/h		216	850	207		252	924	164	324	624	112	
Peak Hour Factor		0.96	0.96	0.96		0.96	0.96	0.96	0.96	0.96	0.96	
Percent Heavy Veh, %		0	0	0		0	0	0	0	0	0	
Cap, veh/h		375	1521	472		293	1285	399	360	750	134	
Arrive On Green		0.21	0.29	0.29		0.05	0.08	0.08	0.20	0.25	0.25	
Sat Flow, veh/h		1810	5187	1610		1810	5187	1610	1810	3058	548	
Grp Volume(v), veh/h		216	850	207		252	924	164	324	368	368	
Grp Sat Flow(s),veh/h/ln		1810	1729	1610		1810	1729	1610	1810	1805	1801	
Q Serve(g_s), s		9.7	12.5	5.4		12.4	15.6	6.4	15.7	17.4	17.5	
Cycle Q Clear(g_c), s		9.7	12.5	5.4		12.4	15.6	6.4	15.7	17.4	17.5	
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.30	
Lane Grp Cap(c), veh/h		375	1521	472		293	1285	399	360	443	442	
V/C Ratio(X)		0.58	0.56	0.44		0.86	0.72	0.41	0.90	0.83	0.83	
Avail Cap(c_a), veh/h		375	1521	472		332	1285	399	372	531	530	
HCM Platoon Ratio		1.00	1.00	1.00		0.33	0.33	0.33	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	
Uniform Delay (d), s/veh		32.1	26.9	8.6		41.6	38.3	18.9	35.2	32.2	32.2	
Incr Delay (d2), s/veh		2.2	1.5	2.9		18.3	3.5	3.1	23.6	9.2	9.4	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		4.4	5.2	3.7		7.5	7.6	2.8	9.1	8.5	8.6	
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		34.3	28.4	11.5		59.9	41.7	22.0	58.8	41.4	41.6	
LnGrp LOS		C	C	B		E	D	C	E	D	D	
Approach Vol, veh/h			1273				1340			1060		
Approach Delay, s/veh			26.6				42.7			46.8		
Approach LOS			C				D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.1	30.9	22.4	17.6	23.2	26.8	13.5	26.6				
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	16.5	18.5	18.5	18.5	12.7	22.3	10.5	26.5				
Max Q Clear Time (g_c+I1), s	14.4	14.5	17.7	11.5	11.7	17.6	9.2	19.5				
Green Ext Time (p_c), s	0.2	2.3	0.1	1.7	0.1	2.7	0.0	2.6				
Intersection Summary												
HCM 6th Ctrl Delay			39.6									
HCM 6th LOS			D									
Notes												
User approved ignoring U-Turning movement.												

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project

3: R Street & Olive Avenue

Cumul (2023) No Proj PM Peak Hour



Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (veh/h)	139	370	121
Future Volume (veh/h)	139	370	121
Initial Q (Qb), veh	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00
Work Zone On Approach		No	
Adj Sat Flow, veh/h/ln	1900	1900	1900
Adj Flow Rate, veh/h	145	385	126
Peak Hour Factor	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0
Cap, veh/h	180	527	235
Arrive On Green	0.03	0.05	0.05
Sat Flow, veh/h	1810	3610	1610
Grp Volume(v), veh/h	145	385	126
Grp Sat Flow(s),veh/h/ln	1810	1805	1610
Q Serve(g_s), s	7.2	9.5	6.9
Cycle Q Clear(g_c), s	7.2	9.5	6.9
Prop In Lane	1.00		1.00
Lane Grp Cap(c), veh/h	180	527	235
V/C Ratio(X)	0.80	0.73	0.54
Avail Cap(c_a), veh/h	211	742	331
HCM Platoon Ratio	0.33	0.33	0.33
Upstream Filter(l)	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.7	41.1	39.8
Incr Delay (d2), s/veh	17.5	2.2	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	4.7	3.0
Unsig. Movement Delay, s/veh			
LnGrp Delay(d),s/veh	60.1	43.3	41.7
LnGrp LOS	E	D	D
Approach Vol, veh/h		656	
Approach Delay, s/veh		46.7	
Approach LOS		D	
Timer - Assigned Phs			

Intersection												
Int Delay, s/veh	3.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗	↗	↗↗	↗	↗	↗↗	↗
Traffic Vol, veh/h	0	0	335	0	0	190	261	841	122	45	704	39
Future Vol, veh/h	0	0	335	0	0	190	261	841	122	45	704	39
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	95	-	70	40	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	349	0	0	198	272	876	127	47	733	41

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	-	-	367	-	-	438	774	0	0	1003	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	0	0	*799	0	0	572	*1200	-	-	698	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %			1			1	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	*799	-	-	572	*1200	-	-	698	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	13		14.6		1.9		0.6	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	* 1200	-	-	799	572	698	-	-
HCM Lane V/C Ratio	0.227	-	-	0.437	0.346	0.067	-	-
HCM Control Delay (s)	8.9	-	-	13	14.6	10.5	-	-
HCM Lane LOS	A	-	-	B	B	B	-	-
HCM 95th %tile Q(veh)	0.9	-	-	2.2	1.5	0.2	-	-

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

Level of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 Intersection 5

Average Delay (sec/veh): 7.3 Worst Case Level Of Service: F[104.8]

Street Name:Mall Driveway 2 - Pepperwood Lane Olive Avenue

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Stop Sign Stop Sign Uncontrolled Uncontrolled

Rights: Include Include Include Include

Lanes: 0 0 1! 0 0 0 0 1! 0 0 1 0 3 0 1 1 0 3 1 0

Volume Module: >> Count Date: 5 Jun 2018 <<

Base Vol: 23 3 102 8 1 78 67 1013 39 59 1188 22

Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Bse: 23 3 102 8 1 78 67 1013 39 59 1188 22

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.94 0.94 0.94 0.94 0.94 0.94 0.94 0.94 0.94 0.94 0.94 0.94

PHF Volume: 25 3 109 9 1 83 72 1082 42 63 1269 24

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

FinalVolume: 25 3 109 9 1 83 72 1082 42 63 1269 24

Critical Gap Module:

Critical Gp: 7.5 6.5 6.9 7.5 6.5 6.9 4.1 xxxx xxxxx 4.1 xxxx xxxxx

FollowUpTim: 3.5 4.0 3.3 3.5 4.0 3.3 2.2 xxxx xxxxx 2.2 xxxx xxxxx

Capacity Module:

Cnflct Vol: 1669 2644 361 1913 2674 329 1293 xxxx xxxxx 1124 xxxx xxxxx

Potent Cap.: 64 24 642 42 23 673 543 xxxx xxxxx 629 xxxx xxxxx

Move Cap.: 45 18 642 25 18 673 543 xxxx xxxxx 629 xxxx xxxxx

Volume/Cap: 0.55 0.17 0.17 0.34 0.06 0.12 0.13 xxxx xxxx 0.10 xxxx xxxx

Level of Service Module:

2Way95thQ: xxxx xxxx xxxxx xxxx xxxx xxxxx 0.5 xxxx xxxxx 0.3 xxxx xxxxx

Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx 12.6 xxxx xxxxx 11.4 xxxx xxxxx

LOS by Move: * * * * * B * * B * *

Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT

Shared Cap.: xxxx 153 xxxxx xxxx 178 xxxxx xxxx xxxx xxxxx xxxx xxxx xxxxx

SharedQueue:xxxxx 6.2 xxxxx xxxxx 2.6 xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx

Shrd ConDel:xxxxxx 105 xxxxx xxxxx 45.4 xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx

Shared LOS: * F * * E * * * * * * * * *

ApproachDel: 104.8 45.4 xxxxxxx xxxxxxx

ApproachLOS: F E * *

Note: Queue reported is the number of cars per lane.

 Level Of Service Detailed Computation Report
 2000 HCM Unsignalized Method
 Base Volume Alternative

 Intersection #1 Intersection 5

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed:	4.00 feet/sec											
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period:	0.25 hour											

Intersection													
Int Delay, s/veh	2.6												
Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↑	↗	↖	↑	↗		↕			↕	
Traffic Vol, veh/h	1	11	350	22	41	339	11	35	1	77	9	1	2
Future Vol, veh/h	1	11	350	22	41	339	11	35	1	77	9	1	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	50	-	50	50	-	50	-	-	-	-	-	-
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	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	1	12	380	24	45	368	12	38	1	84	10	1	2

Major/Minor	Major1			Major2			Minor1			Minor2			
Conflicting Flow All	-	380	0	0	404	0	0	870	876	380	917	888	368
Stage 1	-	-	-	-	-	-	-	404	406	-	458	458	-
Stage 2	-	-	-	-	-	-	-	466	470	-	459	430	-
Critical Hdwy	-	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	-	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	-	1214	-	-	1166	-	-	283	286	671	257	280	812
Stage 1	-	-	-	-	-	-	-	627	601	-	665	601	-
Stage 2	-	-	-	-	-	-	-	657	592	-	586	587	-
Platoon blocked, %		1	-	-	-	-	-	1	1		1	1	1
Mov Cap-1 Maneuver	~ -12	~ -12	-	-	1166	-	-	273	275	671	218	269	812
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	273	275	-	218	269	-
Stage 1	-	-	-	-	-	-	-	627	601	-	665	578	-
Stage 2	-	-	-	-	-	-	-	628	569	-	512	587	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s				0.9			15.7			20		
HCM LOS							C			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	458	+	-	-	1166	-	-	253
HCM Lane V/C Ratio	0.268	-	-	-	0.038	-	-	0.052
HCM Control Delay (s)	15.7	-	-	-	8.2	-	-	20
HCM Lane LOS	C	-	-	-	A	-	-	C
HCM 95th %tile Q(veh)	1.1	-	-	-	0.1	-	-	0.2

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

Level of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Intersection 7

Average Delay (sec/veh): 1.5 Worst Case Level Of Service: B[13.2]

Street Name: Mall Driveway 4 - Applewood Lane Olive Avenue

Table with columns for Approach (North Bound, South Bound, East Bound, West Bound), Movement (L, T, R), Control (Stop Sign, Uncontrolled), Rights (Include), and Lanes (0, 0, 0, 0, 1).

Volume Module: Table with columns for Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, and Final Volume across various movement categories.

Critical Gap Module: Table with columns for Critical Gp, FollowUpTim, and various movement categories.

Capacity Module: Table with columns for Cnflct Vol, Potent Cap., Move Cap., and Volume/Cap. across movement categories.

Level of Service Module: Table with columns for 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., SharedQueue, Shrd ConDel, Shared LOS, ApproachDel, and ApproachLOS.

Note: Queue reported is the number of cars per lane.

 Level Of Service Detailed Computation Report
 2000 HCM Unsignalized Method
 Base Volume Alternative

 Intersection #2 Intersection 7

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed:	4.00 feet/sec											
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period:	0.25 hour											

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project

8: M Street & Loughborough Drive/Collins Drive

Cumul (2023) No Proj PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	238	31	207	46	83	116	1	145	524	17	28	477	158
Future Volume (veh/h)	238	31	207	46	83	116	1	145	524	17	28	477	158
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00	1.00		1.00
Parking Bus, Adj	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	1900	1900	1900	1900	1900	1900		1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	259	34	225	50	90	126		158	570	18	30	518	172
Peak Hour Factor	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, %	0	0	0	0	0	0		0	0	0	0	0	0
Cap, veh/h	302	273	231	313	107	150		414	1622	51	428	1102	364
Arrive On Green	0.17	0.14	0.14	0.17	0.15	0.15		0.07	0.45	0.45	0.03	0.41	0.41
Sat Flow, veh/h	1810	1900	1610	1810	716	1003		1810	3572	113	1810	2666	881
Grp Volume(v), veh/h	259	34	225	50	0	216		158	288	300	30	350	340
Grp Sat Flow(s),veh/h/ln	1810	1900	1610	1810	0	1719		1810	1805	1880	1810	1805	1741
Q Serve(g_s), s	12.5	1.4	10.0	2.1	0.0	11.0		4.3	9.3	9.3	0.8	12.7	12.8
Cycle Q Clear(g_c), s	12.5	1.4	10.0	2.1	0.0	11.0		4.3	9.3	9.3	0.8	12.7	12.8
Prop In Lane	1.00		1.00	1.00		0.58		1.00		0.06	1.00		0.51
Lane Grp Cap(c), veh/h	302	273	231	313	0	258		414	819	853	428	746	720
V/C Ratio(X)	0.86	0.12	0.97	0.16	0.00	0.84		0.38	0.35	0.35	0.07	0.47	0.47
Avail Cap(c_a), veh/h	470	735	623	313	0	346		458	819	853	475	746	720
HCM Platoon Ratio	1.00	1.00	1.00	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	36.5	33.6	24.6	31.6	0.0	37.2		13.9	16.0	16.0	14.4	19.2	19.2
Incr Delay (d2), s/veh	9.3	0.2	21.6	0.2	0.0	12.6		0.6	1.2	1.1	0.1	2.1	2.2
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	0.2	0.7	5.1	0.9	0.0	5.4		1.7	4.0	4.1	0.3	5.6	5.4
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	45.8	33.8	46.3	31.9	0.0	49.8		14.5	17.1	17.1	14.5	21.3	21.5
LnGrp LOS	D	C	D	C	A	D		B	B	B	B	C	C
Approach Vol, veh/h		518			266				746			720	
Approach Delay, s/veh		45.2			46.4				16.6			21.1	
Approach LOS		D			D				B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	7.1	45.4	20.1	17.4	10.8	41.7	19.5	18.0					
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	5.0	25.5	6.7	34.8	8.5	22.0	23.4	18.1					
Max Q Clear Time (g_c+1), s	12.8	11.3	4.1	12.0	6.3	14.8	14.5	13.0					
Green Ext Time (p_c), s	0.0	3.1	0.0	0.9	0.1	2.5	0.5	0.5					

Intersection Summary

HCM 6th Ctrl Delay	28.1
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

Intersection												
Int Delay, s/veh	1.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗		↕↔			↕↕↕	
Traffic Vol, veh/h	0	0	135	0	0	45	0	680	37	0	813	55
Future Vol, veh/h	0	0	135	0	0	45	0	680	37	0	813	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	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	147	0	0	49	0	739	40	0	884	60

Major/Minor	Minor2		Minor1		Major1		Major2	
Conflicting Flow All	-	-	472	-	-	390	-	0
Stage 1	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.1	-	-	6.9	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.9	-	-	3.3	-	-
Pot Cap-1 Maneuver	0	0	*736	0	0	614	0	-
Stage 1	0	0	-	0	0	-	0	-
Stage 2	0	0	-	0	0	-	0	-
Platoon blocked, %			1					
Mov Cap-1 Maneuver	-	-	*736	-	-	614	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	11.1		11.4		0		0	
HCM LOS	B		B					

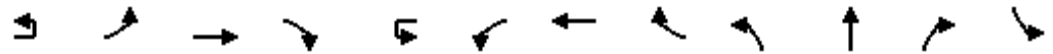
Minor Lane/Major Mvmt	NBT	NBR	EBLn1WBLn1	SBT	SBR
Capacity (veh/h)	-	-	736	614	-
HCM Lane V/C Ratio	-	-	0.199	0.08	-
HCM Control Delay (s)	-	-	11.1	11.4	-
HCM Lane LOS	-	-	B	B	-
HCM 95th %tile Q(veh)	-	-	0.7	0.3	-

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

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project

10: M Street & Olive Avenue

Cumul (2023) No Proj PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		↵	↶↶↶	↷		↵	↶↶↶		↷	↶↶		↷
Traffic Volume (veh/h)	33	106	805	148	31	145	862	62	322	517	125	314
Future Volume (veh/h)	33	106	805	148	31	145	862	62	322	517	125	314
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	1.00
Parking Bus, Adj		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		
Adj Sat Flow, veh/h/ln		1900	1900	1900		1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h		112	847	156		153	907	65	339	544	132	331
Peak Hour Factor		0.95	0.95	0.95		0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %		0	0	0		0	0	0	0	0	0	0
Cap, veh/h		143	1181	367		267	1462	105	380	630	152	373
Arrive On Green		0.03	0.08	0.08		0.15	0.30	0.30	0.21	0.22	0.22	0.07
Sat Flow, veh/h		1810	5187	1610		1810	4941	353	1810	2883	697	1810
Grp Volume(v), veh/h		112	847	156		153	634	338	339	340	336	331
Grp Sat Flow(s),veh/h/ln		1810	1729	1610		1810	1729	1836	1810	1805	1775	1810
Q Serve(g_s), s		5.5	14.4	5.0		7.1	14.2	14.3	16.4	16.3	16.4	16.3
Cycle Q Clear(g_c), s		5.5	14.4	5.0		7.1	14.2	14.3	16.4	16.3	16.4	16.3
Prop In Lane		1.00		1.00		1.00		0.19	1.00		0.39	1.00
Lane Grp Cap(c), veh/h		143	1181	367		267	1023	543	380	395	388	373
V/C Ratio(X)		0.78	0.72	0.43		0.57	0.62	0.62	0.89	0.86	0.87	0.89
Avail Cap(c_a), veh/h		191	1181	367		267	1023	543	472	431	424	412
HCM Platoon Ratio		0.33	0.33	0.33		1.00	1.00	1.00	1.00	1.00	1.00	0.33
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		43.1	38.8	12.9		35.7	27.3	27.3	34.6	33.8	33.9	40.9
Incr Delay (d2), s/veh		13.9	3.7	3.6		3.0	2.8	5.3	16.4	15.2	16.0	19.0
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
%ile BackOfQ(50%),veh/ln		3.1	7.0	3.6		3.3	6.1	6.9	8.8	8.6	8.6	9.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		57.0	42.5	16.5		38.7	30.1	32.6	51.0	49.0	49.9	59.9
LnGrp LOS		E	D	B		D	C	C	D	D	D	E
Approach Vol, veh/h			1115				1125			1015		
Approach Delay, s/veh			40.3				32.0			50.0		
Approach LOS			D				C			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.8	25.0	23.4	23.9	11.6	31.1	23.1	24.2				
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	9.5	20.5	23.5	18.5	9.5	20.5	20.5	21.5				
Max Q Clear Time (g_c+I1), s	9.1	16.4	18.4	18.5	7.5	16.3	18.3	18.4				
Green Ext Time (p_c), s	0.0	2.3	0.5	0.0	0.0	2.3	0.2	1.2				

Intersection Summary

HCM 6th Ctrl Delay	44.8
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project
 10: M Street & Olive Avenue

Cumul (2023) No Proj PM Peak Hour



Movement	SBT	SBR
Lane Configurations	↑↑	
Traffic Volume (veh/h)	531	103
Future Volume (veh/h)	531	103
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1900	1900
Adj Flow Rate, veh/h	559	108
Peak Hour Factor	0.95	0.95
Percent Heavy Veh, %	0	0
Cap, veh/h	649	125
Arrive On Green	0.07	0.07
Sat Flow, veh/h	3019	581
Grp Volume(v), veh/h	333	334
Grp Sat Flow(s),veh/h/ln	1805	1795
Q Serve(g_s), s	16.5	16.5
Cycle Q Clear(g_c), s	16.5	16.5
Prop In Lane		0.32
Lane Grp Cap(c), veh/h	388	386
V/C Ratio(X)	0.86	0.86
Avail Cap(c_a), veh/h	388	386
HCM Platoon Ratio	0.33	0.33
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	40.5	40.5
Incr Delay (d2), s/veh	17.3	18.0
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.8	9.8
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	57.8	58.5
LnGrp LOS	E	E
Approach Vol, veh/h	998	
Approach Delay, s/veh	58.7	
Approach LOS	E	
Timer - Assigned Phs		

Intersection						
Int Delay, s/veh	1.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	14	189	107	947	768	54
Future Vol, veh/h	14	189	107	947	768	54
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	75	70	-	-	285
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	15	205	116	1029	835	59

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1582	418	894	0	-	0
Stage 1	835	-	-	-	-	-
Stage 2	747	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	*176	*765	1149	-	-	-
Stage 1	*721	-	-	-	-	-
Stage 2	*434	-	-	-	-	-
Platoon blocked, %	1	1	1	-	-	-
Mov Cap-1 Maneuver	*158	*765	1149	-	-	-
Mov Cap-2 Maneuver	*158	-	-	-	-	-
Stage 1	*648	-	-	-	-	-
Stage 2	*434	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.7	0.9	0
HCM LOS	B		






















Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1149	-	158	765	-	-
HCM Lane V/C Ratio	0.101	-	0.096	0.269	-	-
HCM Control Delay (s)	8.5	-	30.2	11.4	-	-
HCM Lane LOS	A	-	D	B	-	-
HCM 95th %tile Q(veh)	0.3	-	0.3	1.1	-	-

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

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project

1: R Street & Loughborough Drive

Cumul (2023) With Proj Ph I+II (Alt I) AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	90	178	47	82	105	55	10	35	291	128	6	69
Future Volume (veh/h)	90	178	47	82	105	55	10	35	291	128	6	69
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0		0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00		1.00
Parking Bus, Adj	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				
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900		1900	1900	1900		1900
Adj Flow Rate, veh/h	105	207	55	95	122	64		41	338	0		80
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86		0.86	0.86	0.86		0.86
Percent Heavy Veh, %	0	0	0	0	0	0		0	0	0		0
Cap, veh/h	135	251	67	123	317	268		393	1011			459
Arrive On Green	0.07	0.17	0.17	0.07	0.17	0.17		0.15	0.19	0.00		0.25
Sat Flow, veh/h	1810	1446	384	1810	1900	1610		1810	3610	1610		1810
Grp Volume(v), veh/h	105	0	262	95	122	64		41	338	0		80
Grp Sat Flow(s),veh/h/ln	1810	0	1831	1810	1900	1610		1810	1805	1610		1810
Q Serve(g_s), s	4.6	0.0	11.0	4.1	4.6	1.5		1.6	6.5	0.0		2.8
Cycle Q Clear(g_c), s	4.6	0.0	11.0	4.1	4.6	1.5		1.6	6.5	0.0		2.8
Prop In Lane	1.00		0.21	1.00		1.00		1.00		1.00		1.00
Lane Grp Cap(c), veh/h	135	0	318	123	317	268		393	1011			459
V/C Ratio(X)	0.77	0.00	0.82	0.77	0.39	0.24		0.10	0.33			0.17
Avail Cap(c_a), veh/h	238	0	469	219	468	397		393	1011			459
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		0.67	0.67	0.67		1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00		1.00	1.00	0.00		1.00
Uniform Delay (d), s/veh	36.3	0.0	31.9	36.7	29.7	9.1		27.4	26.0	0.0		23.3
Incr Delay (d2), s/veh	9.1	0.0	7.5	9.8	0.8	0.5		0.1	0.9	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
%ile BackOfQ(50%),veh/ln	2.3	0.0	5.4	2.1	2.1	1.1		0.7	2.9	0.0		1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.4	0.0	39.4	46.4	30.4	9.6		27.5	26.9	0.0		23.5
LnGrp LOS	D	A	D	D	C	A		C	C			C
Approach Vol, veh/h		367			281				379	A		
Approach Delay, s/veh		41.1			31.1				27.0			
Approach LOS		D			C				C			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	24.8	26.9	9.9	18.4	21.9	29.8	10.5	17.8				
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	9.4	22.4	9.7	20.5	6.5	25.3	10.5	19.7				
Max Q Clear Time (g_c+I1), s	4.8	8.5	6.1	13.0	3.6	15.3	6.6	6.6				
Green Ext Time (p_c), s	0.1	1.8	0.1	0.8	0.0	3.2	0.1	0.6				

Intersection Summary

HCM 6th Ctrl Delay	30.8
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

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

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project
 1: R Street & Loughborough Drive

Cumul (2023) With Proj Ph I+II (Alt I) AM Peak Hour



Movement	SBT	SBR
Lane Configurations	↑↑	
Traffic Volume (veh/h)	512	95
Future Volume (veh/h)	512	95
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1900	1900
Adj Flow Rate, veh/h	595	110
Peak Hour Factor	0.86	0.86
Percent Heavy Veh, %	0	0
Cap, veh/h	962	177
Arrive On Green	0.32	0.32
Sat Flow, veh/h	3043	561
Grp Volume(v), veh/h	352	353
Grp Sat Flow(s),veh/h/ln	1805	1799
Q Serve(g_s), s	13.3	13.3
Cycle Q Clear(g_c), s	13.3	13.3
Prop In Lane		0.31
Lane Grp Cap(c), veh/h	571	569
V/C Ratio(X)	0.62	0.62
Avail Cap(c_a), veh/h	571	569
HCM Platoon Ratio	1.00	1.00
Upstream Filter(l)	1.00	1.00
Uniform Delay (d), s/veh	23.2	23.3
Incr Delay (d2), s/veh	4.9	5.0
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.2	6.2
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	28.2	28.3
LnGrp LOS	C	C
Approach Vol, veh/h	785	
Approach Delay, s/veh	27.7	
Approach LOS	C	
Timer - Assigned Phs		

Intersection														
Int Delay, s/veh	0.9													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations			↗			↗		↘	↗			↘	↗	
Traffic Vol, veh/h	0	0	30	0	0	21	5	33	444	34	16	25	582	23
Future Vol, veh/h	0	0	30	0	0	21	5	33	444	34	16	25	582	23
Conflicting Peds, #/hr	0	0	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	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	-	None	-	-	-	None
Storage Length	-	-	0	-	-	0	-	35	-	-	-	130	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	34	0	0	24	6	37	499	38	18	28	654	26

Major/Minor	Minor2		Minor1		Major1			Major2						
Conflicting Flow All	-	-	340	-	-	269	680	680	0	0	537	537	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	6.4	4.1	-	-	6.4	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.5	2.2	-	-	2.5	2.2	-	-
Pot Cap-1 Maneuver	0	0	*881	0	0	*920	963	1185	-	-	1076	1287	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-	-	-
Platoon blocked, %			1			1	1	1	-	-	1	1	-	-
Mov Cap-1 Maneuver	-	-	*881	-	-	*920	1144	1144	-	-	1183	1183	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-

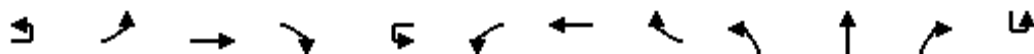
Approach	EB		WB		NB		SB	
HCM Control Delay, s	9.2		9		0.6		0.5	
HCM LOS	A		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1144	-	-	881	920	1183	-	-
HCM Lane V/C Ratio	0.037	-	-	0.038	0.026	0.039	-	-
HCM Control Delay (s)	8.3	-	-	9.2	9	8.2	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.1	0.1	-	-

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

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project 3: R Street & Olive Avenue

Cumul (2023) With Proj Ph I+II (Alt I) AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU
Lane Configurations		↔	↑↑↑	↗		↔	↑↑↑	↗	↖	↑↑		
Traffic Volume (veh/h)	7	102	688	146	5	178	489	73	127	341	145	2
Future Volume (veh/h)	7	102	688	146	5	178	489	73	127	341	145	2
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		1900	1900	1900		1900	1900	1900	1900	1900	1900	
Adj Flow Rate, veh/h		117	791	168		205	562	84	146	392	167	
Peak Hour Factor		0.87	0.87	0.87		0.87	0.87	0.87	0.87	0.87	0.87	
Percent Heavy Veh, %		0	0	0		0	0	0	0	0	0	
Cap, veh/h		402	1837	570		250	1400	435	202	487	205	
Arrive On Green		0.22	0.35	0.35		0.05	0.09	0.09	0.11	0.20	0.20	
Sat Flow, veh/h		1810	5187	1610		1810	5187	1610	1810	2476	1041	
Grp Volume(v), veh/h		117	791	168		205	562	84	146	284	275	
Grp Sat Flow(s),veh/h/ln		1810	1729	1610		1810	1729	1610	1810	1805	1713	
Q Serve(g_s), s		4.3	9.3	3.9		9.0	8.2	2.8	6.2	12.0	12.3	
Cycle Q Clear(g_c), s		4.3	9.3	3.9		9.0	8.2	2.8	6.2	12.0	12.3	
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.61	
Lane Grp Cap(c), veh/h		402	1837	570		250	1400	435	202	355	337	
V/C Ratio(X)		0.29	0.43	0.29		0.82	0.40	0.19	0.72	0.80	0.82	
Avail Cap(c_a), veh/h		402	1837	570		328	1400	435	238	429	407	
HCM Platoon Ratio		1.00	1.00	1.00		0.33	0.33	0.33	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	
Uniform Delay (d), s/veh		25.9	19.7	7.9		37.2	30.3	15.0	34.3	30.6	30.7	
Incr Delay (d2), s/veh		0.4	0.7	1.3		11.8	0.9	1.0	8.6	8.8	10.3	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		1.8	3.7	2.3		5.0	3.7	1.6	3.2	5.9	5.9	
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		26.3	20.4	9.3		49.0	31.2	16.0	42.9	39.4	41.0	
LnGrp LOS		C	C	A		D	C	B	D	D	D	
Approach Vol, veh/h			1076				851			705		
Approach Delay, s/veh			19.3				34.0			40.8		
Approach LOS			B				C			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.6	32.8	13.4	18.2	22.3	26.1	11.4	20.2				
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	14.5	19.0	10.5	18.0	11.9	21.6	9.5	19.0				
Max Q Clear Time (g_c+I1), s	11.0	11.3	8.2	11.9	6.3	10.2	7.3	14.3				
Green Ext Time (p_c), s	0.2	3.6	0.1	1.7	0.1	3.2	0.1	1.5				

Intersection Summary

HCM 6th Ctrl Delay	30.8
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project

3: R Street & Olive Avenue

Cumul (2023) With Proj Ph I+II (Alt I) AM Peak Hour



Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (veh/h)	107	416	64
Future Volume (veh/h)	107	416	64
Initial Q (Qb), veh	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00
Work Zone On Approach		No	
Adj Sat Flow, veh/h/ln	1900	1900	1900
Adj Flow Rate, veh/h	123	478	74
Peak Hour Factor	0.87	0.87	0.87
Percent Heavy Veh, %	0	0	0
Cap, veh/h	155	617	275
Arrive On Green	0.11	0.23	0.23
Sat Flow, veh/h	1810	3610	1610
Grp Volume(v), veh/h	123	478	74
Grp Sat Flow(s),veh/h/ln	1810	1805	1610
Q Serve(g_s), s	5.3	9.9	3.0
Cycle Q Clear(g_c), s	5.3	9.9	3.0
Prop In Lane	1.00		1.00
Lane Grp Cap(c), veh/h	155	617	275
V/C Ratio(X)	0.79	0.77	0.27
Avail Cap(c_a), veh/h	215	812	362
HCM Platoon Ratio	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.7	29.5	26.8
Incr Delay (d2), s/veh	12.7	3.4	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	4.2	1.2
Unsig. Movement Delay, s/veh			
LnGrp Delay(d),s/veh	47.5	32.9	27.3
LnGrp LOS	D	C	C
Approach Vol, veh/h		675	
Approach Delay, s/veh		34.9	
Approach LOS		C	
Timer - Assigned Phs			

HCM 6th TWSC
4: R Street & Olivewood Drive

Merced Mall Expansion and Redevelopment Project
Cumul (2023) With Proj Ph I+II (Alt I) AM Peak Hour

Intersection													
Int Delay, s/veh	1.9												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations			↗			↗	↗	↕	↗		↘	↕	↗
Traffic Vol, veh/h	0	0	99	0	0	58	123	556	116	1	46	673	20
Future Vol, veh/h	0	0	99	0	0	58	123	556	116	1	46	673	20
Conflicting Peds, #/hr	0	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	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	-	None
Storage Length	-	-	0	-	-	0	95	-	70	-	40	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	122	0	0	72	152	686	143	1	57	831	25

Major/Minor	Minor2		Minor1		Major1		Major2						
Conflicting Flow All	-	-	416	-	-	343	856	0	0	686	829	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	4.1	-	-	6.4	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.2	-	-	2.5	2.2	-	-
Pot Cap-1 Maneuver	0	0	*842	0	0	659	1047	-	-	535	811	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-	-
Platoon blocked, %			1			1	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	*842	-	-	659	1047	-	-	800	800	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	10		11.1		1.4		0.6	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1047	-	-	842	659	800	-	-
HCM Lane V/C Ratio	0.145	-	-	0.145	0.109	0.073	-	-
HCM Control Delay (s)	9	-	-	10	11.1	9.9	-	-
HCM Lane LOS	A	-	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0.5	-	-	0.5	0.4	0.2	-	-

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

Level of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 Intersection 5

Average Delay (sec/veh): 1.3 Worst Case Level Of Service: D[30.4]

Street Name:Mall Driveway 2 - Pepperwood Lane Olive Avenue

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Stop Sign Stop Sign Uncontrolled Uncontrolled

Rights: Include Include Include Include

Lanes: 0 0 1! 0 0 0 0 1! 0 0 1 0 3 0 1 1 0 3 1 0

Volume Module: >> Count Date: 5 Jun 2018 <<

Table with 13 columns for traffic volume metrics: Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Final Volume. Rows include values for each approach and movement.

Critical Gap Module:

Table with 13 columns for critical gap metrics: Critical Gp, FollowUpTim. Rows include values for each approach and movement.

Capacity Module:

Table with 13 columns for capacity metrics: Cnflct Vol, Potent Cap., Move Cap., Volume/Cap. Rows include values for each approach and movement.

Level of Service Module:

Table with 13 columns for level of service metrics: 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., SharedQueue, Shrd ConDel, Shared LOS, ApproachDel, ApproachLOS. Rows include values for each approach and movement.

Note: Queue reported is the number of cars per lane.

 Level Of Service Detailed Computation Report
 2000 HCM Unsignalized Method
 Base Volume Alternative

 Intersection #1 Intersection 5

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed:	4.00 feet/sec											
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period:	0.25 hour											

Intersection												
Int Delay, s/veh	1.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑	↗	↘	↑	↗		↔			↔	
Traffic Vol, veh/h	1	343	35	28	228	6	15	0	41	4	0	6
Future Vol, veh/h	1	343	35	28	228	6	15	0	41	4	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	50	50	-	50	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	1	445	45	36	296	8	19	0	53	5	0	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	304	0	0	490	0	0	823	823	445	864	860	296
Stage 1	-	-	-	-	-	-	447	447	-	368	368	-
Stage 2	-	-	-	-	-	-	376	376	-	496	492	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1288	-	-	1084	-	-	302	309	617	280	292	838
Stage 1	-	-	-	-	-	-	595	577	-	715	650	-
Stage 2	-	-	-	-	-	-	707	644	-	559	551	-
Platoon blocked, %	1	-	-	-	-	-	1	1	-	1	1	1
Mov Cap-1 Maneuver	1288	-	-	1084	-	-	291	299	617	249	283	838
Mov Cap-2 Maneuver	-	-	-	-	-	-	291	299	-	249	283	-
Stage 1	-	-	-	-	-	-	594	576	-	714	629	-
Stage 2	-	-	-	-	-	-	677	623	-	510	550	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.9			13.9			13.6		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	475	1288	-	-	1084	-	-	431
HCM Lane V/C Ratio	0.153	0.001	-	-	0.034	-	-	0.03
HCM Control Delay (s)	13.9	7.8	-	-	8.4	-	-	13.6
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.5	0	-	-	0.1	-	-	0.1

Level of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Intersection 7

Average Delay (sec/veh): 0.8 Worst Case Level Of Service: B[10.7]

Street Name: Mall Driveway 4 - Applewood Lane Olive Avenue
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R
Control: Stop Sign Stop Sign Uncontrolled Uncontrolled
Rights: Include Include Include Include
Lanes: 0 0 0 0 1 0 0 0 0 1 1 0 3 0 1 1 0 3 1 0

Volume Module:
Base Vol: 0 0 30 0 0 8 65 909 19 47 733 27
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 0 30 0 0 8 65 909 19 47 733 27
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90
PHF Volume: 0 0 33 0 0 9 72 1012 21 52 816 30
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
FinalVolume: 0 0 33 0 0 9 72 1012 21 52 816 30

Critical Gap Module:
Critical Gp:xxxxx xxxx 6.9 xxxxx xxxx 6.9 4.1 xxxx xxxxxx 4.1 xxxx xxxxxx
FollowUpTim:xxxxx xxxx 3.3 xxxxx xxxx 3.3 2.2 xxxx xxxxxx 2.2 xxxx xxxxxx

Capacity Module:
Cnflct Vol: xxxx xxxx 337 xxxx xxxx 219 846 xxxx xxxxxx 1033 xxxx xxxxxx
Potent Cap.: xxxx xxxx 664 xxxx xxxx 791 799 xxxx xxxxxx 680 xxxx xxxxxx
Move Cap.: xxxx xxxx 664 xxxx xxxx 791 799 xxxx xxxxxx 680 xxxx xxxxxx
Volume/Cap: xxxx xxxx 0.05 xxxx xxxx 0.01 0.09 xxxx xxxx 0.08 xxxx xxxx

Level of Service Module:
2Way95thQ: xxxx xxxx 0.2 xxxx xxxx 0.0 0.3 xxxx xxxxxx 0.2 xxxx xxxxxx
Control Del:xxxxx xxxx 10.7 xxxxx xxxx 9.6 10.0 xxxx xxxxxx 10.7 xxxx xxxxxx
LOS by Move: * * B * * A A * * B * *
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxxx xxxx xxxx xxxxxx xxxx xxxx xxxxxx xxxx xxxx xxxxxx
SharedQueue:xxxxxx xxxxx xxxxxx xxxxxx xxxxx xxxxxx xxxxxx xxxxx xxxxxx xxxxxx xxxxxx xxxxxx
Shrd ConDel:xxxxxx xxxxx xxxxxx xxxxxx xxxxx xxxxxx xxxxxx xxxxx xxxxxx xxxxxx xxxxxx xxxxxx
Shared LOS: * * * * * * * * * * * * *
ApproachDel: 10.7 9.6 xxxxxxx xxxxxxx
ApproachLOS: B A * *

Note: Queue reported is the number of cars per lane.

 Level Of Service Detailed Computation Report
 2000 HCM Unsignalized Method
 Base Volume Alternative

 Intersection #2 Intersection 7

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed:	4.00 feet/sec											
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period:	0.25 hour											

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project
 8: M Street & Loughborough Drive/Collins Drive

Cumul (2023) With Proj Ph I+II (Alt I) AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	161	83	127	48	70	109	1	104	487	15	116	692	122
Future Volume (veh/h)	161	83	127	48	70	109	1	104	487	15	116	692	122
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00
Parking Bus, Adj	1.00	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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	212	109	167	63	92	143	137	641	20	153	911	161	
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	250	224	190	336	111	172	291	1426	44	431	1244	220	
Arrive On Green	0.14	0.12	0.12	0.19	0.17	0.17	0.07	0.40	0.40	0.07	0.41	0.41	
Sat Flow, veh/h	1810	1900	1610	1810	670	1042	1810	3574	111	1810	3066	542	
Grp Volume(v), veh/h	212	109	167	63	0	235	137	324	337	153	536	536	
Grp Sat Flow(s),veh/h/ln	1810	1900	1610	1810	0	1712	1810	1805	1880	1810	1805	1803	
Q Serve(g_s), s	9.1	4.3	6.5	2.4	0.0	10.6	3.5	10.5	10.5	3.9	20.1	20.1	
Cycle Q Clear(g_c), s	9.1	4.3	6.5	2.4	0.0	10.6	3.5	10.5	10.5	3.9	20.1	20.1	
Prop In Lane	1.00		1.00	1.00		0.61	1.00		0.06	1.00		0.30	
Lane Grp Cap(c), veh/h	250	224	190	336	0	283	291	721	750	431	732	731	
V/C Ratio(X)	0.85	0.49	0.88	0.19	0.00	0.83	0.47	0.45	0.45	0.35	0.73	0.73	
Avail Cap(c_a), veh/h	260	534	453	336	0	385	297	721	750	477	732	731	
HCM Platoon Ratio	1.00	1.00	1.00	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	33.6	33.0	22.1	27.5	0.0	32.3	15.6	17.6	17.6	13.1	20.1	20.1	
Incr Delay (d2), s/veh	21.5	1.6	12.1	0.3	0.0	10.6	1.2	2.0	1.9	0.5	6.4	6.4	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	5.4	2.0	3.0	1.0	0.0	5.1	1.4	4.5	4.7	1.5	9.2	9.2	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	55.1	34.6	34.2	27.8	0.0	42.9	16.8	19.6	19.5	13.6	26.5	26.5	
LnGrp LOS	E	C	C	C	A	D	B	B	B	B	C	C	
Approach Vol, veh/h		488			298			798			1225		
Approach Delay, s/veh		43.4			39.7			19.1			24.9		
Approach LOS		D			D			B			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	10.3	36.4	19.3	14.0	9.7	37.0	15.6	17.7					
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	24.7	7.0	22.5	5.5	27.0	11.5	18.0						
Max Q Clear Time (g_c+1), s	12.5	4.4	8.5	5.5	22.1	11.1	12.6						
Green Ext Time (p_c), s	0.1	3.2	0.0	0.9	0.0	2.9	0.0	0.6					

Intersection Summary

HCM 6th Ctrl Delay	28.0
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

Intersection												
Int Delay, s/veh	0.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗		↕↔			↕↕↕	
Traffic Vol, veh/h	0	0	72	0	0	53	0	605	48	0	789	63
Future Vol, veh/h	0	0	72	0	0	53	0	605	48	0	789	63
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	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	74	74	74	74	74	74	74	74	74	74	74	74
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	97	0	0	72	0	818	65	0	1066	85

Major/Minor	Minor2		Minor1		Major1		Major2	
Conflicting Flow All	-	-	576	-	-	442	-	0
Stage 1	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.1	-	-	6.9	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.9	-	-	3.3	-	-
Pot Cap-1 Maneuver	0	0	*746	0	0	569	0	-
Stage 1	0	0	-	0	0	-	0	-
Stage 2	0	0	-	0	0	-	0	-
Platoon blocked, %			1					
Mov Cap-1 Maneuver	-	-	*746	-	-	569	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.5	12.2	0	0
HCM LOS	B	B		

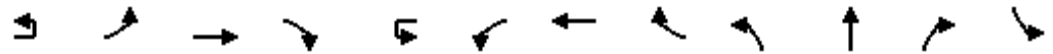
Minor Lane/Major Mvmt	NBT	NBR	EBLn1WBLn1	SBT	SBR
Capacity (veh/h)	-	-	746	569	-
HCM Lane V/C Ratio	-	-	0.13	0.126	-
HCM Control Delay (s)	-	-	10.5	12.2	-
HCM Lane LOS	-	-	B	B	-
HCM 95th %tile Q(veh)	-	-	0.4	0.4	-

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

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project

10: M Street & Olive Avenue

Cumul (2023) With Proj Ph I+II (Alt I) AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		↔	↑↑↑	↗		↔	↑↑↑		↖	↑↑		↘
Traffic Volume (veh/h)	11	118	611	170	30	159	599	86	146	438	109	204
Future Volume (veh/h)	11	118	611	170	30	159	599	86	146	438	109	204
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	1.00
Parking Bus, Adj		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		
Adj Sat Flow, veh/h/ln		1900	1900	1900		1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h		139	719	200		187	705	101	172	515	128	240
Peak Hour Factor		0.85	0.85	0.85		0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %		0	0	0		0	0	0	0	0	0	0
Cap, veh/h		176	1232	382		317	1447	205	217	601	149	276
Arrive On Green		0.03	0.08	0.08		0.18	0.32	0.32	0.12	0.21	0.21	0.20
Sat Flow, veh/h		1810	5187	1610		1810	4589	651	1810	2868	709	1810
Grp Volume(v), veh/h		139	719	200		187	530	276	172	323	320	240
Grp Sat Flow(s),veh/h/ln		1810	1729	1610		1810	1729	1783	1810	1805	1772	1810
Q Serve(g_s), s		6.1	10.7	9.5		7.6	9.9	10.1	7.4	13.8	13.9	10.3
Cycle Q Clear(g_c), s		6.1	10.7	9.5		7.6	9.9	10.1	7.4	13.8	13.9	10.3
Prop In Lane		1.00		1.00		1.00		0.37	1.00		0.40	1.00
Lane Grp Cap(c), veh/h		176	1232	382		317	1091	562	217	378	371	276
V/C Ratio(X)		0.79	0.58	0.52		0.59	0.49	0.49	0.79	0.85	0.86	0.87
Avail Cap(c_a), veh/h		222	1232	382		317	1091	562	217	406	399	283
HCM Platoon Ratio		0.33	0.33	0.33		1.00	1.00	1.00	1.00	1.00	1.00	1.33
Upstream Filter(I)		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		37.9	33.0	32.5		30.3	22.1	22.2	34.3	30.4	30.5	31.1
Incr Delay (d2), s/veh		13.9	2.0	5.0		2.9	1.5	3.1	18.2	15.4	16.4	23.4
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
%ile BackOfQ(50%),veh/ln		3.5	5.1	4.5		3.5	4.1	4.5	4.3	7.4	7.4	5.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		51.8	35.1	37.6		33.2	23.7	25.2	52.4	45.8	46.9	54.5
LnGrp LOS		D	D	D		C	C	C	D	D	D	D
Approach Vol, veh/h			1058				993			815		
Approach Delay, s/veh			37.7				25.9			47.7		
Approach LOS			D				C			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.5	23.5	14.1	23.9	12.3	29.7	16.7	21.3				
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	12.5	19.0	9.5	21.0	9.8	21.7	12.5	18.0				
Max Q Clear Time (g_c+I1), s	9.6	12.7	9.4	18.0	8.1	12.1	12.3	15.9				
Green Ext Time (p_c), s	0.1	2.9	0.0	1.4	0.1	3.7	0.0	0.8				

Intersection Summary

HCM 6th Ctrl Delay	38.6
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project
 10: M Street & Olive Avenue

Cumul (2023) With Proj Ph I+II (Alt I) AM Peak Hour



Movement	SBT	SBR
Lane Configurations	↑↑	
Traffic Volume (veh/h)	593	64
Future Volume (veh/h)	593	64
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1900	1900
Adj Flow Rate, veh/h	698	75
Peak Hour Factor	0.85	0.85
Percent Heavy Veh, %	0	0
Cap, veh/h	798	86
Arrive On Green	0.32	0.32
Sat Flow, veh/h	3288	353
Grp Volume(v), veh/h	383	390
Grp Sat Flow(s),veh/h/ln	1805	1836
Q Serve(g_s), s	16.0	16.0
Cycle Q Clear(g_c), s	16.0	16.0
Prop In Lane		0.19
Lane Grp Cap(c), veh/h	438	446
V/C Ratio(X)	0.87	0.88
Avail Cap(c_a), veh/h	474	482
HCM Platoon Ratio	1.33	1.33
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	25.9	25.9
Incr Delay (d2), s/veh	15.6	15.6
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.9	8.0
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	41.6	41.5
LnGrp LOS	D	D
Approach Vol, veh/h	1013	
Approach Delay, s/veh	44.6	
Approach LOS	D	
Timer - Assigned Phs		

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	7	70	71	682	871	43
Future Vol, veh/h	7	70	71	682	871	43
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	75	70	-	-	285
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	8	84	86	822	1049	52

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1632	525	1101	0	-	0
Stage 1	1049	-	-	-	-	-
Stage 2	583	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	176	*724	965	-	-	-
Stage 1	635	-	-	-	-	-
Stage 2	527	-	-	-	-	-
Platoon blocked, %	1	1	1	-	-	-
Mov Cap-1 Maneuver	161	*724	965	-	-	-
Mov Cap-2 Maneuver	161	-	-	-	-	-
Stage 1	578	-	-	-	-	-
Stage 2	527	-	-	-	-	-

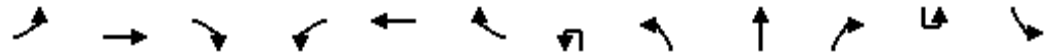
Approach	EB	NB	SB
HCM Control Delay, s	12.2	0.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	965	-	161	724	-	-
HCM Lane V/C Ratio	0.089	-	0.052	0.116	-	-
HCM Control Delay (s)	9.1	-	28.6	10.6	-	-
HCM Lane LOS	A	-	D	B	-	-
HCM 95th %tile Q(veh)	0.3	-	0.2	0.4	-	-

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

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project 1: R Street & Loughborough Drive

Cumul (2023) With Proj Ph I+II (Alt I) PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	107	139	37	109	188	110	29	97	591	142	4	70
Future Volume (veh/h)	107	139	37	109	188	110	29	97	591	142	4	70
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0		0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00		1.00
Parking Bus, Adj	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				
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900		1900	1900	1900		1900
Adj Flow Rate, veh/h	116	151	40	118	204	120		105	642	0		76
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		0.92	0.92	0.92		0.92
Percent Heavy Veh, %	0	0	0	0	0	0		0	0	0		0
Cap, veh/h	148	189	50	159	260	220		560	1143			479
Arrive On Green	0.08	0.13	0.13	0.09	0.14	0.14		0.31	0.32	0.00		0.26
Sat Flow, veh/h	1810	1448	383	1810	1900	1610		1810	3610	1610		1810
Grp Volume(v), veh/h	116	0	191	118	204	120		105	642	0		76
Grp Sat Flow(s),veh/h/ln	1810	0	1831	1810	1900	1610		1810	1805	1610		1810
Q Serve(g_s), s	5.7	0.0	9.1	5.7	9.3	3.6		3.8	13.3	0.0		2.9
Cycle Q Clear(g_c), s	5.7	0.0	9.1	5.7	9.3	3.6		3.8	13.3	0.0		2.9
Prop In Lane	1.00		0.21	1.00		1.00		1.00		1.00		1.00
Lane Grp Cap(c), veh/h	148	0	238	159	260	220		560	1143			479
V/C Ratio(X)	0.78	0.00	0.80	0.74	0.79	0.55		0.19	0.56			0.16
Avail Cap(c_a), veh/h	271	0	397	271	412	349		560	1143			479
HCM Platoon Ratio	1.00	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	0.00		1.00
Uniform Delay (d), s/veh	40.5	0.0	38.0	40.0	37.6	12.1		22.8	25.6	0.0		25.4
Incr Delay (d2), s/veh	8.8	0.0	6.1	6.6	5.2	2.1		0.2	2.0	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
%ile BackOfQ(50%),veh/ln	2.8	0.0	4.4	2.8	4.6	2.5		1.6	5.9	0.0		1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.3	0.0	44.2	46.6	42.8	14.2		22.9	27.6	0.0		25.5
LnGrp LOS	D	A	D	D	D	B		C	C			C
Approach Vol, veh/h		307			442				747	A		
Approach Delay, s/veh		46.1			36.0				26.9			
Approach LOS		D			D				C			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	28.3	33.0	12.4	16.2	32.3	29.0	11.9	16.8				
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	10.5	28.5	13.5	19.5	14.5	24.5	13.5	19.5				
Max Q Clear Time (g_c+I1), s	4.9	15.3	7.7	11.1	5.8	13.7	7.7	11.3				
Green Ext Time (p_c), s	0.1	3.6	0.1	0.6	0.1	2.5	0.1	1.0				

Intersection Summary

HCM 6th Ctrl Delay	33.0
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

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

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project
 1: R Street & Loughborough Drive

Cumul (2023) With Proj Ph I+II (Alt I) PM Peak Hour



Movement	SBT	SBR
Lane Configurations	↑↑	
Traffic Volume (veh/h)	407	91
Future Volume (veh/h)	407	91
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1900	1900
Adj Flow Rate, veh/h	442	99
Peak Hour Factor	0.92	0.92
Percent Heavy Veh, %	0	0
Cap, veh/h	799	178
Arrive On Green	0.27	0.27
Sat Flow, veh/h	2935	652
Grp Volume(v), veh/h	271	270
Grp Sat Flow(s),veh/h/ln	1805	1783
Q Serve(g_s), s	11.5	11.7
Cycle Q Clear(g_c), s	11.5	11.7
Prop In Lane		0.37
Lane Grp Cap(c), veh/h	491	485
V/C Ratio(X)	0.55	0.56
Avail Cap(c_a), veh/h	491	485
HCM Platoon Ratio	1.00	1.00
Upstream Filter(l)	1.00	1.00
Uniform Delay (d), s/veh	28.0	28.1
Incr Delay (d2), s/veh	4.4	4.6
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	5.5
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	32.4	32.7
LnGrp LOS	C	C
Approach Vol, veh/h	617	
Approach Delay, s/veh	31.7	
Approach LOS	C	
Timer - Assigned Phs		

Intersection														
Int Delay, s/veh	2.3													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations			↗			↗		↘	↕			↘	↕	
Traffic Vol, veh/h	0	0	131	0	0	110	12	87	748	120	44	66	487	30
Future Vol, veh/h	0	0	131	0	0	110	12	87	748	120	44	66	487	30
Conflicting Peds, #/hr	0	0	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	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	-	None	-	-	-	None
Storage Length	-	-	0	-	-	0	-	35	-	-	-	130	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	142	0	0	120	13	95	813	130	48	72	529	33

Major/Minor	Minor2		Minor1		Major1			Major2						
Conflicting Flow All	-	-	281	-	-	472	562	562	0	0	943	943	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	6.4	4.1	-	-	6.4	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.5	2.2	-	-	2.5	2.2	-	-
Pot Cap-1 Maneuver	0	0	*904	0	0	*799	1091	1288	-	-	796	1018	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-	-	-
Platoon blocked, %			1			1	1	1	-	-	1	1	-	-
Mov Cap-1 Maneuver	-	-	*904	-	-	*799	1231	1231	-	-	853	853	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-

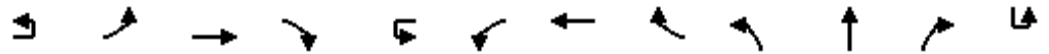
Approach	EB		WB		NB		SB	
HCM Control Delay, s	9.7		10.3		0.8		1.7	
HCM LOS	A		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1231	-	-	904	799	853	-	-
HCM Lane V/C Ratio	0.087	-	-	0.158	0.15	0.14	-	-
HCM Control Delay (s)	8.2	-	-	9.7	10.3	9.9	-	-
HCM Lane LOS	A	-	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0.3	-	-	0.6	0.5	0.5	-	-

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

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project 3: R Street & Olive Avenue

Cumul (2023) With Proj Ph I+II (Alt I) PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU
Lane Configurations		↔	↑↑↑	↗		↔	↑↑↑	↗	↖	↑↑		
Traffic Volume (veh/h)	22	207	834	199	14	268	906	157	311	599	133	6
Future Volume (veh/h)	22	207	834	199	14	268	906	157	311	599	133	6
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		1900	1900	1900		1900	1900	1900	1900	1900	1900	
Adj Flow Rate, veh/h		216	869	207		279	944	164	324	624	139	
Peak Hour Factor		0.96	0.96	0.96		0.96	0.96	0.96	0.96	0.96	0.96	
Percent Heavy Veh, %		0	0	0		0	0	0	0	0	0	
Cap, veh/h		362	1411	438		318	1285	399	373	741	165	
Arrive On Green		0.20	0.27	0.27		0.06	0.08	0.08	0.21	0.25	0.25	
Sat Flow, veh/h		1810	5187	1610		1810	5187	1610	1810	2935	653	
Grp Volume(v), veh/h		216	869	207		279	944	164	324	383	380	
Grp Sat Flow(s),veh/h/ln		1810	1729	1610		1810	1729	1610	1810	1805	1783	
Q Serve(g_s), s		9.8	13.2	5.6		13.8	16.0	6.4	15.6	18.1	18.2	
Cycle Q Clear(g_c), s		9.8	13.2	5.6		13.8	16.0	6.4	15.6	18.1	18.2	
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.37	
Lane Grp Cap(c), veh/h		362	1411	438		318	1285	399	373	456	450	
V/C Ratio(X)		0.60	0.62	0.47		0.88	0.73	0.41	0.87	0.84	0.84	
Avail Cap(c_a), veh/h		362	1411	438		332	1285	399	373	531	525	
HCM Platoon Ratio		1.00	1.00	1.00		0.33	0.33	0.33	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	
Uniform Delay (d), s/veh		32.7	28.6	9.2		41.4	38.4	18.9	34.6	31.9	31.9	
Incr Delay (d2), s/veh		2.7	2.0	3.6		21.7	3.8	3.1	19.2	10.3	10.6	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		4.5	5.6	3.8		8.6	7.8	2.8	8.7	9.0	8.9	
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		35.4	30.7	12.8		63.1	42.2	22.0	53.8	42.2	42.6	
LnGrp LOS		D	C	B		E	D	C	D	D	D	
Approach Vol, veh/h			1292				1387			1087		
Approach Delay, s/veh			28.6				44.0			45.8		
Approach LOS			C				D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	20.3	29.0	23.0	17.6	22.5	26.8	13.5	27.2				
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	16.5	18.5	18.5	18.5	12.7	22.3	10.5	26.5				
Max Q Clear Time (g_c+I1), s	15.8	15.2	17.6	11.5	11.8	18.0	9.2	20.2				
Green Ext Time (p_c), s	0.1	2.0	0.1	1.7	0.1	2.6	0.0	2.5				

Intersection Summary

HCM 6th Ctrl Delay	40.3
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project

3: R Street & Olive Avenue

Cumul (2023) With Proj Ph I+II (Alt I) PM Peak Hour



Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (veh/h)	139	370	121
Future Volume (veh/h)	139	370	121
Initial Q (Qb), veh	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00
Work Zone On Approach		No	
Adj Sat Flow, veh/h/ln	1900	1900	1900
Adj Flow Rate, veh/h	145	385	126
Peak Hour Factor	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0
Cap, veh/h	180	527	235
Arrive On Green	0.03	0.05	0.05
Sat Flow, veh/h	1810	3610	1610
Grp Volume(v), veh/h	145	385	126
Grp Sat Flow(s),veh/h/ln	1810	1805	1610
Q Serve(g_s), s	7.2	9.5	6.9
Cycle Q Clear(g_c), s	7.2	9.5	6.9
Prop In Lane	1.00		1.00
Lane Grp Cap(c), veh/h	180	527	235
V/C Ratio(X)	0.80	0.73	0.54
Avail Cap(c_a), veh/h	211	742	331
HCM Platoon Ratio	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.7	41.1	39.8
Incr Delay (d2), s/veh	17.5	2.2	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	4.7	3.0
Unsig. Movement Delay, s/veh			
LnGrp Delay(d),s/veh	60.1	43.3	41.7
LnGrp LOS	E	D	D
Approach Vol, veh/h		656	
Approach Delay, s/veh		46.7	
Approach LOS		D	
Timer - Assigned Phs			

Intersection												
Int Delay, s/veh	3.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗	↗	↗↗	↗	↗	↗↗	↗
Traffic Vol, veh/h	0	0	335	0	0	190	261	866	122	45	730	39
Future Vol, veh/h	0	0	335	0	0	190	261	866	122	45	730	39
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	95	-	70	40	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	349	0	0	198	272	902	127	47	760	41

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	-	380	-	-	451	801	0	0	1029	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	0	0	*799	0	0	561	1197	-	-	683	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %			1			1	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	*799	-	-	561	1197	-	-	683	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB			
HCM Control Delay, s	13		14.9		1.9		0.6			
HCM LOS	B		B							

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1197	-	-	799	561	683	-	-
HCM Lane V/C Ratio	0.227	-	-	0.437	0.353	0.069	-	-
HCM Control Delay (s)	8.9	-	-	13	14.9	10.7	-	-
HCM Lane LOS	A	-	-	B	B	B	-	-
HCM 95th %tile Q(veh)	0.9	-	-	2.2	1.6	0.2	-	-

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

Level of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 Intersection 5

Average Delay (sec/veh): 59.6 Worst Case Level Of Service: F[824.8]

Street Name:Mall Driveway 2 - Pepperwood Lane Olive Avenue

Table with columns for Approach (North Bound, South Bound, East Bound, West Bound) and Movement (L, T, R). Rows include Control (Stop Sign, Uncontrolled), Rights (Include), and Lanes (0, 1, 3).

Volume Module: >> Count Date: 5 Jun 2018 <<

Table of traffic volume metrics including Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, and Final Volume across four approaches.

Critical Gap Module:

Table of critical gap and follow-up time metrics for each approach.

Capacity Module:

Table of capacity metrics including Conflict Vol, Potent Cap., Move Cap., and Volume/Cap. for each approach.

Level of Service Module:

Table of level of service metrics including 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., Shared Queue, Shrd ConDel, Shared LOS, ApproachDel, and ApproachLOS.

Note: Queue reported is the number of cars per lane.

 Level Of Service Detailed Computation Report
 2000 HCM Unsignalized Method
 Base Volume Alternative

 Intersection #1 Intersection 5

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed:	4.00 feet/sec											
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period:	0.25 hour											

Intersection													
Int Delay, s/veh	5												
Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↑	↗	↖	↑	↗		↕			↕	
Traffic Vol, veh/h	1	11	350	59	62	339	11	72	1	114	9	1	2
Future Vol, veh/h	1	11	350	59	62	339	11	72	1	114	9	1	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	50	-	50	50	-	50	-	-	-	-	-	-
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	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	1	12	380	64	67	368	12	78	1	124	10	1	2

Major/Minor	Major1			Major2			Minor1			Minor2			
Conflicting Flow All	-	380	0	0	444	0	0	914	920	380	1001	972	368
Stage 1	-	-	-	-	-	-	-	404	406	-	502	502	-
Stage 2	-	-	-	-	-	-	-	510	514	-	499	470	-
Critical Hdwy	-	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	-	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	-	1214	-	-	1127	-	-	259	265	671	217	242	812
Stage 1	-	-	-	-	-	-	-	627	601	-	620	568	-
Stage 2	-	-	-	-	-	-	-	612	559	-	557	563	-
Platoon blocked, %		1	-	-	-	-	-	1	1		1	1	1
Mov Cap-1 Maneuver	~ -12	~ -12	-	-	1127	-	-	246	249	671	168	228	812
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	246	249	-	168	228	-
Stage 1	-	-	-	-	-	-	-	627	601	-	620	534	-
Stage 2	-	-	-	-	-	-	-	573	526	-	453	563	-

Approach	EB	WB	NB	SB
HCM Control Delay, s		1.3	22.9	24.4
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	401	+	-	-	1127	-	-	199
HCM Lane V/C Ratio	0.507	-	-	-	0.06	-	-	0.066
HCM Control Delay (s)	22.9	-	-	-	8.4	-	-	24.4
HCM Lane LOS	C	-	-	-	A	-	-	C
HCM 95th %tile Q(veh)	2.8	-	-	-	0.2	-	-	0.2

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

Level of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Intersection 7

Average Delay (sec/veh): 1.7 Worst Case Level Of Service: B[14.2]

Street Name: Mall Driveway 4 - Applewood Lane Olive Avenue
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R
Control: Stop Sign Stop Sign Uncontrolled Uncontrolled
Rights: Include Include Include Include
Lanes: 0 0 0 0 1 0 0 0 0 1 1 0 3 0 1 1 0 3 1 0

Volume Module:
Base Vol: 0 0 65 0 0 101 134 1112 43 81 1146 116
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 0 65 0 0 101 134 1112 43 81 1146 116
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.96 0.96 0.96 0.96 0.96 0.96 0.96 0.96 0.96 0.96 0.96 0.96
PHF Volume: 0 0 68 0 0 105 140 1161 45 85 1196 121
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
FinalVolume: 0 0 68 0 0 105 140 1161 45 85 1196 121

Critical Gap Module:
Critical Gp:xxxxx xxxx 6.9 xxxxx xxxx 6.9 4.1 xxxx xxxxxx 4.1 xxxx xxxxxx
FollowUpTim:xxxxx xxxx 3.3 xxxxx xxxx 3.3 2.2 xxxx xxxxxx 2.2 xxxx xxxxxx

Capacity Module:
Cnflct Vol: xxxx xxxx 387 xxxx xxxx 360 1317 xxxx xxxxxx 1206 xxxx xxxxxx
Potent Cap.: xxxx xxxx 617 xxxx xxxx 643 531 xxxx xxxxxx 586 xxxx xxxxxx
Move Cap.: xxxx xxxx 617 xxxx xxxx 643 531 xxxx xxxxxx 586 xxxx xxxxxx
Volume/Cap: xxxx xxxx 0.11 xxxx xxxx 0.16 0.26 xxxx xxxx 0.14 xxxx xxxx

Level of Service Module:
2Way95thQ: xxxx xxxx 0.4 xxxx xxxx 0.6 1.0 xxxx xxxxxx 0.5 xxxx xxxxxx
Control Del:xxxxx xxxx 11.6 xxxxx xxxx 11.7 14.2 xxxx xxxxxx 12.2 xxxx xxxxxx
LOS by Move: * * B * * B B * * B * *
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxxx xxxx xxxx xxxxxx xxxx xxxx xxxxxx xxxx xxxx xxxxxx
SharedQueue:xxxxxx xxxxx xxxxxx xxxxxx xxxxx xxxxxx xxxxxx xxxxx xxxxxx xxxxxx xxxxxx xxxxxx
Shrd ConDel:xxxxxx xxxxx xxxxxx xxxxxx xxxxx xxxxxx xxxxxx xxxxx xxxxxx xxxxxx xxxxxx xxxxxx
Shared LOS: * * * * * * * * * * * * * * * *
ApproachDel: 11.6 11.7 xxxxxxx xxxxxxx
ApproachLOS: B B * *

Note: Queue reported is the number of cars per lane.

 Level Of Service Detailed Computation Report
 2000 HCM Unsignalized Method
 Base Volume Alternative

 Intersection #2 Intersection 7

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed:	4.00 feet/sec											
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period:	0.25 hour											

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project
 8: M Street & Loughborough Drive/Collins Drive

Cumul (2023) With Proj Ph I+II (Alt I) PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	271	35	207	46	87	116	1	145	524	17	28	493	175
Future Volume (veh/h)	271	35	207	46	87	116	1	145	524	17	28	493	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		No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900		1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	295	38	225	50	95	126		158	570	18	30	536	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, %	0	0	0	0	0	0		0	0	0	0	0	0
Cap, veh/h	337	273	231	353	113	150		381	1542	49	405	1018	359
Arrive On Green	0.19	0.14	0.14	0.20	0.15	0.15		0.07	0.43	0.43	0.03	0.39	0.39
Sat Flow, veh/h	1810	1900	1610	1810	741	982		1810	3572	113	1810	2615	923
Grp Volume(v), veh/h	295	38	225	50	0	221		158	288	300	30	369	357
Grp Sat Flow(s),veh/h/ln	1810	1900	1610	1810	0	1723		1810	1805	1880	1810	1805	1734
Q Serve(g_s), s	14.3	1.6	10.0	2.1	0.0	11.2		4.5	9.7	9.7	0.9	14.1	14.2
Cycle Q Clear(g_c), s	14.3	1.6	10.0	2.1	0.0	11.2		4.5	9.7	9.7	0.9	14.1	14.2
Prop In Lane	1.00		1.00	1.00		0.57		1.00		0.06	1.00		0.53
Lane Grp Cap(c), veh/h	337	273	231	353	0	263		381	779	812	405	703	675
V/C Ratio(X)	0.87	0.14	0.97	0.14	0.00	0.84		0.41	0.37	0.37	0.07	0.53	0.53
Avail Cap(c_a), veh/h	470	735	623	353	0	347		422	779	812	453	703	675
HCM Platoon Ratio	1.00	1.00	1.00	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	35.6	33.7	24.5	30.0	0.0	37.1		15.3	17.3	17.3	15.7	21.1	21.1
Incr Delay (d2), s/veh	12.6	0.2	21.7	0.2	0.0	13.2		0.7	1.3	1.3	0.1	2.8	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	7.3	0.7	5.1	0.9	0.0	5.6		1.8	4.2	4.3	0.4	6.3	6.1
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	48.2	33.9	46.2	30.2	0.0	50.3		16.0	18.6	18.6	15.7	23.9	24.1
LnGrp LOS	D	C	D	C	A	D		B	B	B	B	C	C
Approach Vol, veh/h		558			271			746				756	
Approach Delay, s/veh		46.4			46.6			18.1				23.7	
Approach LOS		D			D			B				C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	7.1	43.4	22.1	17.4	11.0	39.5	21.3	18.2					
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	5.0	25.5	6.7	34.8	8.5	22.0	23.4	18.1					
Max Q Clear Time (g_c+1), s	11.7	11.7	4.1	12.0	6.5	16.2	16.3	13.2					
Green Ext Time (p_c), s	0.0	3.0	0.0	0.9	0.1	2.3	0.5	0.5					

Intersection Summary

HCM 6th Ctrl Delay	30.0
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

Intersection												
Int Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗		↕↔			↕↕↕	
Traffic Vol, veh/h	0	0	161	0	0	45	0	680	37	0	813	71
Future Vol, veh/h	0	0	161	0	0	45	0	680	37	0	813	71
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	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	175	0	0	49	0	739	40	0	884	77

Major/Minor	Minor2		Minor1		Major1		Major2	
Conflicting Flow All	-	-	481	-	-	390	-	0
Stage 1	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.1	-	-	6.9	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.9	-	-	3.3	-	-
Pot Cap-1 Maneuver	0	0	*736	0	0	614	0	-
Stage 1	0	0	-	0	0	-	0	-
Stage 2	0	0	-	0	0	-	0	-
Platoon blocked, %			1					
Mov Cap-1 Maneuver	-	-	*736	-	-	614	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-

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

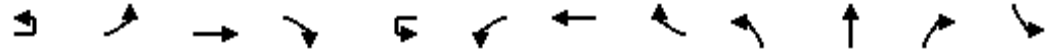
Minor Lane/Major Mvmt	NBT	NBR	EBLn1WBLn1	SBT	SBR
Capacity (veh/h)	-	-	736	614	-
HCM Lane V/C Ratio	-	-	0.238	0.08	-
HCM Control Delay (s)	-	-	11.4	11.4	-
HCM Lane LOS	-	-	B	B	-
HCM 95th %tile Q(veh)	-	-	0.9	0.3	-

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

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project

10: M Street & Olive Avenue

Cumul (2023) With Proj Ph I+II (Alt I) PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		↔	↑↑↑	↗		↔	↑↑↑		↖	↑↑		↘
Traffic Volume (veh/h)	33	106	824	148	31	145	880	62	347	517	125	314
Future Volume (veh/h)	33	106	824	148	31	145	880	62	347	517	125	314
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	1.00
Parking Bus, Adj		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		
Adj Sat Flow, veh/h/ln		1900	1900	1900		1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h		112	867	156		153	926	65	365	544	132	331
Peak Hour Factor		0.95	0.95	0.95		0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %		0	0	0		0	0	0	0	0	0	0
Cap, veh/h		143	1181	367		259	1445	101	404	642	155	373
Arrive On Green		0.03	0.08	0.08		0.14	0.29	0.29	0.22	0.22	0.22	0.07
Sat Flow, veh/h		1810	5187	1610		1810	4949	347	1810	2883	697	1810
Grp Volume(v), veh/h		112	867	156		153	646	345	365	340	336	331
Grp Sat Flow(s),veh/h/ln		1810	1729	1610		1810	1729	1838	1810	1805	1775	1810
Q Serve(g_s), s		5.5	14.7	4.8		7.1	14.6	14.7	17.7	16.2	16.4	16.3
Cycle Q Clear(g_c), s		5.5	14.7	4.8		7.1	14.6	14.7	17.7	16.2	16.4	16.3
Prop In Lane		1.00		1.00		1.00		0.19	1.00		0.39	1.00
Lane Grp Cap(c), veh/h		143	1181	367		259	1010	536	404	402	395	373
V/C Ratio(X)		0.78	0.73	0.43		0.59	0.64	0.64	0.90	0.85	0.85	0.89
Avail Cap(c_a), veh/h		191	1181	367		259	1010	536	472	431	424	412
HCM Platoon Ratio		0.33	0.33	0.33		1.00	1.00	1.00	1.00	1.00	1.00	0.33
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		43.1	38.9	12.2		36.1	27.7	27.8	34.0	33.5	33.5	40.9
Incr Delay (d2), s/veh		13.9	4.1	3.6		3.5	3.1	5.8	18.7	13.7	14.4	19.0
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
%ile BackOfQ(50%),veh/ln		3.1	7.2	3.6		3.4	6.3	7.2	9.6	8.5	8.4	9.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		57.0	43.0	15.7		39.6	30.9	33.6	52.7	47.2	48.0	59.9
LnGrp LOS		E	D	B		D	C	C	D	D	D	E
Approach Vol, veh/h			1135				1144			1041		
Approach Delay, s/veh			40.6				32.8			49.4		
Approach LOS			D				C			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.4	25.0	24.6	23.0	11.6	30.8	23.1	24.5				
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	9.5	20.5	23.5	18.5	9.5	20.5	20.5	21.5				
Max Q Clear Time (g_c+I1), s	9.1	16.7	19.7	19.3	7.5	16.7	18.3	18.4				
Green Ext Time (p_c), s	0.0	2.2	0.4	0.0	0.0	2.2	0.2	1.3				

Intersection Summary

HCM 6th Ctrl Delay	47.2
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project
 10: M Street & Olive Avenue

Cumul (2023) With Proj Ph I+II (Alt I) PM Peak Hour



Movement	SBT	SBR
Lane Configurations	↑↑	
Traffic Volume (veh/h)	557	103
Future Volume (veh/h)	557	103
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1900	1900
Adj Flow Rate, veh/h	586	108
Peak Hour Factor	0.95	0.95
Percent Heavy Veh, %	0	0
Cap, veh/h	626	115
Arrive On Green	0.07	0.07
Sat Flow, veh/h	3045	560
Grp Volume(v), veh/h	347	347
Grp Sat Flow(s),veh/h/ln	1805	1799
Q Serve(g_s), s	17.2	17.3
Cycle Q Clear(g_c), s	17.2	17.3
Prop In Lane		0.31
Lane Grp Cap(c), veh/h	371	370
V/C Ratio(X)	0.93	0.94
Avail Cap(c_a), veh/h	371	370
HCM Platoon Ratio	0.33	0.33
Upstream Filter(l)	1.00	1.00
Uniform Delay (d), s/veh	41.3	41.4
Incr Delay (d2), s/veh	30.6	31.5
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.4	11.5
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	71.9	72.9
LnGrp LOS	E	E
Approach Vol, veh/h	1025	
Approach Delay, s/veh	68.4	
Approach LOS	E	
Timer - Assigned Phs		

Intersection						
Int Delay, s/veh	1.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	14	189	107	972	794	54
Future Vol, veh/h	14	189	107	972	794	54
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	75	70	-	-	285
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	15	205	116	1057	863	59

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1624	432	922	0	-	0
Stage 1	863	-	-	-	-	-
Stage 2	761	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	*161	*765	1111	-	-	-
Stage 1	*721	-	-	-	-	-
Stage 2	*427	-	-	-	-	-
Platoon blocked, %	1	1	1	-	-	-
Mov Cap-1 Maneuver	*144	*765	1111	-	-	-
Mov Cap-2 Maneuver	*144	-	-	-	-	-
Stage 1	*646	-	-	-	-	-
Stage 2	*427	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.9	0.9	0
HCM LOS	B		






















Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1111	-	144	765	-	-
HCM Lane V/C Ratio	0.105	-	0.106	0.269	-	-
HCM Control Delay (s)	8.6	-	32.9	11.4	-	-
HCM Lane LOS	A	-	D	B	-	-
HCM 95th %tile Q(veh)	0.4	-	0.3	1.1	-	-

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

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project

1: R Street & Loughborough Drive

Cumul (2023) With Proj Ph I+II (Alt II) AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	90	177	47	82	104	53	10	35	291	128	6	66
Future Volume (veh/h)	90	177	47	82	104	53	10	35	291	128	6	66
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0		0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00		1.00
Parking Bus, Adj	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				
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900		1900	1900	1900		1900
Adj Flow Rate, veh/h	105	206	55	95	121	62		41	338	0		77
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86		0.86	0.86	0.86		0.86
Percent Heavy Veh, %	0	0	0	0	0	0		0	0	0		0
Cap, veh/h	135	250	67	123	316	268		394	1728			100
Arrive On Green	0.07	0.17	0.17	0.07	0.17	0.17		0.07	0.16	0.00		0.06
Sat Flow, veh/h	1810	1445	386	1810	1900	1610		1810	3610	1610		1810
Grp Volume(v), veh/h	105	0	261	95	121	62		41	338	0		77
Grp Sat Flow(s),veh/h/ln	1810	0	1831	1810	1900	1610		1810	1805	1610		1810
Q Serve(g_s), s	4.6	0.0	11.0	4.1	4.5	2.7		1.7	6.5	0.0		3.4
Cycle Q Clear(g_c), s	4.6	0.0	11.0	4.1	4.5	2.7		1.7	6.5	0.0		3.4
Prop In Lane	1.00		0.21	1.00		1.00		1.00		1.00		1.00
Lane Grp Cap(c), veh/h	135	0	317	123	316	268		394	1728			100
V/C Ratio(X)	0.77	0.00	0.82	0.77	0.38	0.23		0.10	0.20			0.77
Avail Cap(c_a), veh/h	238	0	469	219	468	397		394	1728			215
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		0.33	0.33	0.33		1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00		1.00	1.00	0.00		1.00
Uniform Delay (d), s/veh	36.3	0.0	31.9	36.7	29.7	28.9		29.8	20.3	0.0		37.3
Incr Delay (d2), s/veh	9.1	0.0	7.4	9.8	0.8	0.4		0.1	0.3	0.0		11.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0
%ile BackOfQ(50%),veh/ln	2.3	0.0	5.4	2.1	2.1	1.0		0.7	2.9	0.0		1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.4	0.0	39.3	46.4	30.5	29.4		29.9	20.6	0.0		48.9
LnGrp LOS	D	A	D	D	C	C		C	C			D
Approach Vol, veh/h		366			278				379	A		
Approach Delay, s/veh		41.1			35.7				21.6			
Approach LOS		D			D				C			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.9	42.8	9.9	18.3	21.9	29.8	10.5	17.8				
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	9.5	22.3	9.7	20.5	6.5	25.3	10.5	19.7				
Max Q Clear Time (g_c+I1), s	5.4	8.5	6.1	13.0	3.7	15.3	6.6	6.5				
Green Ext Time (p_c), s	0.0	1.8	0.1	0.8	0.0	3.2	0.1	0.6				

Intersection Summary

HCM 6th Ctrl Delay	31.5
HCM 6th LOS	C

Notes

- User approved ignoring U-Turning movement.
- Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project
 1: R Street & Loughborough Drive

Cumul (2023) With Proj Ph I+II (Alt II) AM Peak Hour



Movement	SBT	SBR
Lane Configurations	↑↑	
Traffic Volume (veh/h)	512	95
Future Volume (veh/h)	512	95
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1900	1900
Adj Flow Rate, veh/h	595	110
Peak Hour Factor	0.86	0.86
Percent Heavy Veh, %	0	0
Cap, veh/h	962	177
Arrive On Green	0.32	0.32
Sat Flow, veh/h	3043	561
Grp Volume(v), veh/h	352	353
Grp Sat Flow(s),veh/h/ln	1805	1799
Q Serve(g_s), s	13.3	13.3
Cycle Q Clear(g_c), s	13.3	13.3
Prop In Lane		0.31
Lane Grp Cap(c), veh/h	571	569
V/C Ratio(X)	0.62	0.62
Avail Cap(c_a), veh/h	571	569
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	23.2	23.3
Incr Delay (d2), s/veh	4.9	5.0
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.2	6.2
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	28.2	28.3
LnGrp LOS	C	C
Approach Vol, veh/h	782	
Approach Delay, s/veh	30.3	
Approach LOS	C	
Timer - Assigned Phs		

Intersection														
Int Delay, s/veh	0.9													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations			↗			↗		↘	↕			↘	↕	
Traffic Vol, veh/h	0	0	30	0	0	21	5	33	444	34	16	25	582	23
Future Vol, veh/h	0	0	30	0	0	21	5	33	444	34	16	25	582	23
Conflicting Peds, #/hr	0	0	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	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	-	None	-	-	-	None
Storage Length	-	-	0	-	-	0	-	35	-	-	-	130	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	34	0	0	24	6	37	499	38	18	28	654	26

Major/Minor	Minor2		Minor1		Major1			Major2						
Conflicting Flow All	-	-	340	-	-	269	680	680	0	0	537	537	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	6.4	4.1	-	-	6.4	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.5	2.2	-	-	2.5	2.2	-	-
Pot Cap-1 Maneuver	0	0	*881	0	0	*920	963	1185	-	-	1076	1287	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-	-	-
Platoon blocked, %			1			1	1	1	-	-	1	1	-	-
Mov Cap-1 Maneuver	-	-	*881	-	-	*920	1144	1144	-	-	1183	1183	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-

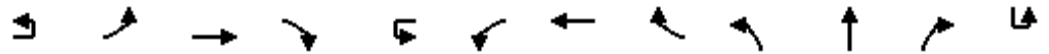
Approach	EB	WB	NB	SB
HCM Control Delay, s	9.2	9	0.6	0.5
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1144	-	-	881	920	1183	-
HCM Lane V/C Ratio	0.037	-	-	0.038	0.026	0.039	-
HCM Control Delay (s)	8.3	-	-	9.2	9	8.2	-
HCM Lane LOS	A	-	-	A	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.1	0.1	-

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

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project
 3: R Street & Olive Avenue

Cumul (2023) With Proj Ph I+II (Alt II) AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU
Lane Configurations		↔	↑↑↑	↗		↔	↑↑↑	↗	↖	↑↑		
Traffic Volume (veh/h)	7	102	686	146	5	177	488	73	127	341	143	2
Future Volume (veh/h)	7	102	686	146	5	177	488	73	127	341	143	2
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		1900	1900	1900		1900	1900	1900	1900	1900	1900	
Adj Flow Rate, veh/h		117	789	168		203	561	84	146	392	164	
Peak Hour Factor		0.87	0.87	0.87		0.87	0.87	0.87	0.87	0.87	0.87	
Percent Heavy Veh, %		0	0	0		0	0	0	0	0	0	
Cap, veh/h		405	1852	575		248	1400	435	205	488	202	
Arrive On Green		0.22	0.36	0.36		0.05	0.09	0.09	0.11	0.20	0.20	
Sat Flow, veh/h		1810	5187	1610		1810	5187	1610	1810	2491	1029	
Grp Volume(v), veh/h		117	789	168		203	561	84	146	283	273	
Grp Sat Flow(s),veh/h/ln		1810	1729	1610		1810	1729	1610	1810	1805	1715	
Q Serve(g_s), s		4.3	9.2	3.9		8.9	8.2	2.8	6.2	11.9	12.2	
Cycle Q Clear(g_c), s		4.3	9.2	3.9		8.9	8.2	2.8	6.2	11.9	12.2	
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.60	
Lane Grp Cap(c), veh/h		405	1852	575		248	1400	435	205	354	336	
V/C Ratio(X)		0.29	0.43	0.29		0.82	0.40	0.19	0.71	0.80	0.81	
Avail Cap(c_a), veh/h		405	1852	575		328	1400	435	238	429	407	
HCM Platoon Ratio		1.00	1.00	1.00		0.33	0.33	0.33	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	
Uniform Delay (d), s/veh		25.8	19.5	7.8		37.2	30.3	15.1	34.2	30.7	30.8	
Incr Delay (d2), s/veh		0.4	0.7	1.3		11.6	0.9	1.0	8.0	8.6	10.1	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		1.8	3.7	2.2		5.0	3.7	1.6	3.1	5.9	5.8	
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		26.1	20.2	9.1		48.8	31.2	16.1	42.2	39.3	40.9	
LnGrp LOS		C	C	A		D	C	B	D	D	D	
Approach Vol, veh/h			1074				848			702		
Approach Delay, s/veh			19.1				33.9			40.5		
Approach LOS			B				C			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.5	33.1	13.6	17.9	22.4	26.1	11.3	20.2				
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	14.5	19.0	10.5	18.0	11.9	21.6	9.5	19.0				
Max Q Clear Time (g_c+I1), s	10.9	11.2	8.2	11.6	6.3	10.2	7.2	14.2				
Green Ext Time (p_c), s	0.2	3.6	0.1	1.8	0.1	3.1	0.1	1.5				

Intersection Summary

HCM 6th Ctrl Delay	30.0
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project

3: R Street & Olive Avenue

Cumul (2023) With Proj Ph I+II (Alt II) AM Peak Hour



Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (veh/h)	107	416	64
Future Volume (veh/h)	107	416	64
Initial Q (Qb), veh	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00
Work Zone On Approach		No	
Adj Sat Flow, veh/h/ln	1900	1900	1900
Adj Flow Rate, veh/h	123	478	74
Peak Hour Factor	0.87	0.87	0.87
Percent Heavy Veh, %	0	0	0
Cap, veh/h	154	605	270
Arrive On Green	0.17	0.33	0.33
Sat Flow, veh/h	1810	3610	1610
Grp Volume(v), veh/h	123	478	74
Grp Sat Flow(s),veh/h/ln	1810	1805	1610
Q Serve(g_s), s	5.2	9.6	2.7
Cycle Q Clear(g_c), s	5.2	9.6	2.7
Prop In Lane	1.00		1.00
Lane Grp Cap(c), veh/h	154	605	270
V/C Ratio(X)	0.80	0.79	0.27
Avail Cap(c_a), veh/h	215	812	362
HCM Platoon Ratio	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.5	25.3	23.0
Incr Delay (d2), s/veh	13.3	3.8	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	3.7	1.0
Unsig. Movement Delay, s/veh			
LnGrp Delay(d),s/veh	45.9	29.2	23.6
LnGrp LOS	D	C	C
Approach Vol, veh/h		675	
Approach Delay, s/veh		31.6	
Approach LOS		C	
Timer - Assigned Phs			

Intersection													
Int Delay, s/veh	1.9												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations			↗			↗	↗	↗	↗		↘	↗	↗
Traffic Vol, veh/h	0	0	99	0	0	58	123	554	116	1	46	672	20
Future Vol, veh/h	0	0	99	0	0	58	123	554	116	1	46	672	20
Conflicting Peds, #/hr	0	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	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	-	None
Storage Length	-	-	0	-	-	0	95	-	70	-	40	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	122	0	0	72	152	684	143	1	57	830	25

Major/Minor	Minor2	Minor1	Major1	Major2									
Conflicting Flow All	-	-	415	-	-	342	855	0	0	684	827	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	4.1	-	-	6.4	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.2	-	-	2.5	2.2	-	-
Pot Cap-1 Maneuver	0	0	*842	0	0	660	1048	-	-	536	813	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-	-
Platoon blocked, %			1			1	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	*842	-	-	660	1048	-	-	802	802	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10	11.1	1.4	0.6
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1048	-	-	842	660	802	-
HCM Lane V/C Ratio	0.145	-	-	0.145	0.108	0.072	-
HCM Control Delay (s)	9	-	-	10	11.1	9.8	-
HCM Lane LOS	A	-	-	B	B	A	-
HCM 95th %tile Q(veh)	0.5	-	-	0.5	0.4	0.2	-

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

Level Of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 Intersection 5

Average Delay (sec/veh): 1.2 Worst Case Level Of Service: D[30.5]

Street Name:Mall Driveway 2 - Pepperwood Lane Olive Avenue

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Stop Sign Stop Sign Uncontrolled Uncontrolled

Rights: Include Include Include Include

Lanes: 0 0 1! 0 0 0 0 1! 0 0 1 0 3 0 1 1 0 3 1 0

Volume Module: >> Count Date: 5 Jun 2018 <<

Base Vol: 8 3 59 6 1 5 22 908 15 28 724 7

Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Bse: 8 3 59 6 1 5 22 908 15 28 724 7

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.91 0.91 0.91 0.91 0.91 0.91 0.91 0.91 0.91 0.91 0.91 0.91

PHF Volume: 9 3 65 7 1 6 24 1001 17 31 798 8

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

FinalVolume: 9 3 65 7 1 6 24 1001 17 31 798 8

Critical Gap Module:

Critical Gp: 7.5 6.5 6.9 7.5 6.5 6.9 4.1 xxxx xxxxx 4.1 xxxx xxxxx

FollowUpTim: 3.5 4.0 3.3 3.5 4.0 3.3 2.2 xxxx xxxxx 2.2 xxxx xxxxx

Capacity Module:

Cnflct Vol: 1311 1917 334 1248 1930 203 806 xxxx xxxxx 1018 xxxx xxxxx

Potent Cap.: 118 68 668 132 67 810 828 xxxx xxxxx 690 xxxx xxxxx

Move Cap.: 110 63 668 108 62 810 828 xxxx xxxxx 690 xxxx xxxxx

Volume/Cap: 0.08 0.05 0.10 0.06 0.02 0.01 0.03 xxxx xxxx 0.04 xxxx xxxx

Level Of Service Module:

2Way95thQ: xxxx xxxx xxxxx xxxx xxxx xxxxx 0.1 xxxx xxxxx 0.1 xxxx xxxxx

Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx 9.5 xxxx xxxxx 10.5 xxxx xxxxx

LOS by Move: * * * * * A * * B * *

Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT

Shared Cap.: xxxx 335 xxxxx xxxx 154 xxxxx xxxx xxxx xxxxx xxxx xxxx xxxxx

SharedQueue:xxxxx 0.9 xxxxx xxxxx 0.3 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx

Shrd ConDel:xxxxx 18.9 xxxxx xxxxx 30.5 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx

Shared LOS: * C * * D * * * * * * * * * *

ApproachDel: 18.9 30.5 xxxxxxx xxxxxxx

ApproachLOS: C D * *

Note: Queue reported is the number of cars per lane.

 Level Of Service Detailed Computation Report
 2000 HCM Unsignalized Method
 Base Volume Alternative

 Intersection #1 Intersection 5

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed:	4.00 feet/sec											
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period:	0.25 hour											

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	1	343	30	28	228	6	12	0	39	4	0	6
Future Vol, veh/h	1	343	30	28	228	6	12	0	39	4	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	50	50	-	50	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	1	445	39	36	296	8	16	0	51	5	0	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	304	0	0	484	0	0	823	823	445	860	854	296
Stage 1	-	-	-	-	-	-	447	447	-	368	368	-
Stage 2	-	-	-	-	-	-	376	376	-	492	486	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1288	-	-	1089	-	-	302	309	617	282	295	838
Stage 1	-	-	-	-	-	-	595	577	-	715	650	-
Stage 2	-	-	-	-	-	-	707	644	-	562	554	-
Platoon blocked, %	1	-	-	-	-	-	1	1	-	1	1	1
Mov Cap-1 Maneuver	1288	-	-	1089	-	-	291	299	617	252	285	838
Mov Cap-2 Maneuver	-	-	-	-	-	-	291	299	-	252	285	-
Stage 1	-	-	-	-	-	-	594	576	-	714	629	-
Stage 2	-	-	-	-	-	-	677	623	-	515	553	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.9			13.5			13.6		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	488	1288	-	-	1089	-	-	434
HCM Lane V/C Ratio	0.136	0.001	-	-	0.033	-	-	0.03
HCM Control Delay (s)	13.5	7.8	-	-	8.4	-	-	13.6
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.5	0	-	-	0.1	-	-	0.1

Level of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Intersection 7

Average Delay (sec/veh): 0.8 Worst Case Level Of Service: B[10.7]

Street Name: Mall Driveway 4 - Applewood Lane Olive Avenue
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R
Control: Stop Sign Stop Sign Uncontrolled Uncontrolled
Rights: Include Include Include Include
Lanes: 0 0 0 0 1 0 0 0 0 1 1 0 3 0 1 1 0 3 1 0

Volume Module:
Base Vol: 0 0 30 0 0 7 63 908 19 47 733 23
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 0 30 0 0 7 63 908 19 47 733 23
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90
PHF Volume: 0 0 33 0 0 8 70 1011 21 52 816 26
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
FinalVolume: 0 0 33 0 0 8 70 1011 21 52 816 26

Critical Gap Module:
Critical Gp:xxxxx xxxx 6.9 xxxxx xxxx 6.9 4.1 xxxx xxxxxx 4.1 xxxx xxxxxx
FollowUpTim:xxxxx xxxx 3.3 xxxxx xxxx 3.3 2.2 xxxx xxxxxx 2.2 xxxx xxxxxx

Capacity Module:
Cnflct Vol: xxxx xxxx 337 xxxx xxxx 217 842 xxxx xxxxxx 1032 xxxx xxxxxx
Potent Cap.: xxxx xxxx 665 xxxx xxxx 794 802 xxxx xxxxxx 681 xxxx xxxxxx
Move Cap.: xxxx xxxx 665 xxxx xxxx 794 802 xxxx xxxxxx 681 xxxx xxxxxx
Volume/Cap: xxxx xxxx 0.05 xxxx xxxx 0.01 0.09 xxxx xxxx 0.08 xxxx xxxx

Level of Service Module:
2Way95thQ: xxxx xxxx 0.2 xxxx xxxx 0.0 0.3 xxxx xxxxxx 0.2 xxxx xxxxxx
Control Del:xxxxx xxxx 10.7 xxxxxx xxxx 9.6 9.9 xxxx xxxxxx 10.7 xxxx xxxxxx
LOS by Move: * * B * * A A * * B * *
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxxx xxxx xxxx xxxxxx xxxx xxxx xxxxxx xxxx xxxx xxxxxx
SharedQueue:xxxxxx xxxxx xxxxxx xxxxxx xxxxx xxxxxx xxxxxx xxxxx xxxxxx xxxxxx xxxxxx xxxxxx
Shrd ConDel:xxxxxx xxxxx xxxxxx xxxxxx xxxxx xxxxxx xxxxxx xxxxx xxxxxx xxxxxx xxxxxx xxxxxx
Shared LOS: * * * * * * * * * * * * *
ApproachDel: 10.7 9.6 xxxxxxx xxxxxxx
ApproachLOS: B A * *

Note: Queue reported is the number of cars per lane.

 Level Of Service Detailed Computation Report
 2000 HCM Unsignalized Method
 Base Volume Alternative

 Intersection #2 Intersection 7

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed:	4.00 feet/sec											
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period:	0.25 hour											

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project
 8: M Street & Loughborough Drive/Collins Drive

Cumul (2023) With Proj Ph I+II (Alt II) AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	159	83	127	48	70	109	1	104	487	15	116	689	122
Future Volume (veh/h)	159	83	127	48	70	109	1	104	487	15	116	689	122
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00
Parking Bus, Adj	1.00	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	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	209	109	167	63	92	143	137	641	20	153	907	161	
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	247	259	219	300	111	172	352	1108	35	510	1034	183	
Arrive On Green	0.14	0.14	0.14	0.17	0.17	0.17	0.14	0.31	0.31	0.16	0.34	0.34	
Sat Flow, veh/h	1810	1900	1610	1810	670	1042	1810	3574	111	1810	3064	544	
Grp Volume(v), veh/h	209	109	167	63	0	235	137	324	337	153	534	534	
Grp Sat Flow(s),veh/h/ln	1810	1900	1610	1810	0	1712	1810	1805	1880	1810	1805	1802	
Q Serve(g_s), s	9.0	4.2	8.0	2.4	0.0	10.6	0.6	12.1	12.1	0.0	22.3	22.3	
Cycle Q Clear(g_c), s	9.0	4.2	8.0	2.4	0.0	10.6	0.6	12.1	12.1	0.0	22.3	22.3	
Prop In Lane	1.00		1.00	1.00		0.61	1.00		0.06	1.00		0.30	
Lane Grp Cap(c), veh/h	247	259	219	300	0	283	352	560	583	510	609	608	
V/C Ratio(X)	0.84	0.42	0.76	0.21	0.00	0.83	0.39	0.58	0.58	0.30	0.88	0.88	
Avail Cap(c_a), veh/h	260	534	453	300	0	385	352	560	583	510	609	608	
HCM Platoon Ratio	1.00	1.00	1.00	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	33.7	31.7	33.3	28.8	0.0	32.3	29.8	23.2	23.2	22.8	24.9	24.9	
Incr Delay (d2), s/veh	21.0	1.1	5.4	0.3	0.0	10.6	0.7	4.3	4.2	0.3	16.3	16.3	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	5.3	2.0	3.4	1.1	0.0	5.1	2.3	5.6	5.8	2.4	11.7	11.7	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	54.7	32.8	38.7	29.2	0.0	42.9	30.5	27.5	27.4	23.2	41.2	41.3	
LnGrp LOS	D	C	D	C	A	D	C	C	C	C	D	D	
Approach Vol, veh/h		485			298			798			1221		
Approach Delay, s/veh		44.3			40.0			28.0			39.0		
Approach LOS		D			D			C			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	7.5	29.3	17.8	15.4	15.3	31.5	15.4	17.7					
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	7.5	24.8	7.0	22.5	5.5	27.0	11.5	18.0					
Max Q Clear Time (g_c+1/2), s	12.0	14.1	4.4	10.0	2.6	24.3	11.0	12.6					
Green Ext Time (p_c), s	0.2	3.0	0.0	0.9	0.1	1.7	0.0	0.6					

Intersection Summary

HCM 6th Ctrl Delay	36.9
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

Intersection												
Int Delay, s/veh	0.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗		↕↔			↕↕↕	
Traffic Vol, veh/h	0	0	71	0	0	53	0	605	48	0	789	60
Future Vol, veh/h	0	0	71	0	0	53	0	605	48	0	789	60
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	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	74	74	74	74	74	74	74	74	74	74	74	74
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	96	0	0	72	0	818	65	0	1066	81

Major/Minor	Minor2		Minor1		Major1		Major2	
Conflicting Flow All	-	-	574	-	-	442	-	0
Stage 1	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.1	-	-	6.9	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.9	-	-	3.3	-	-
Pot Cap-1 Maneuver	0	0	*746	0	0	569	0	-
Stage 1	0	0	-	0	0	-	0	-
Stage 2	0	0	-	0	0	-	0	-
Platoon blocked, %			1					
Mov Cap-1 Maneuver	-	-	*746	-	-	569	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.5	12.2	0	0
HCM LOS	B	B		

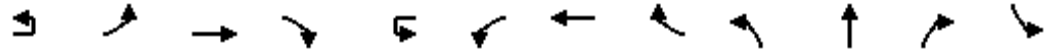
Minor Lane/Major Mvmt	NBT	NBR	EBLn1WBLn1	SBT	SBR
Capacity (veh/h)	-	-	746	569	-
HCM Lane V/C Ratio	-	-	0.129	0.126	-
HCM Control Delay (s)	-	-	10.5	12.2	-
HCM Lane LOS	-	-	B	B	-
HCM 95th %tile Q(veh)	-	-	0.4	0.4	-

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

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project

10: M Street & Olive Avenue

Cumul (2023) With Proj Ph I+II (Alt II) AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		↔	↑↑↑	↗		↔	↑↑↑		↖	↑↑		↖
Traffic Volume (veh/h)	11	118	610	170	30	159	597	86	144	438	109	204
Future Volume (veh/h)	11	118	610	170	30	159	597	86	144	438	109	204
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	1.00
Parking Bus, Adj		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		
Adj Sat Flow, veh/h/ln		1900	1900	1900		1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h		139	718	200		187	702	101	169	515	128	240
Peak Hour Factor		0.85	0.85	0.85		0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %		0	0	0		0	0	0	0	0	0	0
Cap, veh/h		176	1232	382		315	1442	206	212	601	149	278
Arrive On Green		0.03	0.08	0.08		0.17	0.31	0.31	0.12	0.21	0.21	0.15
Sat Flow, veh/h		1810	5187	1610		1810	4587	654	1810	2868	709	1810
Grp Volume(v), veh/h		139	718	200		187	528	275	169	323	320	240
Grp Sat Flow(s),veh/h/ln		1810	1729	1610		1810	1729	1782	1810	1805	1772	1810
Q Serve(g_s), s		6.1	10.7	9.5		7.6	9.9	10.0	7.3	13.8	13.9	10.4
Cycle Q Clear(g_c), s		6.1	10.7	9.5		7.6	9.9	10.0	7.3	13.8	13.9	10.4
Prop In Lane		1.00		1.00		1.00		0.37	1.00		0.40	1.00
Lane Grp Cap(c), veh/h		176	1232	382		315	1087	560	212	378	371	278
V/C Ratio(X)		0.79	0.58	0.52		0.59	0.49	0.49	0.80	0.85	0.86	0.86
Avail Cap(c_a), veh/h		222	1232	382		315	1087	560	212	406	399	283
HCM Platoon Ratio		0.33	0.33	0.33		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
Uniform Delay (d), s/veh		37.9	33.0	32.5		30.4	22.2	22.2	34.4	30.4	30.5	33.0
Incr Delay (d2), s/veh		13.9	2.0	5.0		3.0	1.6	3.1	19.1	15.4	16.4	22.6
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
%ile BackOfQ(50%),veh/ln		3.5	5.1	4.5		3.5	4.1	4.5	4.2	7.4	7.4	6.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		51.8	35.1	37.6		33.4	23.7	25.3	53.5	45.8	46.9	55.7
LnGrp LOS		D	D	D		C	C	C	D	D	D	E
Approach Vol, veh/h			1057				990			812		
Approach Delay, s/veh			37.7				26.0			47.9		
Approach LOS			D				C			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.4	23.5	13.9	24.2	12.3	29.7	16.8	21.3				
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	12.5	19.0	9.0	21.5	9.8	21.7	12.5	18.0				
Max Q Clear Time (g_c+I1), s	9.6	12.7	9.3	18.2	8.1	12.0	12.4	15.9				
Green Ext Time (p_c), s	0.1	2.9	0.0	1.5	0.1	3.7	0.0	0.8				

Intersection Summary

HCM 6th Ctrl Delay	38.9
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project
 10: M Street & Olive Avenue

Cumul (2023) With Proj Ph I+II (Alt II) AM Peak Hour



Movement	SBT	SBR
Lane Configurations	↑↑	
Traffic Volume (veh/h)	592	64
Future Volume (veh/h)	592	64
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1900	1900
Adj Flow Rate, veh/h	696	75
Peak Hour Factor	0.85	0.85
Percent Heavy Veh, %	0	0
Cap, veh/h	810	87
Arrive On Green	0.25	0.25
Sat Flow, veh/h	3287	354
Grp Volume(v), veh/h	382	389
Grp Sat Flow(s),veh/h/ln	1805	1836
Q Serve(g_s), s	16.2	16.2
Cycle Q Clear(g_c), s	16.2	16.2
Prop In Lane		0.19
Lane Grp Cap(c), veh/h	445	452
V/C Ratio(X)	0.86	0.86
Avail Cap(c_a), veh/h	485	494
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	28.8	28.8
Incr Delay (d2), s/veh	13.5	13.5
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.4	8.5
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	42.3	42.3
LnGrp LOS	D	D
Approach Vol, veh/h	1011	
Approach Delay, s/veh	45.5	
Approach LOS	D	
Timer - Assigned Phs		

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖	↕↕	↕↕	↗
Traffic Vol, veh/h	7	70	71	680	870	43
Future Vol, veh/h	7	70	71	680	870	43
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	75	70	-	-	285
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	8	84	86	819	1048	52

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1630	524	1100	0	-	0
Stage 1	1048	-	-	-	-	-
Stage 2	582	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	177	*724	966	-	-	-
Stage 1	636	-	-	-	-	-
Stage 2	527	-	-	-	-	-
Platoon blocked, %	1	1	1	-	-	-
Mov Cap-1 Maneuver	161	*724	966	-	-	-
Mov Cap-2 Maneuver	161	-	-	-	-	-
Stage 1	580	-	-	-	-	-
Stage 2	527	-	-	-	-	-

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






















Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	966	-	161	724	-	-
HCM Lane V/C Ratio	0.089	-	0.052	0.116	-	-
HCM Control Delay (s)	9.1	-	28.6	10.6	-	-
HCM Lane LOS	A	-	D	B	-	-
HCM 95th %tile Q(veh)	0.3	-	0.2	0.4	-	-

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

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project

1: R Street & Loughborough Drive

Cumul (2023) With Proj Ph I+II (Alt II) PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	107	134	37	109	182	88	29	97	591	142	4	51
Future Volume (veh/h)	107	134	37	109	182	88	29	97	591	142	4	51
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0		0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00		1.00
Parking Bus, Adj	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				
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900		1900	1900	1900		1900
Adj Flow Rate, veh/h	116	146	40	118	198	96		105	642	0		55
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		0.92	0.92	0.92		0.92
Percent Heavy Veh, %	0	0	0	0	0	0		0	0	0		0
Cap, veh/h	149	191	52	155	259	219		588	1196			407
Arrive On Green	0.08	0.13	0.13	0.09	0.14	0.14		0.33	0.33	0.00		0.23
Sat Flow, veh/h	1810	1436	393	1810	1900	1610		1810	3610	1610		1810
Grp Volume(v), veh/h	116	0	186	118	198	96		105	642	0		55
Grp Sat Flow(s),veh/h/ln	1810	0	1829	1810	1900	1610		1810	1805	1610		1810
Q Serve(g_s), s	5.0	0.0	7.9	5.1	8.0	2.7		3.3	11.6	0.0		1.9
Cycle Q Clear(g_c), s	5.0	0.0	7.9	5.1	8.0	2.7		3.3	11.6	0.0		1.9
Prop In Lane	1.00		0.22	1.00		1.00		1.00		1.00		1.00
Lane Grp Cap(c), veh/h	149	0	243	155	259	219		588	1196			407
V/C Ratio(X)	0.78	0.00	0.77	0.76	0.76	0.44		0.18	0.54			0.13
Avail Cap(c_a), veh/h	260	0	514	163	432	366		588	1196			407
HCM Platoon Ratio	1.00	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	0.00		1.00
Uniform Delay (d), s/veh	36.0	0.0	33.5	35.8	33.3	11.8		19.3	21.8	0.0		24.8
Incr Delay (d2), s/veh	8.5	0.0	5.0	17.8	4.7	1.4		0.1	1.7	0.0		0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	3.7	3.0	3.9	1.7		1.4	5.0	0.0		0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.5	0.0	38.5	53.6	38.0	13.1		19.5	23.5	0.0		24.9
LnGrp LOS	D	A	D	D	D	B		B	C			C
Approach Vol, veh/h		302			412				747	A		
Approach Delay, s/veh		40.8			36.7				22.9			
Approach LOS		D			D				C			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	22.5	31.0	11.4	15.1	30.5	23.0	11.1	15.4				
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	5.8	26.5	7.2	22.5	13.8	18.5	11.5	18.2				
Max Q Clear Time (g_c+I1), s	3.9	13.6	7.1	9.9	5.3	13.0	7.0	10.0				
Green Ext Time (p_c), s	0.0	3.6	0.0	0.8	0.1	1.6	0.1	0.9				

Intersection Summary

HCM 6th Ctrl Delay	31.7
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.
 Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project
 1: R Street & Loughborough Drive

Cumul (2023) With Proj Ph I+II (Alt II) PM Peak Hour



Movement	SBT	SBR
Lane Configurations	↑↑	
Traffic Volume (veh/h)	407	91
Future Volume (veh/h)	407	91
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1900	1900
Adj Flow Rate, veh/h	442	99
Peak Hour Factor	0.92	0.92
Percent Heavy Veh, %	0	0
Cap, veh/h	679	151
Arrive On Green	0.23	0.23
Sat Flow, veh/h	2935	652
Grp Volume(v), veh/h	271	270
Grp Sat Flow(s),veh/h/ln	1805	1783
Q Serve(g_s), s	10.8	11.0
Cycle Q Clear(g_c), s	10.8	11.0
Prop In Lane		0.37
Lane Grp Cap(c), veh/h	417	412
V/C Ratio(X)	0.65	0.66
Avail Cap(c_a), veh/h	417	412
HCM Platoon Ratio	1.00	1.00
Upstream Filter(l)	1.00	1.00
Uniform Delay (d), s/veh	27.8	27.9
Incr Delay (d2), s/veh	7.6	7.9
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	5.4
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	35.4	35.8
LnGrp LOS	D	D
Approach Vol, veh/h	596	
Approach Delay, s/veh	34.6	
Approach LOS	C	
Timer - Assigned Phs		

Intersection														
Int Delay, s/veh	2.4													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations			↗			↗		↘	↕			↘	↕	
Traffic Vol, veh/h	0	0	131	0	0	110	12	87	748	120	44	66	487	30
Future Vol, veh/h	0	0	131	0	0	110	12	87	748	120	44	66	487	30
Conflicting Peds, #/hr	0	0	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	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	-	None	-	-	-	None
Storage Length	-	-	0	-	-	0	-	35	-	-	-	130	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	142	0	0	120	13	95	813	130	48	72	529	33

Major/Minor	Minor2		Minor1		Major1			Major2						
Conflicting Flow All	-	-	281	-	-	472	562	562	0	0	943	943	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	6.4	4.1	-	-	6.4	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.5	2.2	-	-	2.5	2.2	-	-
Pot Cap-1 Maneuver	0	0	*920	0	0	*803	1031	1256	-	-	786	1013	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-	-	-
Platoon blocked, %			1			1	1	1	-	-	1	1	-	-
Mov Cap-1 Maneuver	-	-	*920	-	-	*803	1195	1195	-	-	846	846	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-

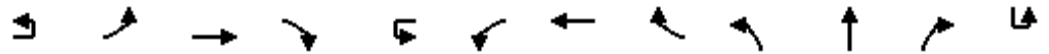
Approach	EB		WB		NB		SB	
HCM Control Delay, s	9.6		10.3		0.9		1.7	
HCM LOS	A		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1195	-	-	920	803	846	-
HCM Lane V/C Ratio	0.09	-	-	0.155	0.149	0.141	-
HCM Control Delay (s)	8.3	-	-	9.6	10.3	10	-
HCM Lane LOS	A	-	-	A	B	A	-
HCM 95th %tile Q(veh)	0.3	-	-	0.5	0.5	0.5	-

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

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project
 3: R Street & Olive Avenue

Cumul (2023) With Proj Ph I+II (Alt II) PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU
Lane Configurations		↔	↑↑↑	↗		↔	↑↑↑	↗	↖	↑↑		
Traffic Volume (veh/h)	22	207	825	199	14	253	895	157	311	599	120	6
Future Volume (veh/h)	22	207	825	199	14	253	895	157	311	599	120	6
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		1900	1900	1900		1900	1900	1900	1900	1900	1900	
Adj Flow Rate, veh/h		216	859	207		264	932	164	324	624	125	
Peak Hour Factor		0.96	0.96	0.96		0.96	0.96	0.96	0.96	0.96	0.96	
Percent Heavy Veh, %		0	0	0		0	0	0	0	0	0	
Cap, veh/h		336	1444	448		274	1264	392	362	741	148	
Arrive On Green		0.19	0.28	0.28		0.05	0.08	0.08	0.20	0.25	0.25	
Sat Flow, veh/h		1810	5187	1610		1810	5187	1610	1810	2998	599	
Grp Volume(v), veh/h		216	859	207		264	932	164	324	375	374	
Grp Sat Flow(s),veh/h/ln		1810	1729	1610		1810	1729	1610	1810	1805	1792	
Q Serve(g_s), s		8.8	11.5	4.8		11.6	14.1	5.6	14.0	15.8	15.9	
Cycle Q Clear(g_c), s		8.8	11.5	4.8		11.6	14.1	5.6	14.0	15.8	15.9	
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.33	
Lane Grp Cap(c), veh/h		336	1444	448		274	1264	392	362	446	443	
V/C Ratio(X)		0.64	0.60	0.46		0.96	0.74	0.42	0.90	0.84	0.84	
Avail Cap(c_a), veh/h		336	1444	448		274	1264	392	362	505	502	
HCM Platoon Ratio		1.00	1.00	1.00		0.33	0.33	0.33	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	
Uniform Delay (d), s/veh		30.1	25.0	7.7		37.8	34.3	16.3	31.2	28.6	28.6	
Incr Delay (d2), s/veh		4.1	1.8	3.4		44.6	3.9	3.3	23.6	11.0	11.3	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		4.1	4.8	3.3		9.0	6.9	3.4	8.2	7.9	7.9	
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		34.2	26.8	11.1		82.4	38.1	19.6	54.8	39.6	39.9	
LnGrp LOS		C	C	B		F	D	B	D	D	D	
Approach Vol, veh/h			1282				1360			1073		
Approach Delay, s/veh			25.5				44.5			44.3		
Approach LOS			C				D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.6	26.8	20.5	16.1	19.4	24.0	12.4	24.3				
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	12.1	18.0	13.4	18.5	10.6	19.5	9.5	22.4				
Max Q Clear Time (g_c+I1), s	13.6	13.5	16.0	9.7	10.8	16.1	8.1	17.9				
Green Ext Time (p_c), s	0.0	2.6	0.0	1.9	0.0	2.1	0.0	1.9				

Intersection Summary

HCM 6th Ctrl Delay	37.2
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project

3: R Street & Olive Avenue

Cumul (2023) With Proj Ph I+II (Alt II) PM Peak Hour



Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (veh/h)	139	370	121
Future Volume (veh/h)	139	370	121
Initial Q (Qb), veh	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00
Work Zone On Approach		No	
Adj Sat Flow, veh/h/ln	1900	1900	1900
Adj Flow Rate, veh/h	145	385	126
Peak Hour Factor	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0
Cap, veh/h	178	525	234
Arrive On Green	0.20	0.29	0.29
Sat Flow, veh/h	1810	3610	1610
Grp Volume(v), veh/h	145	385	126
Grp Sat Flow(s),veh/h/ln	1810	1805	1610
Q Serve(g_s), s	6.1	7.7	5.3
Cycle Q Clear(g_c), s	6.1	7.7	5.3
Prop In Lane	1.00		1.00
Lane Grp Cap(c), veh/h	178	525	234
V/C Ratio(X)	0.82	0.73	0.54
Avail Cap(c_a), veh/h	215	835	372
HCM Platoon Ratio	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.5	27.0	26.1
Incr Delay (d2), s/veh	18.1	2.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	3.0	1.9
Unsig. Movement Delay, s/veh			
LnGrp Delay(d),s/veh	49.5	29.0	28.0
LnGrp LOS	D	C	C
Approach Vol, veh/h		656	
Approach Delay, s/veh		33.3	
Approach LOS		C	
Timer - Assigned Phs			

Intersection												
Int Delay, s/veh	3.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗	↗	↕	↗	↗	↕	↗
Traffic Vol, veh/h	0	0	335	0	0	190	261	853	122	45	715	39
Future Vol, veh/h	0	0	335	0	0	190	261	853	122	45	715	39
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	95	-	70	40	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	349	0	0	198	272	889	127	47	745	41

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	-	-	373	-	-	445	786	0	0	1016	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	0	0	*803	0	0	566	*1205	-	-	691	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %			1			1	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	*803	-	-	566	*1205	-	-	691	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB			SB		
HCM Control Delay, s	12.9		14.7		1.9			0.6		
HCM LOS	B		B							

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	* 1205	-	-	803	566	691	-	-
HCM Lane V/C Ratio	0.226	-	-	0.435	0.35	0.068	-	-
HCM Control Delay (s)	8.9	-	-	12.9	14.7	10.6	-	-
HCM Lane LOS	A	-	-	B	B	B	-	-
HCM 95th %tile Q(veh)	0.9	-	-	2.2	1.6	0.2	-	-

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

Level of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 Intersection 5

Average Delay (sec/veh): 21.2 Worst Case Level Of Service: F[239.5]

Street Name:Mall Driveway 2 - Pepperwood Lane Olive Avenue

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Stop Sign Stop Sign Uncontrolled Uncontrolled

Rights: Include Include Include Include

Lanes: 0 0 1! 0 0 0 0 1! 0 0 1 0 3 0 1 1 0 3 1 0

Volume Module: >> Count Date: 5 Jun 2018 <<

Base Vol: 23 5 102 16 3 92 82 1020 39 59 1193 29

Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Bse: 23 5 102 16 3 92 82 1020 39 59 1193 29

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.94 0.94 0.94 0.94 0.94 0.94 0.94 0.94 0.94 0.94 0.94 0.94

PHF Volume: 25 5 109 17 3 98 88 1090 42 63 1275 31

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

FinalVolume: 25 5 109 17 3 98 88 1090 42 63 1275 31

Critical Gap Module:

Critical Gp: 7.5 6.5 6.9 7.5 6.5 6.9 4.1 xxxx xxxxx 4.1 xxxx xxxxx

FollowUpTim: 3.5 4.0 3.3 3.5 4.0 3.3 2.2 xxxx xxxxx 2.2 xxxx xxxxx

Capacity Module:

Cnflct Vol: 1711 2697 363 1957 2723 334 1306 xxxx xxxxx 1131 xxxx xxxxx

Potent Cap.: 60 22 639 39 21 668 537 xxxx xxxxx 625 xxxx xxxxx

Move Cap.: 35 16 639 20 16 668 537 xxxx xxxxx 625 xxxx xxxxx

Volume/Cap: 0.70 0.33 0.17 0.86 0.20 0.15 0.16 xxxx xxxx 0.10 xxxx xxxx

Level of Service Module:

2Way95thQ: xxxx xxxx xxxxx xxxx xxxx xxxxx 0.6 xxxx xxxxx 0.3 xxxx xxxxx

Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx 13.0 xxxx xxxxx 11.4 xxxx xxxxx

LOS by Move: * * * * * B * * B * *

Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT

Shared Cap.: xxxx 116 xxxxx xxxx 98 xxxxx xxxx xxxx xxxxx xxxx xxxx xxxxx

SharedQueue:xxxxx 8.8 xxxxx xxxxx 8.1 xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx

Shrd ConDel:xxxxx 217 xxxxx xxxxx 240 xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx

Shared LOS: * F * * F * * * * * * * * *

ApproachDel: 217.2 239.5 xxxxxxx xxxxxxx

ApproachLOS: F F * *

Note: Queue reported is the number of cars per lane.

 Level Of Service Detailed Computation Report
 2000 HCM Unsignalized Method
 Base Volume Alternative

 Intersection #1 Intersection 5

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed:	4.00 feet/sec											
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period:	0.25 hour											

Intersection

Int Delay, s/veh 2.9

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↑	↗	↖	↑	↗		↕			↕	
Traffic Vol, veh/h	1	11	350	32	43	339	11	39	1	92	9	1	2
Future Vol, veh/h	1	11	350	32	43	339	11	39	1	92	9	1	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	50	-	50	50	-	50	-	-	-	-	-	-
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	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	1	12	380	35	47	368	12	42	1	100	10	1	2

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	- 380	0	0 415	0 874 880 380 934 903 368
Stage 1	-	-	-	404 406 - 462 462 -
Stage 2	-	-	-	470 474 - 472 441 -
Critical Hdwy	- 4.1	-	4.1	7.1 6.5 6.2 7.1 6.5 6.2
Critical Hdwy Stg 1	-	-	-	6.1 5.5 - 6.1 5.5 -
Critical Hdwy Stg 2	-	-	-	6.1 5.5 - 6.1 5.5 -
Follow-up Hdwy	- 2.2	-	2.2	3.5 4 3.3 3.5 4 3.3
Pot Cap-1 Maneuver	- *1205	-	1155	284 284 671 250 273 *803
Stage 1	-	-	-	627 601 - 679 607 -
Stage 2	-	-	-	669 597 - 576 580 -
Platoon blocked, %	1	-	-	1 1 1 1 1
Mov Cap-1 Maneuver	~ -12 *~ -12	-	1155	273 273 671 205 262 *803
Mov Cap-2 Maneuver	-	-	-	273 273 - 205 262 -
Stage 1	-	-	-	627 601 - 679 582 -
Stage 2	-	-	-	639 572 - 489 580 -

Approach	EB	WB	NB	SB
HCM Control Delay, s		0.9	16.2	20.9
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	465	+	-	-	1155	-	-	239
HCM Lane V/C Ratio	0.309	-	-	-	0.04	-	-	0.055
HCM Control Delay (s)	16.2	-	-	-	8.2	-	-	20.9
HCM Lane LOS	C	-	-	-	A	-	-	C
HCM 95th %tile Q(veh)	1.3	-	-	-	0.1	-	-	0.2

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

Level of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Intersection 7

Average Delay (sec/veh): 1.6 Worst Case Level Of Service: B[13.6]

Street Name: Mall Driveway 4 - Applewood Lane Olive Avenue

Table with columns for Approach (North Bound, South Bound, East Bound, West Bound) and Movement (L, T, R). Rows include Control (Stop Sign, Uncontrolled), Rights (Include), and Lanes (0, 0, 0, 0, 1).

Volume Module: Table with columns for Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, and Final Volume. Rows include various volume and adjustment factors.

Critical Gap Module: Table with columns for Critical Gp and FollowUpTim. Rows include gap values and follow-up times.

Capacity Module: Table with columns for Cnflct Vol, Potent Cap., Move Cap., and Volume/Cap. Rows include capacity and volume-to-capacity ratios.

Level of Service Module: Table with columns for 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., Shared Queue, Shrd ConDel, Shared LOS, ApproachDel, and ApproachLOS. Rows include level of service and delay values.

Note: Queue reported is the number of cars per lane.

 Level Of Service Detailed Computation Report
 2000 HCM Unsignalized Method
 Base Volume Alternative

 Intersection #2 Intersection 7

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed:	4.00 feet/sec											
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period:	0.25 hour											

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project
 8: M Street & Loughborough Drive/Collins Drive

Cumul (2023) With Proj Ph I+II (Alt II) PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	251	33	207	46	85	116	1	145	524	17	28	493	158
Future Volume (veh/h)	251	33	207	46	85	116	1	145	524	17	28	493	158
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00	1.00		1.00
Parking Bus, Adj	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	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900		1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	273	36	225	50	92	126		158	570	18	30	536	172
Peak Hour Factor	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, %	0	0	0	0	0	0		0	0	0	0	0	0
Cap, veh/h	314	323	273	288	113	154		492	1005	32	484	673	215
Arrive On Green	0.17	0.17	0.17	0.16	0.16	0.16		0.20	0.28	0.28	0.16	0.25	0.25
Sat Flow, veh/h	1810	1900	1610	1810	726	995		1810	3572	113	1810	2690	860
Grp Volume(v), veh/h	273	36	225	50	0	218		158	288	300	30	359	349
Grp Sat Flow(s),veh/h/ln	1810	1900	1610	1810	0	1721		1810	1805	1880	1810	1805	1745
Q Serve(g_s), s	11.7	1.3	10.8	1.9	0.0	9.8		0.0	10.9	10.9	0.0	14.9	15.0
Cycle Q Clear(g_c), s	11.7	1.3	10.8	1.9	0.0	9.8		0.0	10.9	10.9	0.0	14.9	15.0
Prop In Lane	1.00		1.00	1.00		0.58		1.00		0.06	1.00		0.49
Lane Grp Cap(c), veh/h	314	323	273	288	0	267		492	508	529	484	451	436
V/C Ratio(X)	0.87	0.11	0.82	0.17	0.00	0.82		0.32	0.57	0.57	0.06	0.80	0.80
Avail Cap(c_a), veh/h	362	656	556	288	0	387		492	508	529	484	451	436
HCM Platoon Ratio	1.00	1.00	1.00	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	32.2	28.1	32.1	29.1	0.0	32.7		25.1	24.6	24.6	21.6	28.1	28.1
Incr Delay (d2), s/veh	17.8	0.2	6.2	0.3	0.0	8.6		0.4	4.5	4.4	0.1	13.5	14.3
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	16.5	0.6	4.5	0.8	0.0	4.6		2.4	5.1	5.3	0.4	7.9	7.7
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	50.0	28.3	38.2	29.4	0.0	41.3		25.5	29.1	29.0	21.7	41.6	42.4
LnGrp LOS	D	C	D	C	A	D		C	C	C	C	D	D
Approach Vol, veh/h		534			268				746			738	
Approach Delay, s/veh		43.6			39.1				28.3			41.2	
Approach LOS		D			D				C			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	17.7	27.0	17.2	18.1	20.2	24.5	18.4	16.9					
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	5.5	22.5	6.4	27.6	8.0	20.0	16.0	18.0					
Max Q Clear Time (g_c+1/2), s	12.9	12.9	3.9	12.8	2.0	17.0	13.7	11.8					
Green Ext Time (p_c), s	0.0	2.5	0.0	0.8	0.2	1.3	0.2	0.6					

Intersection Summary

HCM 6th Ctrl Delay	37.3
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗		↕↔			↕↕↕	
Traffic Vol, veh/h	0	0	146	0	0	45	0	680	37	0	813	71
Future Vol, veh/h	0	0	146	0	0	45	0	680	37	0	813	71
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	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	159	0	0	49	0	739	40	0	884	77

Major/Minor	Minor2		Minor1		Major1		Major2	
Conflicting Flow All	-	-	481	-	-	390	-	0
Stage 1	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.1	-	-	6.9	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.9	-	-	3.3	-	-
Pot Cap-1 Maneuver	0	0	*746	0	0	614	0	-
Stage 1	0	0	-	0	0	-	0	-
Stage 2	0	0	-	0	0	-	0	-
Platoon blocked, %			1					
Mov Cap-1 Maneuver	-	-	*746	-	-	614	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-

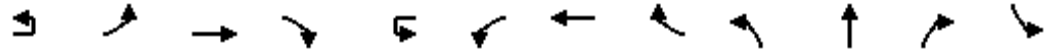
Approach	EB		WB		NB		SB	
HCM Control Delay, s	11.1		11.4		0		0	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBT	NBR	EBLn1WBLn1	SBT	SBR
Capacity (veh/h)	-	-	746	614	-
HCM Lane V/C Ratio	-	-	0.213	0.08	-
HCM Control Delay (s)	-	-	11.1	11.4	-
HCM Lane LOS	-	-	B	B	-
HCM 95th %tile Q(veh)	-	-	0.8	0.3	-

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

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project
 10: M Street & Olive Avenue

Cumul (2023) With Proj Ph I+II (Alt II) PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		↔	↑↑↑	↗		↔	↑↑↑		↖	↑↑		↘
Traffic Volume (veh/h)	33	106	813	148	31	145	871	62	334	517	125	314
Future Volume (veh/h)	33	106	813	148	31	145	871	62	334	517	125	314
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	1.00
Parking Bus, Adj		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		
Adj Sat Flow, veh/h/ln		1900	1900	1900		1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h		112	856	156		153	917	65	352	544	132	331
Peak Hour Factor		0.95	0.95	0.95		0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %		0	0	0		0	0	0	0	0	0	0
Cap, veh/h		144	1180	366		226	1348	95	375	660	160	351
Arrive On Green		0.03	0.08	0.08		0.12	0.27	0.27	0.21	0.23	0.23	0.19
Sat Flow, veh/h		1810	5187	1610		1810	4945	350	1810	2883	697	1810
Grp Volume(v), veh/h		112	856	156		153	641	341	352	340	336	331
Grp Sat Flow(s),veh/h/ln		1810	1729	1610		1810	1729	1837	1810	1805	1775	1810
Q Serve(g_s), s		4.9	12.9	7.4		6.5	13.2	13.3	15.3	14.3	14.4	14.4
Cycle Q Clear(g_c), s		4.9	12.9	7.4		6.5	13.2	13.3	15.3	14.3	14.4	14.4
Prop In Lane		1.00		1.00		1.00		0.19	1.00		0.39	1.00
Lane Grp Cap(c), veh/h		144	1180	366		226	943	501	375	414	407	351
V/C Ratio(X)		0.78	0.73	0.43		0.68	0.68	0.68	0.94	0.82	0.83	0.94
Avail Cap(c_a), veh/h		170	1180	366		226	943	501	375	431	424	351
HCM Platoon Ratio		0.33	0.33	0.33		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
Uniform Delay (d), s/veh		38.3	34.6	32.0		33.5	26.0	26.0	31.2	29.3	29.3	31.8
Incr Delay (d2), s/veh		17.5	3.9	3.6		7.9	3.9	7.3	30.9	11.7	12.3	33.8
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
%ile BackOfQ(50%),veh/ln		2.9	6.3	3.4		3.3	5.7	6.6	9.6	7.3	7.3	9.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		55.7	38.5	35.6		41.4	29.9	33.3	62.1	41.0	41.7	65.6
LnGrp LOS		E	D	D		D	C	C	E	D	D	E
Approach Vol, veh/h			1124				1135			1028		
Approach Delay, s/veh			39.8				32.5			48.4		
Approach LOS			D				C			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.5	22.7	21.1	21.7	10.9	26.3	20.0	22.8				
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	9.2	18.2	16.6	18.0	7.5	19.9	15.5	19.1				
Max Q Clear Time (g_c+I1), s	8.5	14.9	17.3	16.6	6.9	15.3	16.4	16.4				
Green Ext Time (p_c), s	0.0	1.9	0.0	0.6	0.0	2.5	0.0	1.1				

Intersection Summary

HCM 6th Ctrl Delay	43.3
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary Merced Mall Expansion and Redevelopment Project
 10: M Street & Olive Avenue

Cumul (2023) With Proj Ph I+II (Alt II) PM Peak Hour



Movement	SBT	SBR
Lane Configurations	↑↑	
Traffic Volume (veh/h)	542	103
Future Volume (veh/h)	542	103
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1900	1900
Adj Flow Rate, veh/h	571	108
Peak Hour Factor	0.95	0.95
Percent Heavy Veh, %	0	0
Cap, veh/h	653	123
Arrive On Green	0.22	0.22
Sat Flow, veh/h	3031	572
Grp Volume(v), veh/h	339	340
Grp Sat Flow(s),veh/h/ln	1805	1797
Q Serve(g_s), s	14.5	14.6
Cycle Q Clear(g_c), s	14.5	14.6
Prop In Lane		0.32
Lane Grp Cap(c), veh/h	389	387
V/C Ratio(X)	0.87	0.88
Avail Cap(c_a), veh/h	406	404
HCM Platoon Ratio	1.00	1.00
Upstream Filter(l)	1.00	1.00
Uniform Delay (d), s/veh	30.3	30.4
Incr Delay (d2), s/veh	18.0	18.6
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.0	8.1
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	48.3	49.0
LnGrp LOS	D	D
Approach Vol, veh/h	1010	
Approach Delay, s/veh	54.2	
Approach LOS	D	
Timer - Assigned Phs		

Intersection						
Int Delay, s/veh	1.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖	↕↕	↕↕	↗
Traffic Vol, veh/h	14	189	107	959	779	54
Future Vol, veh/h	14	189	107	959	779	54
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	75	70	-	-	285
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	15	205	116	1042	847	59

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1600	424	906	0	-	0
Stage 1	847	-	-	-	-	-
Stage 2	753	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	*170	*763	1135	-	-	-
Stage 1	*720	-	-	-	-	-
Stage 2	*431	-	-	-	-	-
Platoon blocked, %	1	1	1	-	-	-
Mov Cap-1 Maneuver	*152	*763	1135	-	-	-
Mov Cap-2 Maneuver	*152	-	-	-	-	-
Stage 1	*646	-	-	-	-	-
Stage 2	*431	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.8	0.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1135	-	152	763	-	-
HCM Lane V/C Ratio	0.102	-	0.1	0.269	-	-
HCM Control Delay (s)	8.5	-	31.3	11.4	-	-
HCM Lane LOS	A	-	D	B	-	-
HCM 95th %tile Q(veh)	0.3	-	0.3	1.1	-	-

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